



Emilka Markowska

Urban woods

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Open neighbourhood in Rotterdam

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Acknowledgments

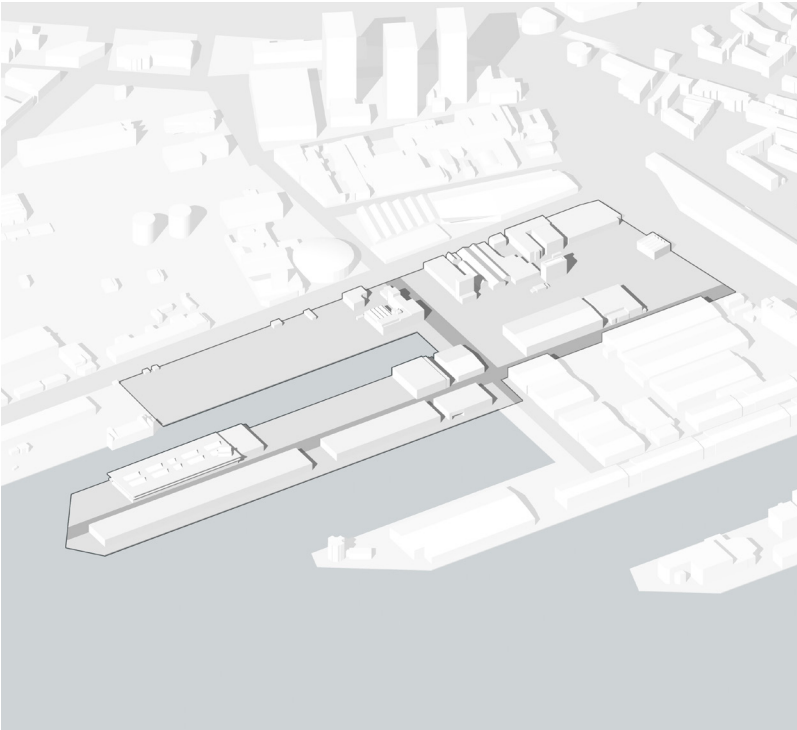
I would like to thank all whose support helped me in getting through this most challenging year in my academic life.

Many thanks to my tutors, Theo Kupers, Ferry Adema and Pierijn van der Putt for their advices, professional input and for challenging me during the last year of my Master at TU Delft.

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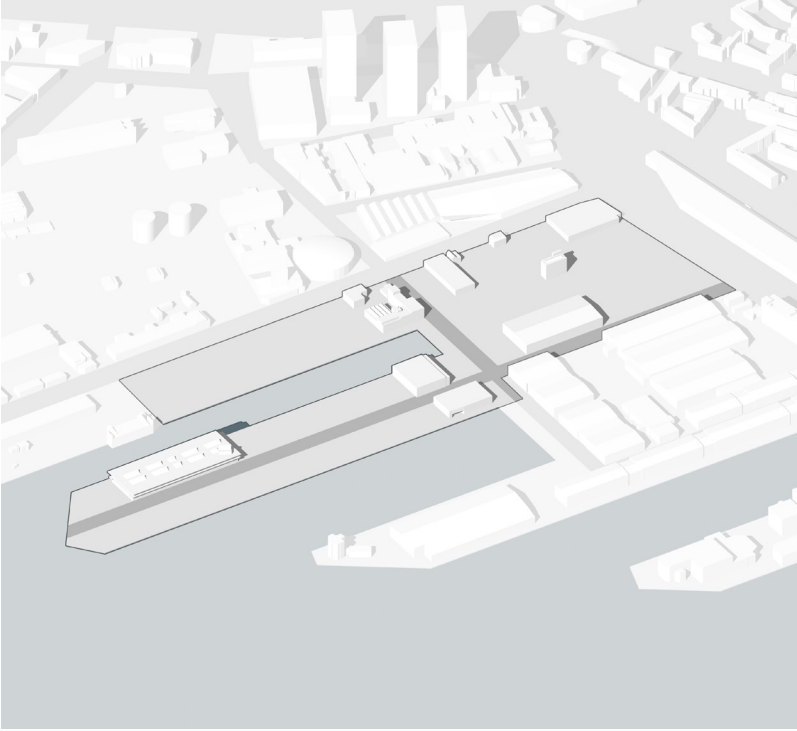
1.1.
Keilekwartier in
M4H currently.

Keilekwartier in M4H, Rotterdam

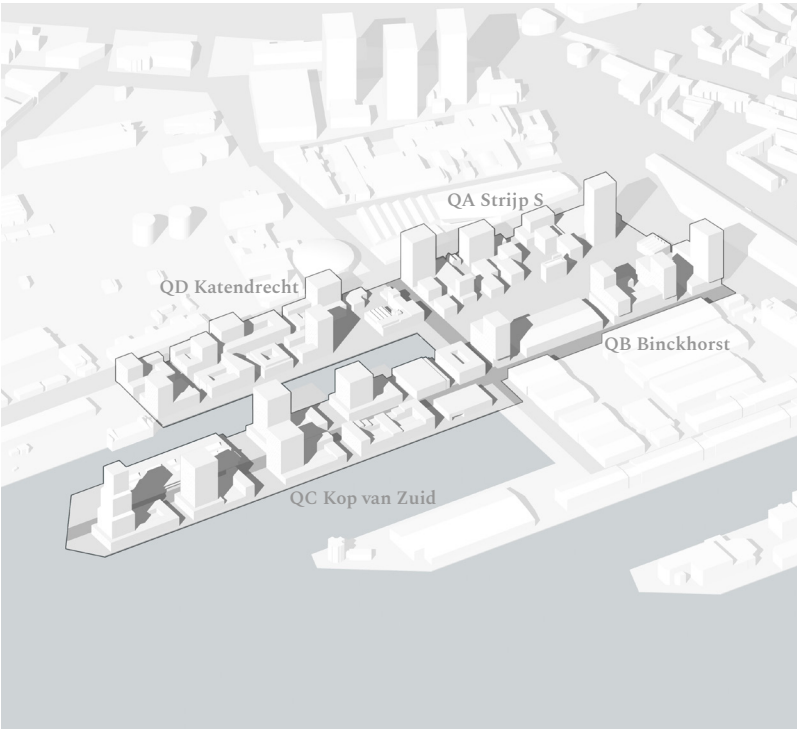
Merwe-Viehavens currently houses flourishing port companies. It has a complex surface, outdated real estate and infrastructure that is not suitable for pedestrians or cyclists. It means that the district has to be transformed and repurposed, mixing living and working. According to the municipality of Rotterdam, the plan for M4H is to transform it into the neighborhood from which surrounding districts will benefit more. The ambition of this project is to turn it into a lively live-work environment with an emphasis on participation processes and organic growth.

As a studio of Advanced Housing Design, our task was to firstly prepare a masterplan for part of M4H - the new Keilekwartier. The vision had to be based on the future-proof, experimental and live-work oriented character. As a group of 16 students we were divided into 4 subgroups, each one focusing on a different quarter of M4H. Each of the quadrants had a task to design their area based on existing masterplan designs: Quadrant A - Strijp S in Eindhoven, Quadrant B - Binckhorst in the Hague, Quadrant C - Kop van Zuid in Rotterdam and Quadrant D - Katendrecht in Rotterdam. All these urban transformations created an overall vision for the future of Keilekwartier. We created a set of principles concerning the historic buildings and open spaces, existing roads and infrastructure, connection with the water and the city and types of living and working spaces.

After setting the masterplan site-specific principles, typologies of 4 existing neighborhoods mentioned before were transferred to the new Keilekwartier, with respect for existing warehouses that were decided to be kept intact. Typology transfer was a starting point in elaborating plot sizes, densities, as well as shapes, character and heights of the new buildings. It also provided a reference for building and dwelling typologies (see map below). The model shown above is an interpretation of the urban plan that was created. However, it should not be treated as a strict design reference. Specific intentions of the new masterplan are described in a set of regulations for the Keilekwartier. Considering that the vision for M4H is focused on organic and experimental approach, the new urban plan should be a starting point and basic toolbox for further architectural interpretations.



1.2. Keilekwartier-kept monuments.



1.3. Keilekwartier in M4H- urban plan based on 4 existing districts.

1.4.
QA Strijp S



1.5.
QB Binckhorst



1.6.
QC Kop van Zuid



1.7.
QD Katendrecht





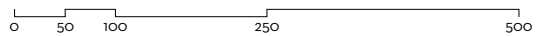
1.8.
Urban plan -
quadrants division





1.9.
Urban plan - his-
toric objects

- monument buildings
- iconic buildings
- green open space





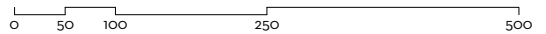
1.10.
Urban plan - commercial plinth





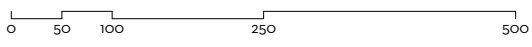
1.11.
Urban plan - cir-
culation

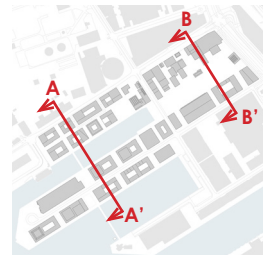
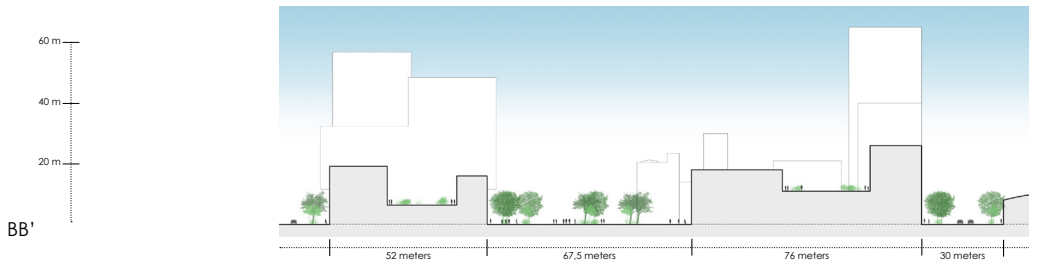
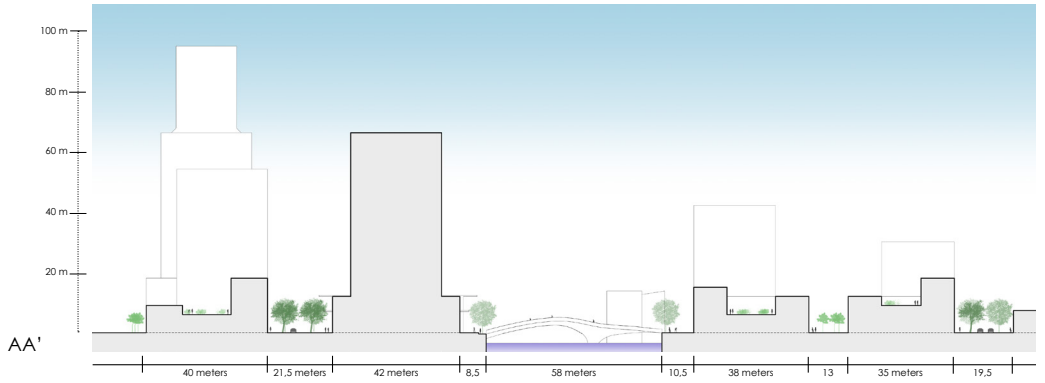
- vehicular routes
- bicycle routes
- pedestrian routes



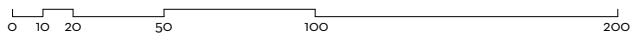


1.12. Urban plan - map of regulations





1.13. Urban plan - sections



Abstract

This research concerns the topic of modern households with a focus on a specific target group: foreign knowledge workers in Rotterdam. By concentrating on a very diverse target group, this paper relates to the general phenomenon of diversity within urban populations.

The main problem that applies to the housing market in the Netherlands is its actual shortage. When it comes to expats, their number in the Netherlands is gradually increasing, but it is still relatively low in comparison to other western European countries. The problems that apply to foreign knowledge workers are mainly related to social exclusion and lack of cultural integration. These issues are brought together in this research in order to find answers, how can the built environment provide attractive environment for a diverse population.

Methods used in this research are based on literature analysis, as well as a questionnaire and interviews with expats in Rotterdam. The key arguments are that foreign knowledge workers are a group that wants to be more culturally integrated and aspires to create stronger community relations. Hence, this research concludes that appropriate housing conditions for foreign knowledge workers are those, which provide a sense of belonging, equality and collectiveness.

Introduction

Architecture is a discipline that concerns people's everyday lives. According to the U.S. Environmental Protection Agency, an average person spends around 93% of their time indoors (Indoor Air Division et al., 1989). This issue makes architects and planners responsible for the quality of living and working spaces. Awareness of this responsibility led to my choice of the graduation studio of Advanced Housing Design, with an aim to design a residential building in Merwe-Vierhavens, i.e. M4H, in Rotterdam.

Problem Statement

One of the problems that the Netherlands is currently facing is housing shortage. Dutch Minister of Foreign Affairs Kajsa Ollongren suggested a need of a million new homes by the year 2030. Another research by de Nederlandsche Bank estimates the growth of the number of households by 640.000 until 2030. It also states that the demand for housing in large cities is bigger than in the rest of the country (Hekwolter et al., 2017, p. 26). Good study and work opportunities are inviting factors, especially for young people, to migrate to four major Dutch cities. Located on the former harbor area, M4H has a potential to create attractive housing opportunities. Unlike Amsterdam or Utrecht, where vast parts of the cities are under the protection of the heritage conservator, Rotterdam has a bigger capacity for urban densification. However, according to Statistics Netherlands (CBS) housing satisfaction in Rotterdam is 10% lower than in the Netherlands as a whole. Thus, one of the research problems is lack of attractive housing on Rotterdam's market. Therefore as an urban transformation initiative, M4H strives to provide a future-proof live-work environment that attracts future residents and young companies to settle by the harbor of Rotterdam.

Rotterdam is worldwide known for its diversity in many fields, but mainly its population and architecture. In fact, people of Dutch origin (people born in the Netherlands, whose parents were also born in the Netherlands) were a minority in the city already in 2017, constituting 49.7% of the city's population. Currently, this number is even lower and equals 47.7% (AlleCijfers). It is predicted that native Dutch will constitute only 40% of Rotterdam's population by 2030. It follows that Rotterdam is a truly diverse city, where heterogeneity constitutes a core of the city's identity (Scholten et al., 2019, p. 1, 57). In fact, such huge diversity, described by Scholten et al. as superdiversity, leads to partial disappearance of majorities and/or minorities, as the city is too diverse to

find a clear boundary between them. The complexity of Rotterdam's diversity can be a cause of social exclusion and urban segregation, often discussed by sociologists. Hence, these problems will be further discussed in my research.

Given the topic of diversity, a target group for the residential building in M4H will support the research, narrowing it down to specific user needs. Considering the experimental character of the M4H district and its live-work-oriented character, as well as the Dutch government's aim to attract foreign highly-skilled immigrants, I chose expats as a starting point for my further investigation. I believe that their general readiness for change, as well as overall openness for new experiences and career-oriented lifestyle go hand in hand with the expectations of the municipality of Rotterdam for M4H as a knowledge investment. However, the number of foreign knowledge workers in the Netherlands is still low in comparison with other European countries. This problem leads to a further investigation on conditions which are considered attractive for expats.

Since highly-skilled immigrants are mostly career-oriented, the problem of contemporary housing in relation to working patterns needs to be addressed too. Although the work-home architecture has existed for hundreds of years (Holliss, 2015, p. 38), the model of the contemporary live-work dwelling still remains an architectural challenge. Additionally, technological advancement of the last decades led to the emergence of wholly new career paths, allowing people to work more flexibly. Recent outbreak of Covid-19 pandemic got global attention to the issue of working from home and generated wide interest in dwelling adaptation. However, it is not only the notion of home-based work that should be considered, but also the differences of needs between individual household users. The solutions for single-person dwellings in terms of work-home adaptation are admittedly different than for the family household. Especially in the case of expats, problems such as unemployed spouses and/or children must be taken into account, while considering a suitable dwelling design.

Additionally, technological advancement of the last decades led to the emergence of wholly new career paths, allowing people to work more flexibly. Recent outbreak of Covid-19 pandemic got global attention to the issue of working from home and generated wide interest in dwelling adaptation. However, it is not only the notion of home-based work that should be considered, but also the differences of needs between individual household users. The solutions for single-person dwellings in terms of work-home adaptation are admittedly different than for the family household. Especially in the case of expats, problems such as unemployed spouses and/or children must be taken into account, while considering a suitable dwelling design.

Research questions

This research aims to investigate the problems stated in the previous paragraphs in order to answer the research hypothesis: the possibility of creating an integrated community composed of a diverse group of people. I believe that new urban patterns defined by the global diversity in the cities have a chance to result in strong community relationships. New urban communities, although not culturally homogeneous anymore, share similar live-work patterns and common interests. Based on the problems stated above, following research questions are defined to support the research hypothesis:

- What makes an urban neighborhood inclusive?
- What is a desirable live-work environment for a diverse group of dwellers?
- What constitutes attractive housing conditions in dense urban surroundings?

Given the theme of community as an integral theme of the design research, further research questions need to be defined.

- When does a group become a community?
- How to create a neighbor-friendly housing community without interfering with people's privacy?

My research on foreign highly-skilled immigrants will start with the history of Dutch migration policies, as well as the importance of expats in the country's economy. Further, I will introduce the community of expats in Rotterdam and the reasons they choose this city as an attractive destination. Moreover, expat-related topics such as cosmopolitanism and mobile lifestyle will be discussed as an argument that not all the generic stereotypes can be easily applied when analyzing the needs of individuals. General features of highly-skilled immigrants will contribute to answering the target group related question:

- Do lifestyle patterns of expats differ from the ones of Dutch people?

The topic of urban segregation and social exclusion will lead to the question:

- How to create an open community that consists of both international and local inhabitants?

Source analysis and methodology

Questions related to the target group of expats will be mainly supported by statistical data and the research of sociologists from Erasmus University Rotterdam, i. a. prof. dr. Godfried Engbersen and dr. Marianne van Bochove. However, there is a clear knowledge gap in any of their sociological analyses, namely the architectural perspective. Existing scientific data lacks a definition of suitable housing for international knowledge workers. Therefore my research will be complemented by a questionnaire that included 33 expatriates and 4 interviews that will give a better view on the needs of expat individuals. The questionnaire was created by one of the platforms supported by TU Delft, which allows the respondents to remain completely anonymous during the process. The main aim of the survey was to define current life situations of individual expats, by knowing general background information of the respondents, e.g country of origin, age, marital status in relation to the friend's circle, willingness to extend their stay in the Netherlands and general satisfaction from their housing situation in the Netherlands. The questionnaire offers a more in depth analysis of individuals in opposition to rough statistical numeric data given by scientists. Next to the questionnaire, I conducted interviews with 5 expatriates of different backgrounds and family situations. The method I used was a semi-structured interview, allowing the interviewee to share as much of their story, as they can tell. The aim of these interviews was to get inspiration and information about the needs of expats regarding spatial and architectural aspects of their dwellings. The choice of interviewees was motivated by providing a maximum variety and contrast in lifestyle patterns. Therefore the respondents belong to various groups, such as: singles, couples, parents. Although my interviewees are only expats, I believe that the features they have and the problems they face can as well describe not only international, but also Dutch young professionals. Aside from conversing with expatriates, I also interviewed an account manager of Rotterdam Expat Center, who gave me insights on their contribution in the well-being and community building activities for highly-skilled immigrants in Rotterdam.

Next to the interviews and sociological articles on expats, I studied literature to gain insights and knowledge about expats, collective living, as well as the phenomenon of superdiversity in Rotterdam. The book *Coming to Terms with Superdiversity: The Case of Rotterdam* edited by Peter Scholten, Maurice Crul and Paul van de Laar is a source that relates to the themes of immigration in Rotterdam. It is divided into three parts. Each one consists of multiple research conducted by different scientists on various themes, such as the history of immigration, the diversity of Rotterdam and social exclusion. The topic of inclusiveness in the urban neighborhood will be discussed by analyzing the ideas and positions of Richard Sennett. *Building and Dwelling: Ethics for*

the City gives inspiration about an open city and collectiveness in the urban realm. Coming from a city scale to the neighborhood, Advanced Housing Design Studio research *Collectiveness in housing* under the supervision of Pierijn van der Putt was a source of many discussions and ideas. It helped my understanding in creating an integrated neighborhood that provides the dwellers a sense of identity and belonging. To further define the differences between the scale of the neighborhood and a size of a community, the analysis of Robin Dunbar's and Richard Sosis' research in *Optimising human community sizes* will be the main point of reference.

Relevance

The main question of the graduation studio of Advanced Housing Design is "how do we provide high-quality, affordable housing for a diverse population?" It relates to the notion of diversity and globalization which imply a further reflection on the conditions and needs of foreigners that settle to live and work in the Netherlands. Although much sociological research has been done to define the problems that affect immigrants in the Netherlands, the topic still lacks architectural perspective. Especially in the case of foreign knowledge workers, their financial situation often implies no need for special attention. However, it can not be forgotten that the cultural shock, the struggles of relocation and lack of social integration can have a great impact on their experience.

According to Statistics Netherlands, the share of goods export of highly-skilled immigrants is 50% higher than in the case of the Dutch knowledge workers (Groot et al., 2013, p. 8). Their presence on the international scene also provides a knowledge environment based on exchange. However, currently the number of expats in the Netherlands is still low in comparison to other European countries (van Zeijl et al., 2020, p. 11). For this reason the Netherlands aims to invite more highly-skilled immigrants in order to further improve its global economic position. Hence, the housing market should create attractive conditions for the newcomers.

Currently finding a suitable apartment is a national problem, not only in case of foreigners. However, internationals face more difficulties due to their lack of language skills and knowledge about the culture. Their dynamic lifestyle also requires additional attention, when it comes to the living and working patterns. According to the Rotterdam Expat Center and Decisio, there is still not enough research that has been done in order to draw appropriate conclusions. Hence, the aim of this paper is to complement the existing data in order to formulate a design hypothesis that will lead to further design research on housing for expats in Rotterdam.

Topic research

History of migration in Rotterdam

The history of immigration in Rotterdam is strongly related to the growth of its harbor. The city's superdiversity defined by Scholten et al. (2019) is broader described in the second chapter of their book written by van de Laar and der Schoor. There, the authors explain the nature of immigration starting from the seventeenth century, when newly arrived citizens were mostly merchants and traders, but also artists, writers and educators, who contributed to the urban spirit of the city. In the case of Rotterdam, migration was relevant for the demographic development. Already four centuries ago, 20% of people getting married in Rotterdam were registered as foreign. In 1850-1900, more than 40% of the citizens were immigrants. It was the time when migration was still dominated by the labor market structure from the pre-industrial era. However, around 1900 only 2% of people living in Rotterdam were foreigners. The situation changed during the First and Second World War, when Rotterdam provided shelter to tens of thousands of immigrants on a temporary basis. After the city suffered from the events of the war, it needed to be rebuilt with a new emphasis on expanding its industries. Therefore, new immigrants were needed to work as longshoremen, shipbuilders, industrial workers etc. The jobs were well-paid and beneficial for foreigners, initially attracting mainly guest workers from the Mediterranean countries.

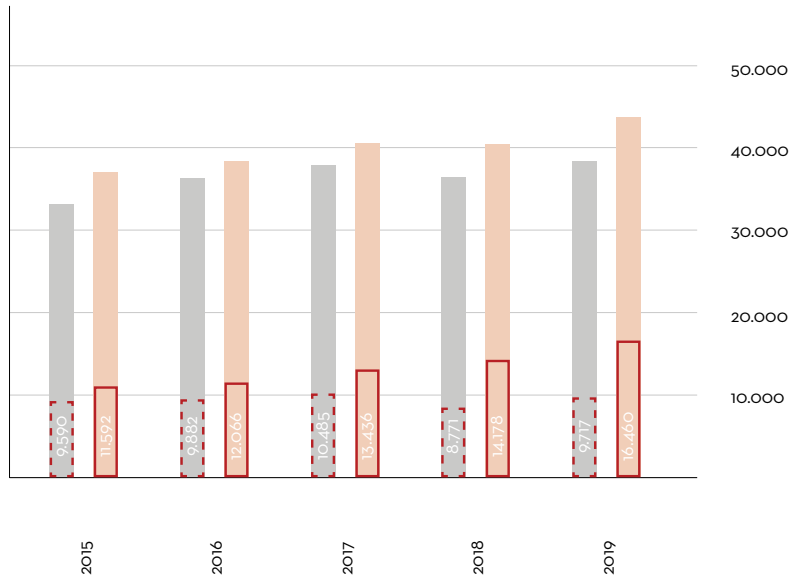
The growth of foreign population in Rotterdam led to defining a first Dutch policy for immigrants integration initiated by the municipality of Rotterdam in 1978: *Nota Migranten* in Rotterdam - a memo on integration of the immigrants. It was the first document that put a spotlight on migration that at the time was still considered as a temporary phenomenon (Scholten et al., 2019, p. 112; van Meeteren et al., 2013, p. 115-116). Indeed, the amount of immigrants in Rotterdam grows every year. According to Statistics Netherlands, in 2015 31% of all arrivals in the city was due to immigration, whereas in 2019 the number constituted already 38% (Fig. 1). It goes without saying that Rotterdam is a city that attracts newcomers. But how many of them are currently international workers?

According to the Dutch economic research consultancy Decisio, there were 59.550 international workers in the Rotterdam region in 2017, which comprised 9% of the city's population. Among these foreigners, 16.200 (27% of all international workers and 2,5% of Rotterdam's population) are knowledge workers, i.e. highly-skilled immigrants, commonly called expats. But who are



2.1a.
Rotterdam departures and arrivals.

■ departures
■ arrivals



2.1b.
Rotterdam departures and arrivals due to migration reasons.

▤ departure due to emigration
▭ arrival due to immigration

they? As Ooijevaar and Verkooijen (2015) admit, the definition of an expat is ambiguous. Etymologically, it derives from Latin: *ex* (out) + *patria* (native country). However, currently this word is used so widely that practically everyone who relocates from the country of origin is called an expat. Therefore, to be specific about the topic of my research, I chose to focus on expats as international knowledge workers, described by the Dutch government as follows:

International knowledge workers are individuals from private households, who belong to the labor force, who were born in a country other than where they reside, and who have a high level of education. (van Zeijl et al., 2020, p. 6)

International knowledge workers in Rotterdam

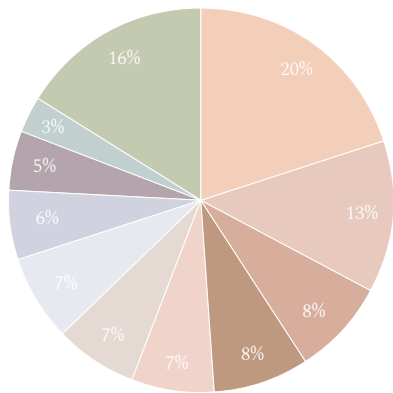
In October 2004 the Dutch rules of admission for highly-skilled migrants got relaxed, allowing for an easier entrance of the highly qualified labor groups to the Netherlands. It is a result of the Dutch government's aim to attract more international knowledge workers, as they contribute to the country's global economy and research. The government considers expats as highly-skilled based on their income. It has to be at least 51.239€ gross for people older than 30. Under 30 years of age, expat's minimal income must be not less than 37.575€. Having fulfilled these conditions, foreign knowledge workers have a better chance to get a permanent residence in the Netherlands. The length of the permit depends on their work contract. In case of a limited contract duration, they get a residence permit for as long as the contract is defined. In case of an unlimited contract, the permit is granted for 5 years, after which they can apply for a permanent residence permit (van Meeteren et al., 2013, p. 120-121). They also get a 30% tax ruling, which makes it more attractive for them to choose the Netherlands as a career destination. However, the amount of international knowledge workers on the Dutch labor market is still relatively low in comparison to other European countries. In 2016/2018, it was only 4,2% of the labor force. Moreover, the amount of expats both in the Netherlands and specifically Rotterdam has declined over the last years. Nevertheless, the Netherlands stands out when it comes to the amount of self-employed expats, namely 20% of them (van Zeijl et al., 2020, p. 11-12). For this reason, the Netherlands could be considered as a country for growth as entrepreneurs and independent professionals.

Although Amsterdam still remains the main destination for international knowledge workers, Rotterdam attracts expats by its innovative character and the presence of international trade companies. In fact, two of my interviewees - a couple from Poland living in Amsterdam, is currently looking for an apartment to buy in Rotterdam.

We have a feeling that Amsterdam is not a city for us in the end. First of all, we miss the urban atmosphere here. Besides, the city is supposedly so innovative and welcoming for young start-ups and so on, but in reality you actually don't see that. And when it comes to Rotterdam, it really is an innovative city with big career prospects. (Maria and Bartek from Poland)

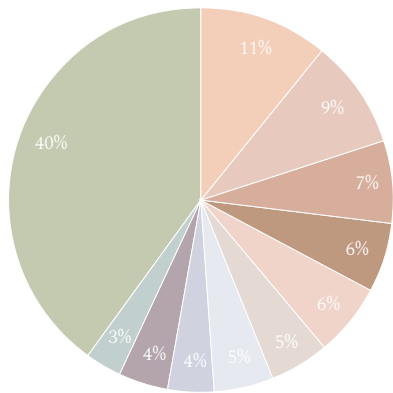
What are these jobs that Rotterdam has to offer for expats? According to Decisio (2019), the majority of highly-skilled immigrants occupy positions in business services and wholesale and trade brokerage (Fig. 2.2). They are also more likely to work in international companies, where the share of exports of goods is higher than in case of the Dutch knowledge workers (Groot et al., 2013, 192). When it comes to the origins of expats, most of them come from Germany, Belgium and UK (Fig. 2.3).

According to Decisio (2017), in 2015 most of the highly-skilled immigrants in Rotterdam were at the age between 35 and 45 (Fig. 2.4). 46% of expats in Rotterdam had a family with at least one child. The dominant family model is two children families (Fig. 2.5). However, there is no up-to-date number of expat households divided by the precise types. Therefore, my research relies on the data from 2011 collected by CBS for the whole country (Fig. 2.6a and 6b). It shows that around one third of the international knowledge workers lived in one-person households at that time. Moreover, Expat Rotterdam Center confirmed in my interview that there are still many single expats moving to Rotterdam. Since changing the country of stay and facing a whole new culture can be challenging, next paragraphs will discuss the process and issues expats face while moving to the Netherlands.



- Business services excl. employment agencies and secondment
- Wholesale and trade brokerage
- Employment agencies and secondment
- Transport and logistics
- Education
- Healthcare
- ICT telecom and communication
- Industry metal electronics
- Build
- Financial services
- Other

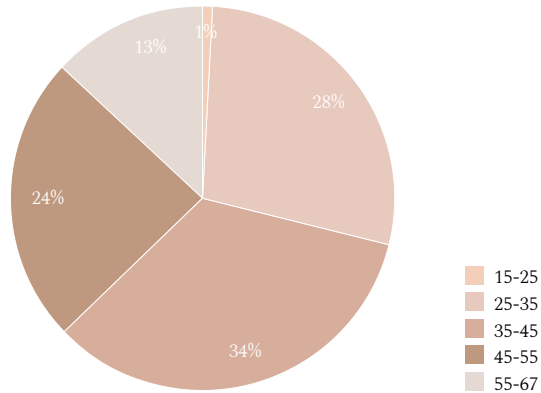
2.2. Professions of highly-skilled knowledge workers in Rotterdam (Decisio, 2019)



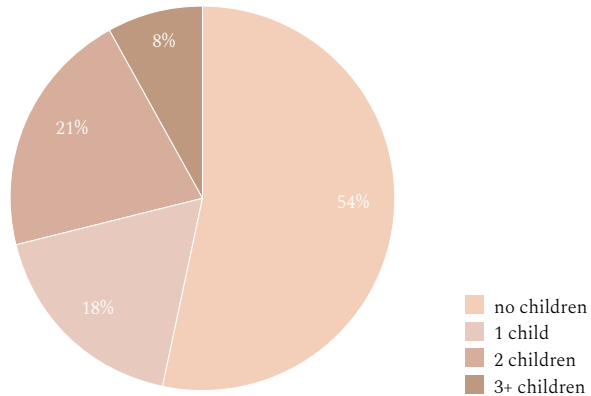
- German
- Belgian
- British
- Polish
- Turkish
- Italian
- Spanish
- French
- Portuguese
- Chinese
- Other

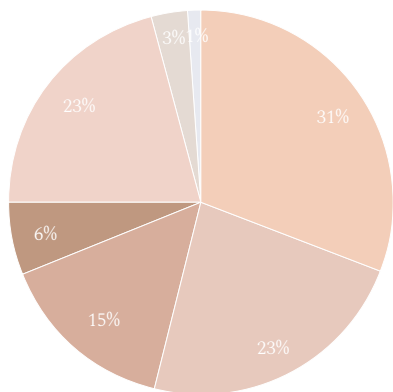
2.3. Origins of highly-skilled knowledge workers in Rotterdam (Decisio, 2019)

2.4.
Age of highly-skilled knowledge workers in Rotterdam (Decisio, 2017)



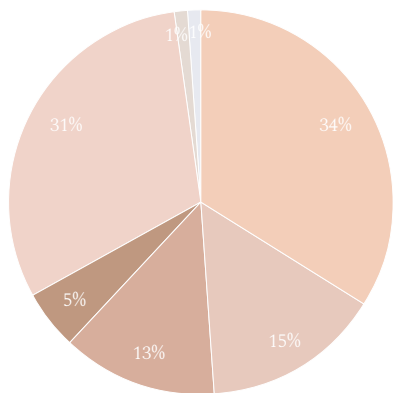
2.5.
Families of highly-skilled knowledge workers in Rotterdam (Decisio, 2017)





- One-person household
- Not married couple without children
- Married couple without children
- Not married couple with children
- Married couple with children
- Single parent household
- Other

2.6a.
Rotterdam
expats - women
households (CBS,
2013).



- One-person household
- Not married couple without children
- Married couple without children
- Not married couple with children
- Married couple with children
- Single parent household
- Other

2.6b.
Rotterdam expats
- men households
(CBS, 2013)

Integration in the Netherlands

International knowledge workers face a very dynamic phase while leaving the country of origin and entering a new one. Adjusting to the unknown is challenging and might be overwhelming, despite the overall excitement about the upcoming adventure. Finding a suitable housing or school in case of families demands effort, especially for international people who do not speak the local language. Cieri et al. (1991) mention two psychological strategies that may occur in case of expatriation: withdrawal and reaction. While the mere process of changing places is time and energy-consuming, the actual adjustments to the new environment occur after relocation. The authors distinguish four phases of expat's experience in the new country. First one is the "honeymoon" phase, meaning exaggerated positivity about the new environment. The time period of each individual phase is not documented. However, the "honeymoon" phase is followed by the stage "the party is over." This phase is the opposite of the previous one, meaning unrealistic negativity of the experience. After that, the "turning point" comes, which forecasts the overall adjustment to the local culture. The last phase is therefore called "healthy recovery", meaning acceptance of the new environment and circumstances.

Integration within the new culture concerns not only the knowledge worker, but in case of bringing a partner and/or children - the family needs special attention too. Having interviewed two expatriate spouses, I realized that for them the process of relocation is even more difficult than for their partners. They often start their new life being unemployed and not having many opportunities to meet people other than partner's friends. When a child comes into play, additional problems with schooling and adjusting to the new environment appear on the scene. However, another of my interviewees mentioned that he and his partner chose Rotterdam thanks to the good international school their son went to. Moreover, such institutions like Expat Rotterdam Center aim to help international knowledge workers and their spouses to get accustomed with the new reality.

If you are an expat and bring a spouse, we take care of them. The reason is that if the spouse isn't happy, the expat isn't happy either. We want expats to feel happy as they come here. (Laura Salm, Expat Rotterdam Center)

What makes expats happy then? Or in other words: how to make them feel like they belong in their new world? Van Bakel et al. (2016) studied the relationship between expats and their local hosts. The study included 33 Dutch "local hosts" and 65 expatriates, whose answers were later analyzed and concluded in the research. The findings of this study prove that high-quality contact between the expatriates and their local host gives expats more benefits than

the low-quality contact. Some of the benefits mentioned are adjustment to interaction and open-mindedness. Moreover, the authors mention that leaving existing social networks and watching them fade away, together with stressors from new working environments increase expat's need for social support. Since the locals usually already have their friend's circles established, it is more difficult for expats to form friendship bonds with them. As a result, they seek for other sources of support, which are their co-nationals or other expats. Several studies, i.e. by Engbersen and van Bochove (2015), as well as my questionnaire among expats, confirm this issue. 52% of my respondents did not mention local people in their friend's circle. However, 88% of them answered that they would like to improve their contact with the locals. The segregation of expats from their hosts is a problem often summarized by the term of an "expat bubble".

Expat bubble

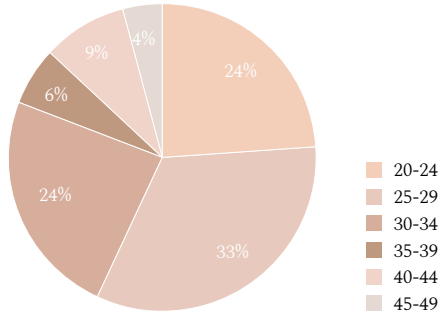
There is a common belief that foreign knowledge workers enjoy staying in their own social circles and do not feel the need for integration within the host culture by means of e.g. learning the language. Engbersen and van Bochove (2015) researched these issues in multiple papers, proving with their findings that usually it is not the intention of an expat to stay away from the local culture, but a matter of circumstances.

Overall I am enjoying the Netherlands, I'm learning Dutch but do find it really hard to make friends here. The Netherlands has been ranked as the hardest place to make new friends and the Corona situation has made it even more difficult. (Gareth from UK)

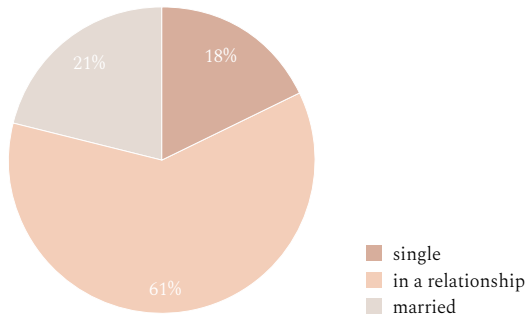
I asked 33 expatriates in Rotterdam to answer an anonymous questionnaire that consisted of direct and open questions. The respondents were people of 20 different nationalities, including 15 outside of Europe. Three of them were male and the rest female. The age varied between 22 and 48 years old (Fig. 2.7). Six people were single and the rest in a relationship or married (Fig. 8). Three of the respondents have children. Out of the single respondents, one moved to the Netherlands with the partner. Out of the respondents who currently are in a relationship, thirteen found a partner while living abroad (comparison between Fig. 2.8 and Fig. 2.9).

64% of the respondents declared that they do not feel integrated in Rotterdam, among which only a quarter speak the Dutch language on at least communicative level (Fig. 2.10). 42% of the respondents do not have a permanent group of friends here and 52% does not include locals in their friend's circle (Fig. 2.11).

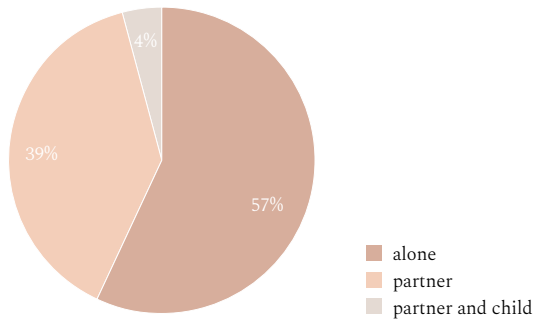
2.7.
Respondents
answers to the
question: what is
your age?

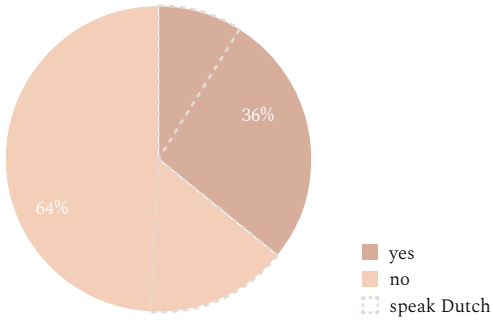


2.8.
Respondents
answers to the
question: what
is your marital
status?

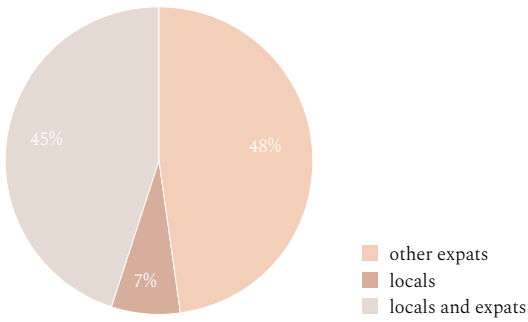


2.9.
Respondents
answers to the
question: who did
you migrate with?





2.10. Respondents answers to the question: do you feel integrated in the Netherlands?



2.11. Respondents answers to the question: what is your friend's circle?

However, as mentioned in the previous section, 88% of them would like to improve their relationship with the locals. It is remarkable that only one third of the respondents want to return to their homeland some day.

The analysis of this data leads to a conclusion that it is not the intention of an expatriate to separate from the local culture and people. There are many boundaries between the hosts and the foreigners, amongst which the language barrier is definitely the most evident one. Contrary to common beliefs, highly-skilled immigrants in the Netherlands put an effort in learning Dutch. However, it takes years to master the language to the level of maintaining a comfortable conversation on an informal level. Especially considering that Dutch people are known for good English skills. Rotterdam offers places such as Taalcafes, where expats can practice their language with tandem partners. Laura Salm from Rotterdam Expat Center mentioned also other initiatives, such as “Walking and talking”, where local volunteers meet with expats to walk around the city and practice the language. Another place is a Venture Cafe, where Dutch and international entrepreneurs meet during a weekly networking event.

However, the presence of initiatives for expats and the number of communities created especially for them does not necessarily contribute to their better feeling of belonging. Based on my interviews and studies conducted by van Bochove and Engbersen (2015), most expatriates are concerned about not being treated as equals in the socio-cultural sphere.

You have expat communities, expat jobs, expat meeting places, expat schools, even expat mortgage! Sometimes we feel like they treat us like some sort of a special care group... (Maria and Bartek from Poland)

Most of the events created for expats are held in English (except for the language-oriented events). The communities for expat support also attract only internationals, which is a natural start of creating friendships between foreigners, without the locals included. Hence, the segregation of highly-skilled immigrants from the local culture is a problem that induces further investigation on the urban level.

Cosmopolitanism and mobility

Due to the choice of living abroad and leaving their culture of origin, highly-skilled immigrants are often associated with the notion of cosmopolitanism. Van Bochove and Engbersen (2015) argue that despite the common representation of expats, their actual image should be reconsidered. Their study involved 75 expatriates from Rotterdam, providing data on expats self-identification. They argue that although foreign knowledge workers change the place of stay by choice, their reasoning is mostly professional - to expand their career horizons. That does not go in line with the concept of cosmopolitanism, which is rather associated with cultural curiosity and the need to travel as part of personal interests. Van Bochove and Engbersen prefer to rather call expats an “organization (wo)man”, since their lifestyle is mainly job-oriented. They tackle the issue of cosmopolitanism in relation to the identity of highly-skilled immigrants. They mention that “although everyone has multiple identities, migrants in particular need to deal with - sometimes contradictory - answers to the question *Who am I?*” (van Bochove & Engbersen, 2015, p. 5). Nearly half of their respondents described themselves as “home-country nationals” and just 21% as cosmopolitans. The authors argue that a strong attachment of expats to their country of origin is rather contradictory to the common belief of expats living “boundless lives.” Furthermore, they mention the issue of extending the stay in the Netherlands and the reasons that speak for and against that. Lack of social integration discussed in a previous section is one of the main reasons for foreign knowledge workers not to stay longer.

However, relying both on the data from van Bochove and Engbersen, as well as my own interviews, it is clear that the image of expats as strictly mobile individuals has changed over the last years. One third of the expatriates studied by van Bochove and Engbersen never lived abroad before moving to the Netherlands and another third lived in just one other country. Half of my questionnaire respondents have lived in the Netherlands for more than two years (Fig. 2.12).

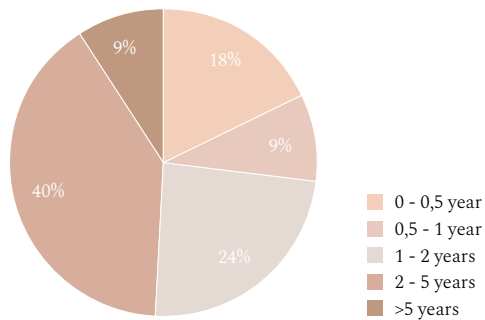
Laura Salm from Rotterdam Expat Center, who deals with highly-skilled immigrants in Rotterdam directly, describes the current dynamics of expat community as follows:

Expat community is really changing. In the past they were coming just for their projects - months, year or two and then they were coming back, also their spouses wanted to come back. But now you can see more and more eager entrepreneurs that want to start their careers in the Netherlands, bringing their spouses and in some cases children. They come with a long term mindset. They really want to stay five years to get the Dutch permanent residence permit. It's

also visible in international schools. Instead of choosing them, some expats go for local schools, which is also tricky, because not all of the schools want them.

Hence, current lifestyle patterns of expats are much different than the word “expatriate” suggests. The choices of their destinations should not be considered as short term anymore. This fact leads to the further analysis of the residential choices of foreign knowledge workers and their needs in terms of housing.

2.12.
How long have
you lived in the
Netherlands?



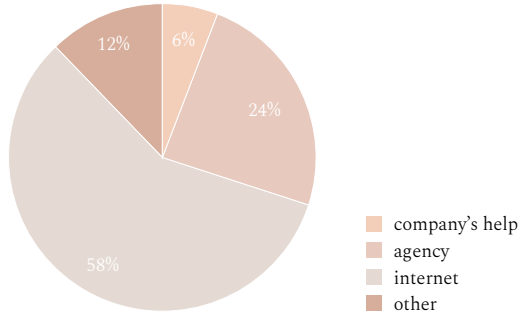
Attractive housing conditions

Finding a home in the Netherlands is a challenge not only for the foreigners, due to the housing shortage. However, in case of internationals, the issue of finding the right accommodation is even more difficult, since the language barrier comes into play. One of my interviewees - Daniela shared her story about the rejections and deceptions she and her boyfriend experienced while searching for a suitable apartment in Rotterdam. Her story is one example among many that are widely publicized on many social media platforms. The issue of not being able to find a right place is common in the case of expats. Although sometimes the company offers support to relocate, that does not always happen. Only two of my questionnaire respondents received help from their employer in the search for housing. Vast majority of 58% relied on the internet and 24% on rental agencies (Fig. 2.13). Two out of five expats that I interviewed experienced scamming from the rental agencies that they hired. My survey data shows that 36% of respondents are not happy with their current living situation (Fig. 2.14). Analyzing individual respondents, their happiness does not depend on the size of the household. Moreover, the schemes of the households are also diverse (Fig. 6a, Fig. 6b) and in case of roughly one third of these expatriates their housing conditions are an obstacle in social interaction (Fig. 2.15).

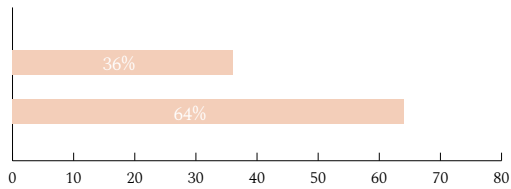
Based on the research conducted by Beckers and Boschmann (2019), “foreign highly skilled workers are clearly urbanites, choosing residential locations in central locations with good accessibility and in proximity to jobs” (Beckers and Boschmann, 2019, p. 768). They prefer dense areas that offer high numbers of urban amenities, such as restaurants, museums or theatres. In the case of families, the quality and proximity of schools plays a big role too. Although usually highly-skilled foreigners have a higher income, they still choose high quality, but affordable housing.

Currently there is no scientific data on dwelling types suitable for expats. Hence, my findings (Fig. 16) are based on individual interviews and the data collected by my fellow student Mihaela Tomova, who made a survey amongst expat families in Rotterdam. Generally, housing preferences differ between the groups of singles, couples and families. Although some single expatriates are open to ideas such as co-living, there are others who value their privacy too much to find themselves comfortable in such living conditions. When it comes to couples, they are generally open for collective housing schemes, sharing some common spaces with the other neighbors. The idea of creating a stronger bond between neighbors might also contribute to solving the problem of expats’ social exclusion. Mihaela’s questionnaire on specifics towards housing typologies preferred by expatriates shows that mostly singles

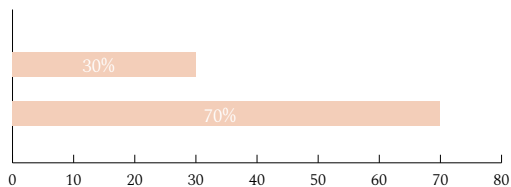
2.13.
Respondents answers to the question: how did you find your apartment?



2.14.
Respondents answers to the question: are you happy with your living situation?



2.15.
Respondents answers to the question: are your housing conditions an obstacle in meeting other people?



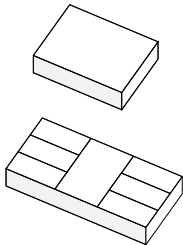


Singles
ca. 33%

home-based
office-based

work-oriented
cultural activities
meeting friends
having visitors
hobbies

1-2 bedrooms
office room

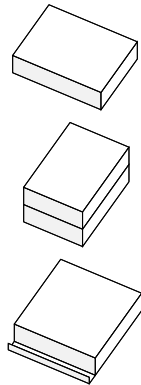


Couples
ca. 31%

home-based
office-based
(un)employed spouse

work/home-oriented
cultural activities
meeting friends
having visitors
hobbies

2-3 bedrooms
office room

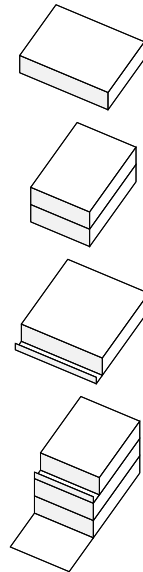


Young families
ca. 46%

home-based
office-based
(un)employed spouse
school for children

work/home-oriented
cultural activities
meeting other families
having visitors
childcare

2-4 bedrooms
office room



2.16.
Features of
highly-skilled
immigrants.

working
pattern

lifestyle
pattern

dwelling

suitable
housing
typology

common
spaces



and couples choose apartments in the urban settings, while families opt for row house typologies, either within or outside the city. In the case of children, there is a strong need for safety of the neighborhood, as well as providing appropriate recreational spaces.

When it comes to the size of dwellings, families need at least three bedrooms, depending on the size of the household. Singles prefer to have two bedrooms, one for the guests and one for themselves. Couples have similar needs. Additionally to the mere dwelling needs, some expatriates connect their work life with the housing scheme. Especially IT professionals, such as two of my interviewees (Gareth from UK and Bartek from Poland), need a separate work room within their housing units. Current global pandemic has also proven that the structure of modern households needs rethinking in consideration of a rising trend of working from home.

Live-work culture

The topic of live-work suits foreign knowledge workers for three reasons. Firstly, roughly two thirds of expats are either young couples at the age of planning children or couples that already have kids. Since work from home is in favor of raising children by giving them more attention, it is the issue that should be considered in planning their future households. Secondly, many expats move to the Netherlands with their spouses, who do not necessarily have a job, like their partners do. Staying at home might be frustrating without having any additional occupation. Hence, providing work spaces for them would improve their overall productivity and personal development. Lastly, although expats move to the Netherlands due to their jobs, some of them are still home-based workers. Especially now, with the outbreak of global pandemic, the concept of the household needs rethinking to suit the inevitable future increase in home-office phenomenon.

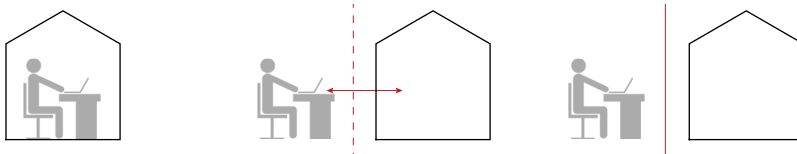
Francis Holliss (2015) gives a wide overview on the history and examples of home-based workspaces. Starting from the medieval times, through the industrial era, she draws the long and dynamic history of workhome culture. Her in depth analysis starts to be more suitable for the current idea of the live-work environment in chapter two, where she explains how the term “live-work” appeared on the scene in the twentieth century New York. Although initially the movement concerned a group of artists settling in vacant buildings that they turned into affordable living and working spaces, loft typology remained until today. As did the concept of workhome.

Holliss distinguishes eight types of home-based workers. The ones that suit

highly-skilled immigrants are: professional and managerial, 24/7 artists and start-up. The first group includes a wide range of professions, therefore it needs to be further narrowed down. To specify it better in terms of expatriates' needs, this home-based work type, as Holliss notices, must be adjusted to the type of profession they do. To simplify it, the author mentions jobs that require constant interactions with clients and the opposite ones - the ones that demand solitaire work in a private setting. The second group of 24/7 artists is especially interesting in the case of expat spouses. Although naturally not all of them belong to the creative industry, the amount of time they spend at home coincides with the lifestyle of artists. Lastly, the start-up group fits foreign knowledge workers, who decide to work in the Netherlands independently. As I mentioned in the second section "International knowledge workers in Rotterdam," the Netherlands is a European leader with the amount of self-employed foreign knowledge workers. Hence, the career-oriented nature of expatriates must go in pair with the spatial organization of their households.

There are three design strategies of live-work spaces that Holliss pays attention to (Fig. 17). The "live-with" concerns a total junction of the dwelling and work space. It is the most common type, where home and work are accessible through the same front door and traditional dwelling spaces are arranged into workplaces. The second one, "live-adjacent," divides home from work, but leaving them situated door to door. Finally, the "live-nearby" strategy concerns a total spatial division of the dwelling and a workspace, keeping the small distance between the two.

Since expatriates are diverse in both the aspect of their lifestyles and working patterns, the ideal live-work environment would be a flexible one. Considering that they often struggle with lack of social interaction, the concept of common working spaces within their residential building is a reasonable solution. A considerable design approach would be a combination of all the three strategies that Francis Holliss suggested in her book. Merging workspaces of different individuals into several collective spaces for the use of neighbors would provide a sense of inclusiveness and create stronger social neighborly bonds. It would contribute to people's interactions with one another and therefore - creating a place, where strangers become a neighborhood.



2.17.
Design strategies
for live-work
spaces. From the
left: live with,
live-adjacent
and live-nearby
(Holliss, 2015)

Inclusive urban neighborhood

Richard Sennett (2018) extensively illustrates the evolution and dynamics of the relationships between the city and its people. To start with, he describes the concept of a city as “two different things - one a physical place, the other a mentality compiled from perceptions, behaviors and beliefs” (Sennett, 2018, p. 1). He uses French words *cit * and *ville* to describe these two dimensions of the city. *Ville* relates to the city in its physical form. *Cit * refers to the ways people experience the place, the life in the neighborhood and the feelings of people towards neighbors and strangers around them. Sennett argues that the relationship between these two realms got lost. One of the issues that he relates to is the common uniformity and anonymity of the inhabitants. “In mid-eighteenth-century Paris or London a stranger felt no hesitation in coming up to you in the street, interrogating you and gripping your arm (man to man) to hold your attention” (Sennett, 2018, p. 27). The industrial era brought consequences of standardization, also when it comes to the way people look and behave towards each other. Sennett compares black and homogenous pictures of the nineteenth century’s streets with the colorful image of the eighteenth century. At the time, people were easy to read. Their professions and societal hierarchy was obvious, but on the other hand, the social interactions were less restrained. With the era of standardization, it became more difficult to read people. As a result, the picture of the *cit * became less clear. Currently, approaching a stranger and starting a conversation is not something casual and could be often misinterpreted. Also, the relationship between space and place, often discussed by architects and planners, is not uniform. Built environment, i.e. *ville* does not necessarily answer the needs of the *cit *. One of the notions that Sennett mentions is the issue of mobility that became dominant in the cities. He brings up the Haussmannian transformation of Paris as an example of the city that “privileged space over place” (Sennett, 2018, p. 35). Expansions of the cities and their infrastructural networks increased the speed in which people are able to receive and comprehend incentives from the outside.

However, it is not only the relationship with friends and acquaintances that builds social networks, but also interactions with the strangers. Maffini and Maraschin (2018, p. 3) in their research on urban segregation state:

When individuals of different social groups can see one another, even if they do not directly interact, they can develop empathy for each other, which is an important step in fighting social inequality.

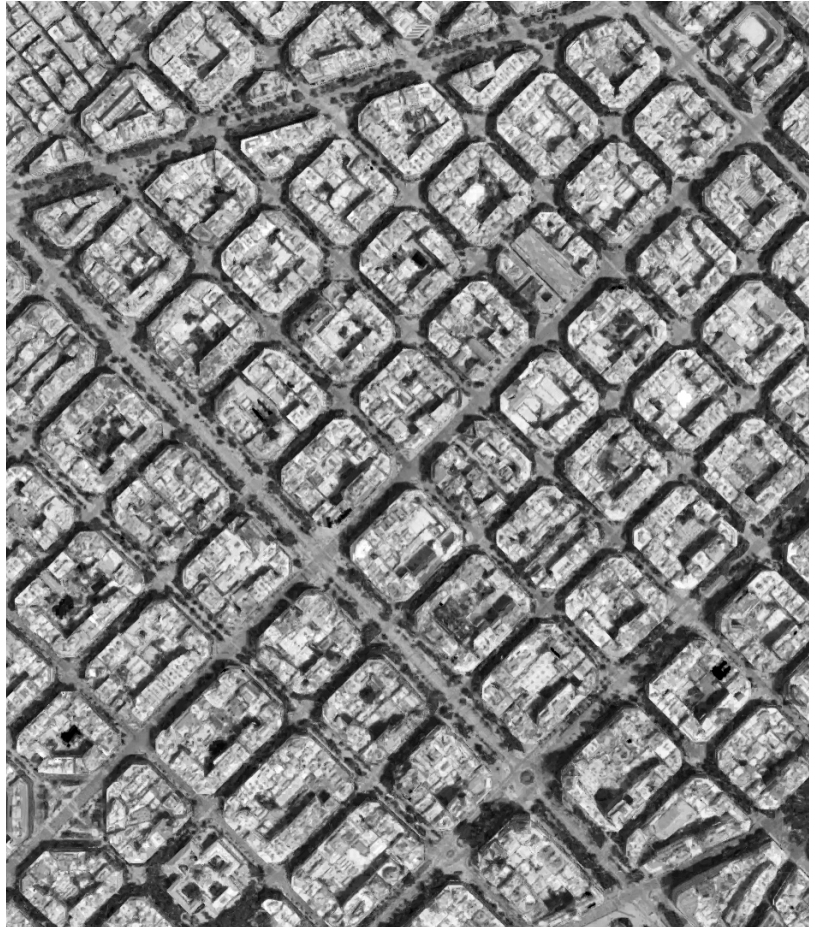
I believe that the way future-proof urban neighborhoods are designed, should solve current issues of segregation and anonymity within the cities. Especially

in the case of foreign knowledge workers and immigrants as a whole, integration, inclusiveness and equality should be inseparable design themes. I discussed these notions with my interviewees to answer my personal question, if the neighborly bonds and increased social interaction is what expats actually want. They confirmed my hypothesis. Especially in the cases of expat spouses it is crucial to provide such spaces for them to inhabit. But surprisingly, even Maria and Bartek from Poland, who clearly described themselves as rather individuals, said:

We are somewhat victims of our times. It shouldn't be like this, that you completely don't know your neighbors.

Sennett gives three examples of worldwide known urban transformations: Haussmannian Paris, Cerdian Barcelona and Olmsted's New York. The intentions of the planners were different, as well as the results, which differed from the intentions. Barcelona intervention became especially inspirational for me. Cerdá's goal was to provide equality by creating affordable housing for different social classes. He based his plan on a grid "as a space of equality and sociability" (Sennet, 2018, p. 42). Although the sliced edges of the buildings were supposed to support motorized traffic on the streets, they resulted in creating spaces of people's gatherings, which function as such until today. Cerdá's plan was admirable in a way that he really tried to solve the problems between the *cit * and *ville*. However, repetitive and additive blocks led to the emergence of monoculture. The problems of one block affected the others. Also the way people appropriated already small courtyards made these spaces cluttered and dark.

Nevertheless, Cerd 's intentions resulted in creating in-between spaces connecting the street and the public street, which in the end contributed to people's interactions. Since collective housing is a theme that applies to the case of foreign knowledge workers, next paragraphs will discuss its relevance given the issue of the urban segregation that affects expats in the Netherlands.



2.18.
Barcelona's urban
plan.

Collective housing as a solution for urban segregation

As I explained in the previous sections, highly-skilled immigrants are a group that often faces integration issues, as well as very dynamic starting phases of accommodating in a new country. The concept of expat communities supported by Dutch expat centers is one solution to the struggles foreign newcomers face while settling in the Netherlands. However, it requires time and organization, as the events are held in various places within the city. But what if the place of living was a source that provides a sense of belonging and integration for expats?

The idea of housing for collectiveness interested me since I started researching it under the graduation studio research program. As a whole studio of sixteen students, we analyzed six buildings located mainly in Rotterdam, where we looked for so called “instances of collectiveness.” Our analysis was based on methods of visual ethnography and observation of residents’ behaviors through several visits to the sites. During the research it became clear to me that the sense of collectiveness plays a great role in the way people inhabit spaces and what they feel about it. As it turned out during my research, it is also a very important factor in creating the identity of the neighborhood. Some of the buildings analyzed by other students within my studio did not provide much social interaction and openness towards mutual neighborly relations. The building I analysed however, the Peperklip, happened to be a great example of social housing that works well as a social condenser. People that I encountered were clearly happy about living there and did not avoid contact with any individuals, even strangers like me. I started asking myself: how did it happen that this neighborhood gained such a strong identity and integration among the residents?

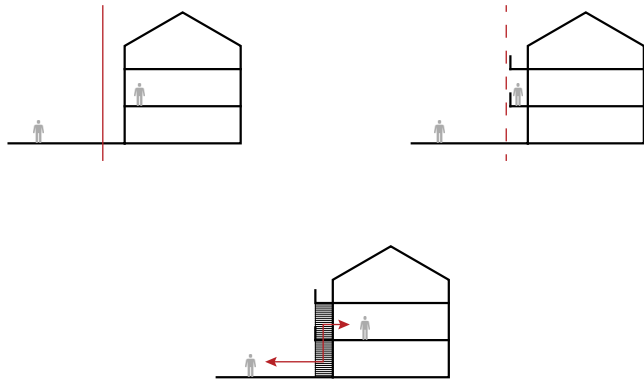
The answers came during many discussions and reading inspiring literature, in this case Herman Hertzberger. I started being aware that the way residents feel about the space is not always shaped by the means of architectural forms, but also the elements that the architect left free for people’s individual appropriation. Front gardens, loggias, balconies, even public courtyards are places where human touch can be easily noticed. The way people claim their space expresses their identity and thus, the identity of the collective neighborhood. The notion of in-between spaces (Fig. 18) has a strong relation with the levels of privacy. Neighborhoods can provide spaces, where residents feel completely, partly or not at all separated from the public realm around their building (Fig. 19). The transition between public and private spaces goes hand in hand with the accessibility. Connection with the street is a defining factor in creating in-between collective spaces for residents’ use. As Hertzberger (1991, p. 14) said:

An open area, room or space may be conceived either as a more or less private place or as a public area, depending on the degree of accessibility, the form of supervision, who uses it, who takes care of it, and their respective responsibilities.

Spaces of encounters of individual residents are especially relevant when designing for the collective. Particularly in the case of expats, the value of privacy must be taken in consideration. Hence, it is important to define the optimal size of the residential neighborhood and its individual communities that provide social interaction between the dwellers, without interfering with their privacy.

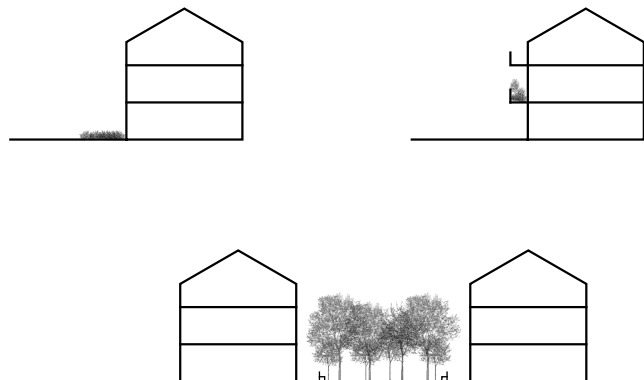
2.19.

In-between spaces appropriated by the residents: front garden: loggia/balcony, courtyard.



2.20.

Connection with the street: private - separated, semi-private - partly separated, public - the street continues into the dwelling.

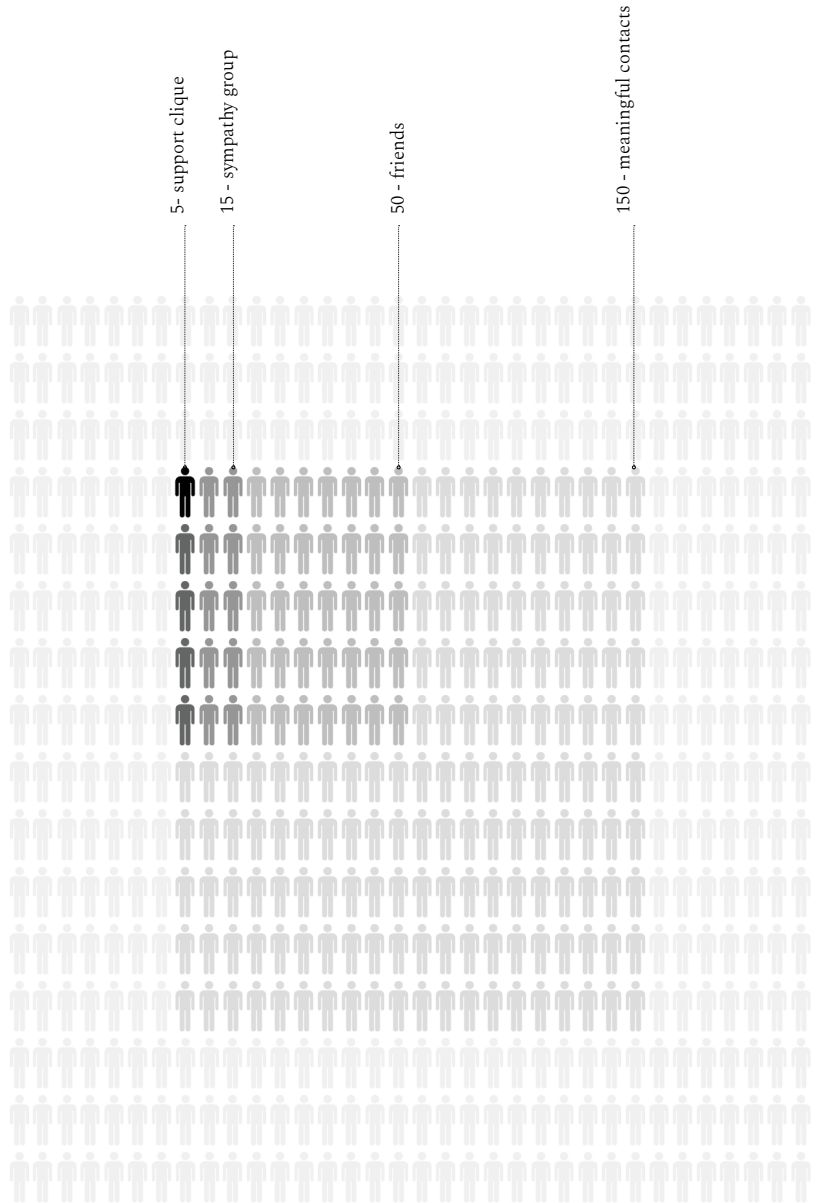


From the neighborhood to community

During his discussion on the lost relationship between the *cit * and *ville*, Sennett (2018) brings up the name of Ferdinand T nnies and his distinction between *Gemeinschaft* (community) and *Gesellschaft* (society). While *Gesellschaft* relates to formal arrangements, T nnies associates *Gemeinschaft* with neighborliness and friendly relationships with the people that are not part of one's family. Thus, the community of neighbors maintained by face-to-face encounters. But how large should such a community be to provide optimal levels of intimacy?

Robin Dunbar conducted multiple research on human group sizes and their relationship with cognitive abilities. One of his recent analyses (Dunbar & Sosis, 2017) relies on the investigation of three very different communities, the relationships of their members and the duration of existence. The results show that ~500 is a critical number of acquaintances that would already require a top-down organization in order to maintain a well-functioning structure. However, for all of these three analyzed communities, the size of ~150 turned out to be the threshold in maintaining community's cohesion. It also confirmed multiple previous research of Dunbar, which always gave the same number as an optimal one for maintaining a well-functioning community. Consequently, if 150 people is the estimated amount to create a community, what are the functions of smaller groups? Hill & Dunbar (2003) define the group of 5 as "support cliques" and 15 as "sympathy groups." 35-50 is the optimal friend's circle. Their results are shown in Fig. 2.21.

Since Dunbar's research is based on a strictly anthropological and mathematical point of view, I compared it with the experience of Kathryn McCamant and Charles Durrett - architects and founders of The Cohousing Company. McCamant & Durrett (2011) define the optimal size of a cohousing community between 15 and 34 households. They also emphasize that the amount of adults should not exceed 50. Although my research does not concern cohousing, the studies of McCamant and Durrett are still a good foundation and a reference point to estimate mutual relations between the residents of the neighborhood. Moreover, the comparison of the findings of Dunbar and McCamant and Durrett shows that they are similar in estimating the optimal size of the community. Hence, they will serve as a toolbox for further design investigations.



2.21.
Interpretation
of the Dunbar's
number: commu-
nity amongst the
crowd.

Conclusions

Expats are a diverse group of urban dwellers, whose lifestyle patterns and decisions are mainly career-oriented. They face dynamic environment changes and issues with cultural integration. The themes mentioned in my research do not concern only expats, but very frequently their spouses and children. They often struggle with identity problems and leave their social circles behind during relocation processes. For these reasons, they tend to create strong relationships with each other in the country of migration. Their ability of creating communities wherever they go, together with their diverse representation, suits the concept of “Diversity as a new common” - a vision for an urban setting that provides inclusiveness and a sense of collectiveness.

Based on that vision, a desirable environment for a diverse group of dwellers is one that creates a strong sense of belonging, integration and identity. An inclusive neighborhood that provides equality between the residents and increases their feeling of safety and collectiveness. Increased social interaction between the neighbors can decrease the notion of social exclusion and provide stronger neighborly relations. Face-to-face encounters contribute to integration of the community of neighbors and thus, their sense of belonging within the neighborhood. Considering that expatriates usually lead a career-oriented lifestyle, integrating live and work as collective spaces shared by the residents is a solution for both collectiveness, housing affordability and increased social interaction. Common work spaces are not only an extension of the dwellings, but also a solution for parents that need to take better care of their children. The concept of commons spaces within the neighborhood is suitable for expats singles and couples that need more social contact, as well as families whose children need spaces for play.

Considering families and expats as a whole, housing conditions that are most attractive for them are defined by the accessibility of public amenities and places for social meetings. The proximity of schools is one aspect, but also the access to shared facilities for leisure plays a big role. Especially in the case of foreigners that have a fresh start in a new country, it is important to provide places where they can develop their hobbies together with people that share similar interests. Providing common spaces for the interaction of residents creates a sense of neighbor-friendly environment with the principles of equality and inclusiveness. However, public and private spaces should not permeate each other. They should be intertwined within the neighborhood, but with a clear separation of private zones. The members of the neighborhood should have a sense that they can rely on each other as a community, but with a cer-

tain respect for one another's privacy.

The notion of creating a community within the urban neighborhood needs to be considered in terms of scale and group sizes. The number of neighbors that have the closest relationship with each other should be kept optimal to avoid anonymity between the residents. Individual groups should be integrated into one neighborhood of dwellers that provides spaces that favor people's encounters. To solve the notion of the expat bubble, a perfect neighborhood is not one that includes only internationals. Based on my research, the features of expatriates are not much different than the ones of local people that share a similar work-oriented lifestyle. For this reason, an inclusive and open community for expatriates should be a mix of foreign and Dutch inhabitants, where the spaces of their encounters contribute to exchange and integration.

These conclusions lead to defining a design hypothesis that will be integrated with the design goals mentioned above. To provide a sense of equality and belonging, the neighborhood of dwellers must provide collective spaces for residents' encounters. Dwelling typologies must be adjusted to the diversity of needs and household sizes. The scale of the urban neighborhood needs to be adjusted to the human proportion, providing a sense of integration and belonging and offering common shared spaces that cater for residents' social interaction. As Susan Pinker (TED, 2017) concluded her speech:

Building in-person interaction into our cities, into our workplaces, into our agendas bolsters the immune system, sends feel-good hormones surging through the bloodstream and brain and helps us live longer.

Given the design goals formulated in my research, a case study analysis will contribute to understanding chosen dwelling typologies and their contribution to the collective aspect of urban living. Thus, four projects were chosen in terms of their unique approach towards integrating the residents into a neighborhood community. First analyzed building is Fenix I by mei architects and planners, due to its inner courtyard, galleries and exterior circulation spaces that favor the encounters of the residents. Second project is Haus A by Duplex Architekten, where flexible floor plan and shared common core facilities maintain the solution for co-living by creating multiple satellite dwellings intertwined with more private units. Third, The Family by ANA Architekten, shows an example of urban family living with multiple levels of children's playgrounds. Lastly, Babel by Laurens Boodt Architect, is a unique example of "street in the air" that connects public terraces located vertically along the whole building. All the mentioned projects share the concept of collective housing, hence introducing the idea of sharing spaces and collectiveness within the community of dwellers. Research questions that accompany this analysis are:

- What is the effect of circulation on neighbors' interaction?
- How does collective transform into private?



Fenix I



Haus A



The Family



Babel



Architect: mei architects and planners

Location: Rotterdam

Year: 2019

GFA: 39.500 m²

Height: ca. 43,0 m (warehouse + 9 floors)

Circulation: gallery

Bay widths: 7,7 m - 10,2 m

Program: cultural and culinary facilities (ca. 8.500 m²), 225 parking spots (ca. 9.000 m²), 212 loft apartments (ca. 23.000 m²)

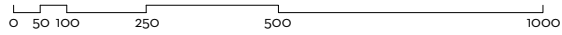
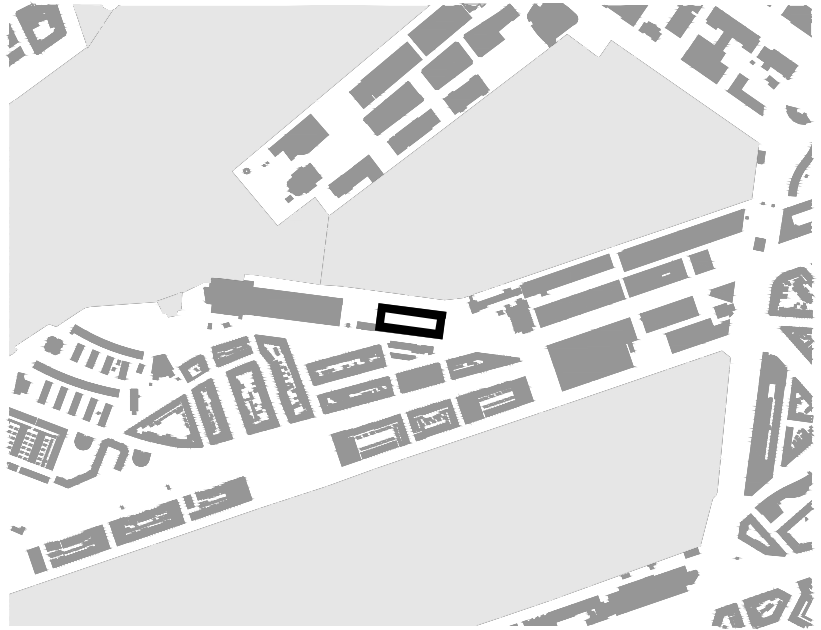
Target group: single, couples, families

Dwelling typologies: lofts, maisonettes

Dwelling sizes: 40 - 300 m²

The building is situated on top of an existing warehouse, which makes it suitable for the character of harbor of Merwe-Viehavens. Locating the new residential building on top of an existing one was possible thanks to a steel cable structure that weighs ca. 1 kiloton. Residential apartments are built with concrete and finished with a transparent glass facade which continues around the whole building.

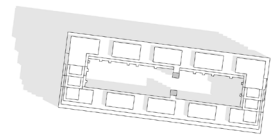
The program contains a variety of mixed use functions. Lower levels include car park, leisure spaces and workspaces, whereas upper levels comprise housing. Inner courtyard separates residents from the surrounding city and offers a quiet communal space. A gallery that runs along the whole building contributes to residents' social interaction. Circulation of exterior staircases that connects all gallery floors emphasizes the connection between the residents even more.



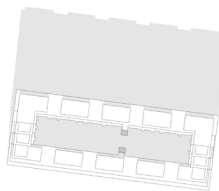
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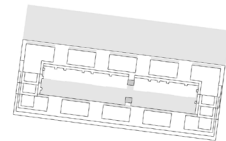
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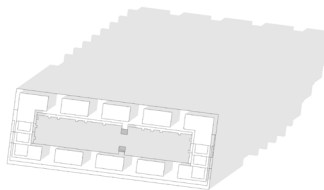
June 21, 10:00



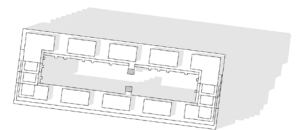
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June 21, 13:00



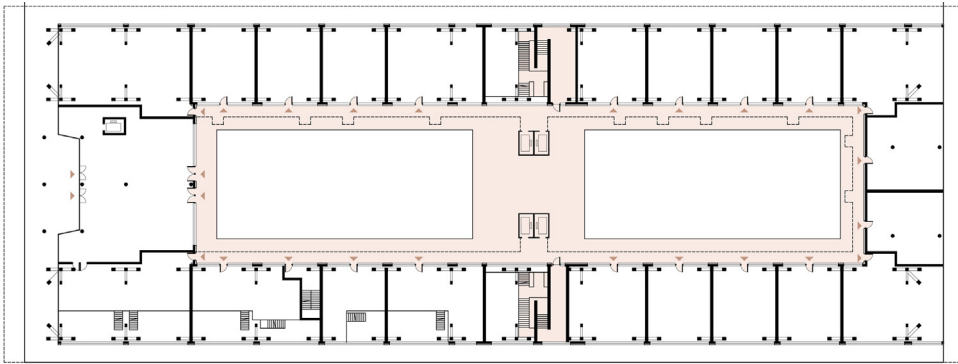
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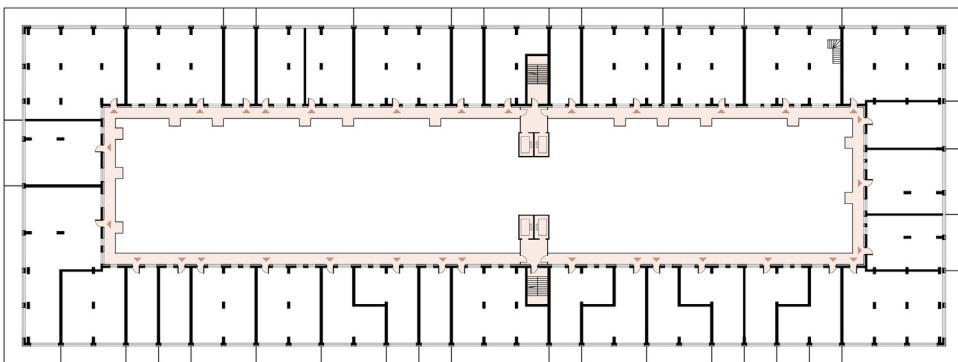
June 21, 16:00

Circulation

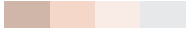
Incision floor
dwelling access from the courtyard



4th floor
dwelling access from the gallery



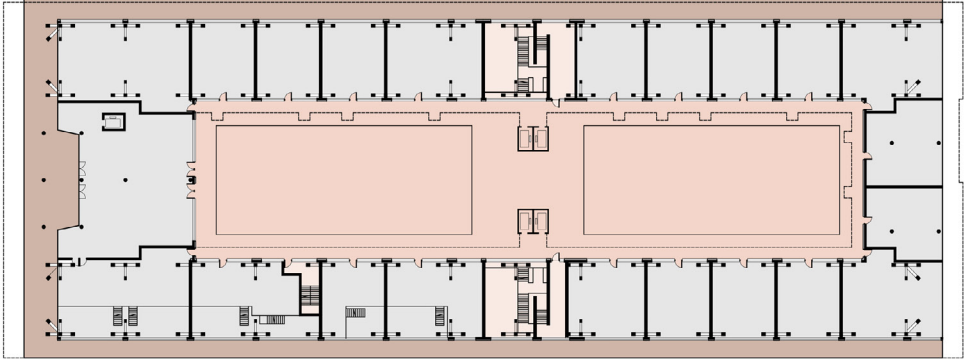
collective



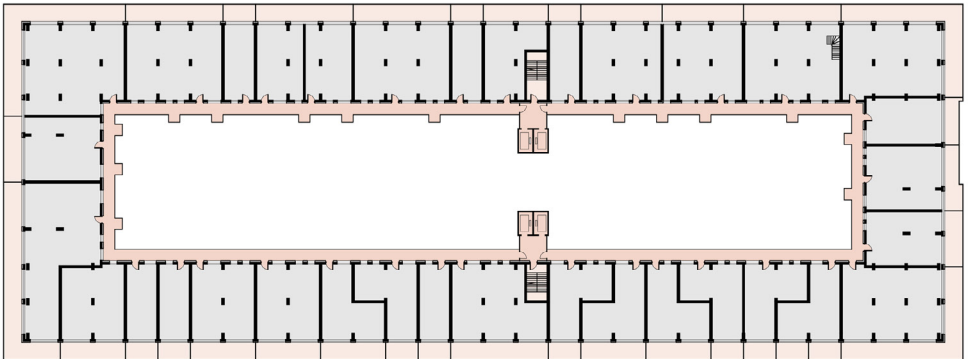
private

Collectivity vs privacy

Incision floor - 22 loft apartments, incl. 4 maisonettes



4th floor - 33 loft apartments, incl. 1 maisonette



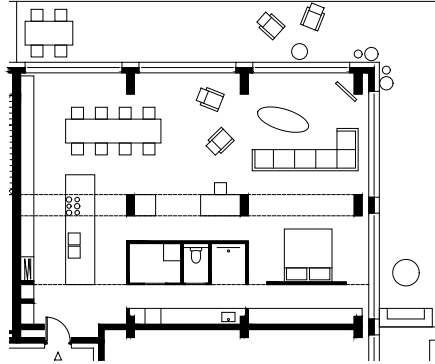
8th floor - 5 penthouses



Dwelling analysis

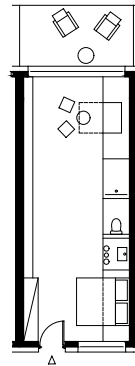
Corner loft

Net dwelling size: 124,6 m²
 Window orientation: N, E
 Bay width: 9,7 m
 Target group: single/couple



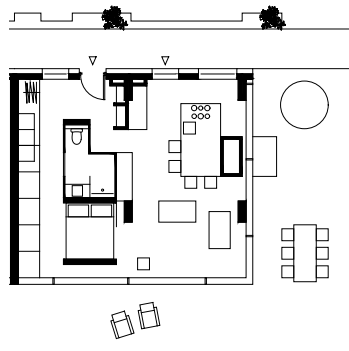
Studio loft

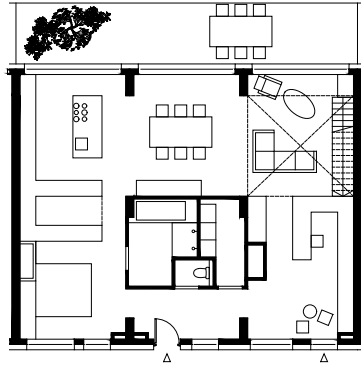
Net dwelling size: 40,0 m²
 Window orientation: N, S
 Bay width: 10,2 m
 Target group: single



Terrace apartment

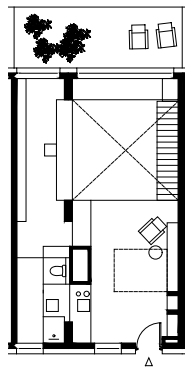
Net dwelling size: 63,5 m²
 Window orientation: N, E, S
 Bay width: 7,7 m
 Target group: single





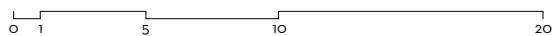
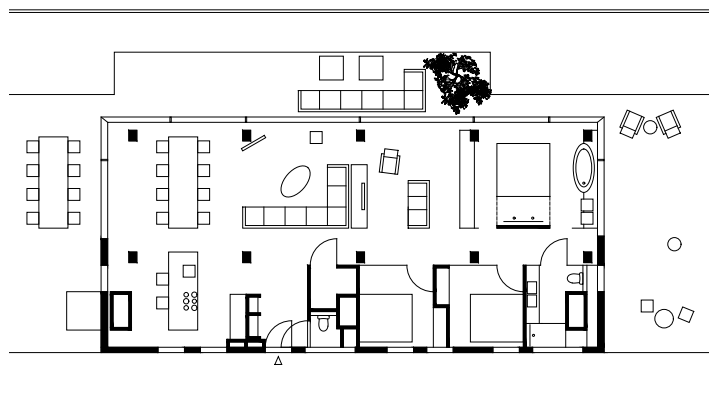
Maisonette loft

Net dwelling size: 184,8 m²
 Window orientation: N, S
 Bay width: 10,2 m
 Target group: couple/young family



Penthouse

Net dwelling size: 156,1 m²
 Window orientation: N, S, E, W
 Bay width: 8,7 m
 Target group: family





Architect: Duplex architekten
Location: Zürich
Year: 2015
GFA: 6.780 m²
Height: ca. 19,9 m (6 floors)
Circulation: central core
Bay widths: ca. 6,0 - 7,5 m
Program: 6 satellite apartments with 10,5 rooms; 5 satellite apart-

ments with 12,5 rooms;
 workspaces, common gallery, bike storage

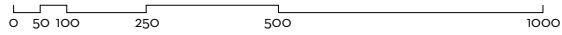
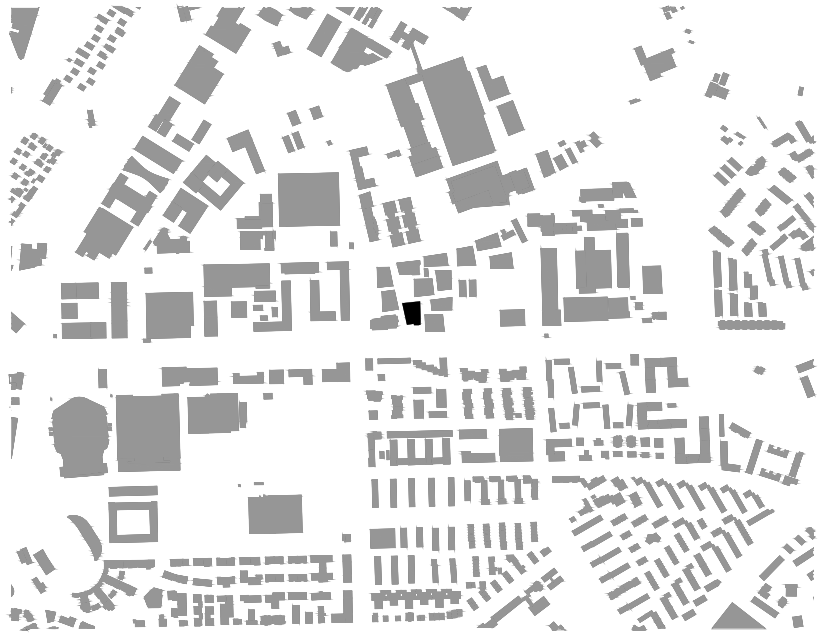
Target group: single, couples, young families

Dwelling typologies: satellite apartments

Co-living units sizes: 320 - 400 m²

The project consists of several satellite apartments with a shared common space located around the central staircase. The satellite apartments in Haus A represent a new form of living together. In the large communal apartments, a system of chambers offers maximum privacy, while between it, the communally used living space is like a sequence of squares and paths. There are 11 cluster satellite apartments of 320 and 400 m². Each residential unit has its own bedroom, a kitchenette and a small private balcony as a counterpart to the large communal loggia.

Although the concept of this building is strongly based on co-living and togetherness, private spaces are clearly separated from the shared spaces. This way, the privacy of individual inhabitants is respected without resigning from the idea of collectiveness and support.



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March 21, 13:00



June 21, 13:00



March 21, 16:00



June 21, 16:00

Circulation

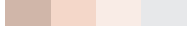
Ground floor
access to workspaces and dwellings from east-west facade



Regular floor
access to dwellings from the central core



Collectivity vs privacy

collective  private

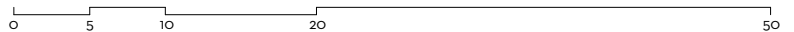
Ground floor

5 satellite apartments, common workspaces



Regular floor

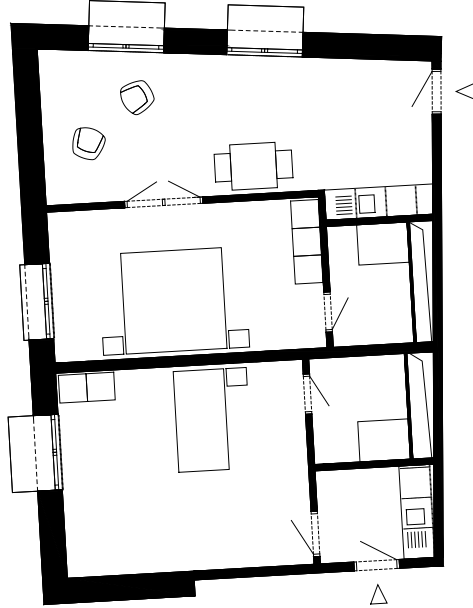
11 satellite apartments



Dwelling analysis

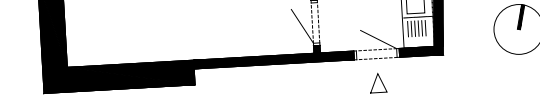
Apartment 1

Net dwelling size: 45,0 m²
 Window orientation: N, W
 Bay width: ca. 7,0 m
 Target group: couple



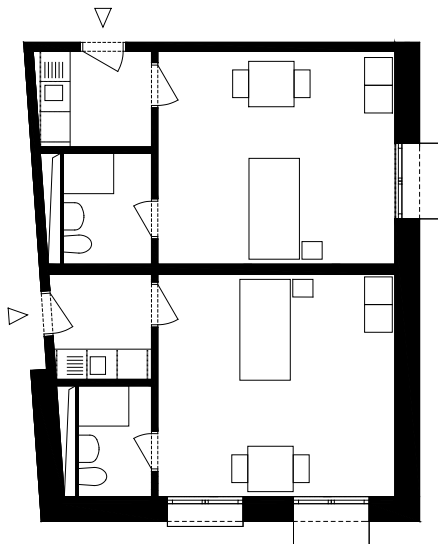
Apartment 2

Net dwelling size: 30,0 m²
 Window orientation: W
 Bay width: ca. 7,5 m
 Target group: single



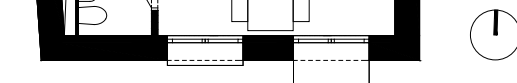
Apartment 3

Net dwelling size: 30,0 m²
 Window orientation: E
 Bay width: ca. 7,0 m
 Target group: single



Apartment 4

Net dwelling size: 30,0 m²
 Window orientation: S
 Bay width: ca. 7,0 m
 Target group: single





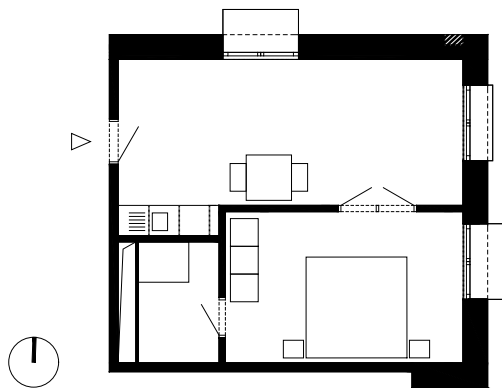
Apartment 5

Net dwelling size: 45,0 m²

Window orientation: N

Bay width: ca. 6,5 m

Target group: couple



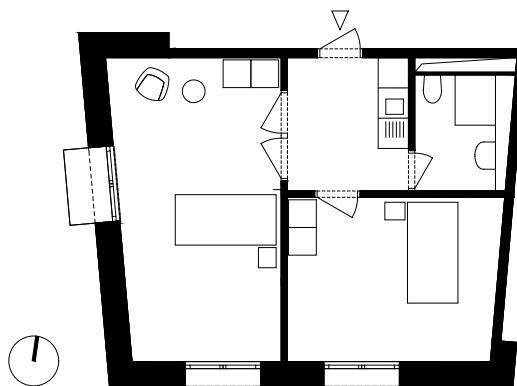
Apartment 6

Net dwelling size: 41,0 m²

Window orientation: N, E

Bay width: ca. 7,0 m

Target group: couple



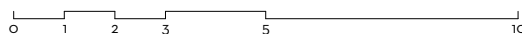
Apartment 7

Net dwelling size: 46,0 m²

Window orientation: W, S

Bay width: ca. 6,0 - 8,0 m

Target group: couple





Architect: mei architects and planners

Location: Rotterdam

Year: 2019

GFA: 39.500 m²

Height: ca. 43,0 m (warehouse + 9 floors)

Circulation: gallery

Bay widths: 7,7 m - 10,2 m

Program: cultural and culinary facilities (ca. 8.500 m²), 225 parking spots (ca. 9.000 m²), 212 loft apartments (ca. 23.000 m²)

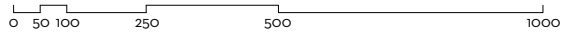
Target group: single, couples, families

Dwelling typologies: lofts, maisonettes

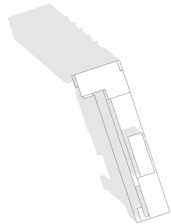
Dwelling sizes: 40 - 300 m²

The building is situated on top of an existing warehouse, which makes it suitable for the character of harbor of Merwe-Viehavens. Locating the new residential building on top of an existing one was possible thanks to a steel cable structure that weighs ca. 1 kiloton. Residential apartments are built with concrete and finished with a transparent glass facade which continues around the whole building.

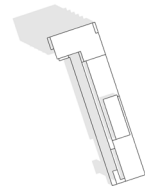
The program contains a variety of mixed use functions. Lower levels include car park, leisure spaces and workspaces, whereas upper levels comprise housing. Inner courtyard separates residents from the surrounding city and offers a quiet communal space. A gallery that runs along the whole building contributes to residents' social interaction. Circulation of exterior staircases that connects all gallery floors emphasizes the connection between the residents even more.



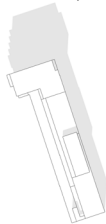
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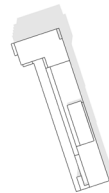
March 21, 10:00



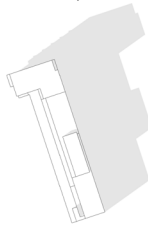
June 21, 10:00



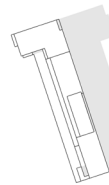
March 21, 13:00



June 21, 13:00



March 21, 16:00



June 21, 16:00

Circulation

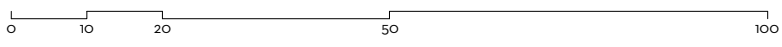
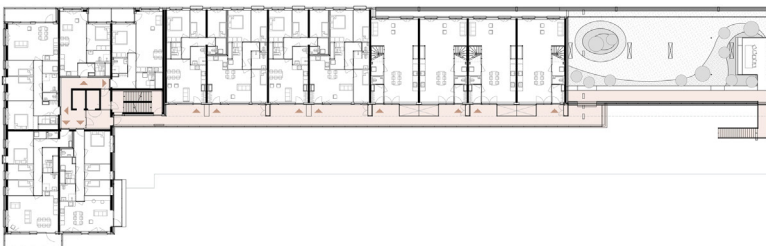
1st floor
main entrance to the dwellings from the platform

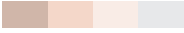


2nd - 4th floor
circulation via the gallery and northern core

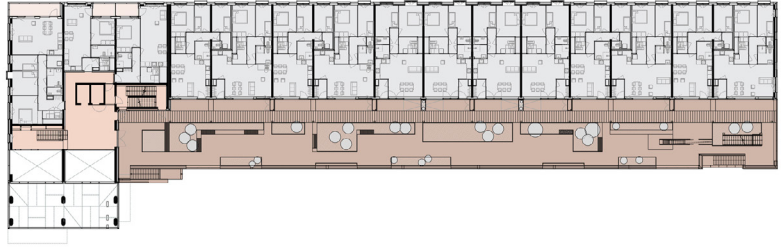


5th floor
circulation via the gallery and northern core

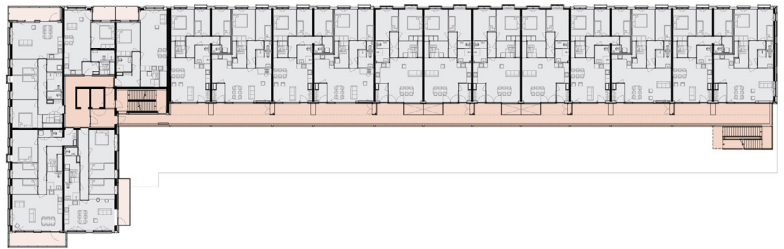


collective  private **Collectivity vs privacy**

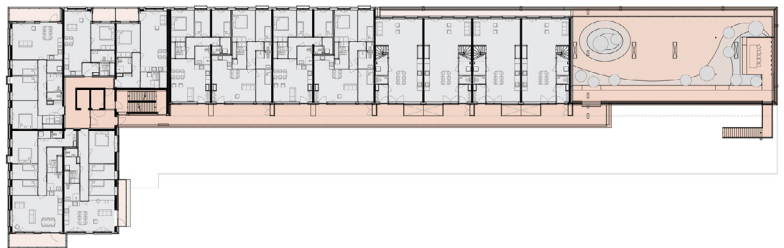
1st floor
13 dwellings



2nd - 4th floor
17 dwellings per floor

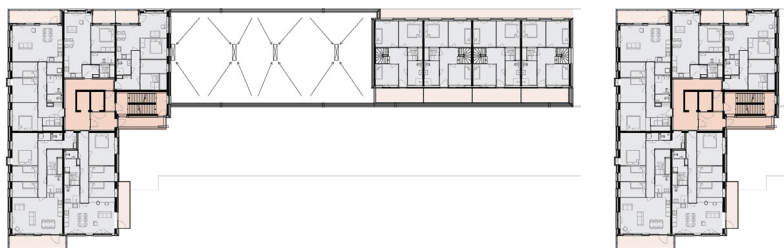


5th floor
13 dwellings (incl. 4 maisonette)



6th floor
5 dwellings

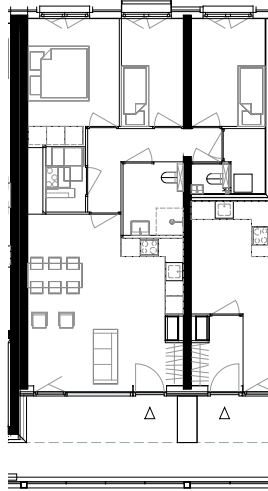
7 - 8th floor
5 dwellings



Dwelling analysis

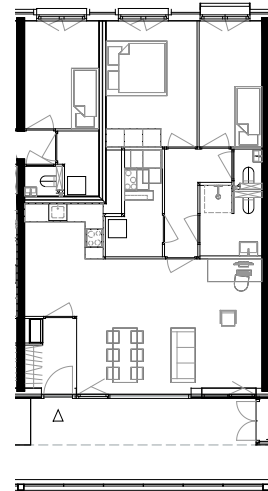
Apartment 1

Net dwelling size: 79,9 m²
 Window orientation: E, W
 Bay width: 12,35 m
 Bedrooms: 3
 Target group: family of 2 kids



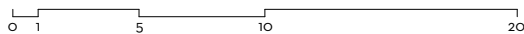
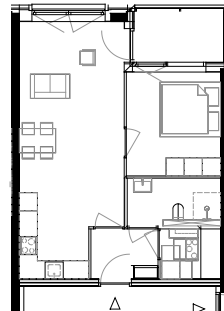
Apartment 2

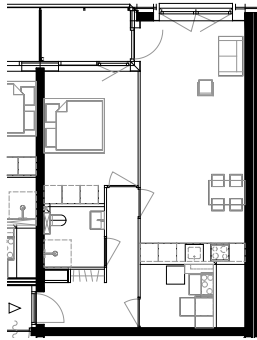
Net dwelling size: 79,0 m²
 Window orientation: E, W
 Bay width: 12,35 m
 Bedrooms: 2
 Target group: family of 1 child



Apartment 3

Net dwelling size: 54,2 m²
 Window orientation: E
 Bay width: 8,9 m
 Bedrooms: 1
 Target group: couple





Apartment 4

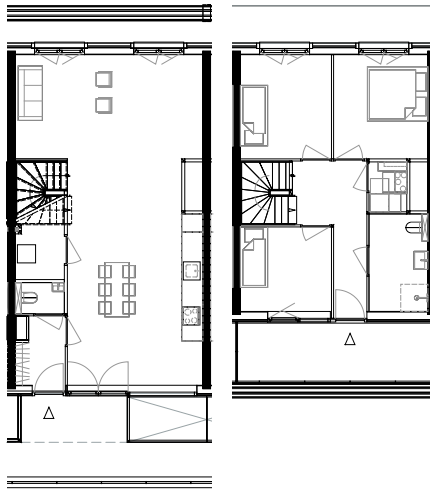
Net dwelling size: 62,2 m²

Window orientation: E

Bay width: 10,5 m

Bedrooms: 1

Target group: couple



Apartment 5 maisonette

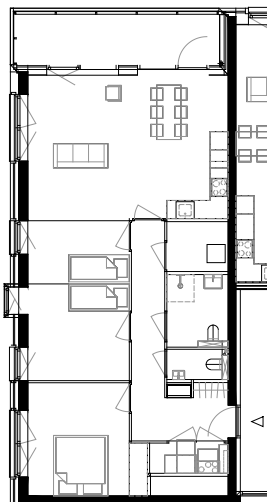
Net dwelling size: 120,4 m²

Window orientation: E, W

Bay width: 8,7 / 12,35 m

Bedrooms: 3

Target group:
family of 2 kids



Apartment 6 corner dwelling

Net dwelling size: 92,2 m²

Window orientation: W, S

Bay width: 6,9 m

Bedrooms: 3

Target group:
family of 2 kids





Architect: Laurens Boodt Architect

Location: Rotterdam

Year: 2016 - ongoing

GFA: 3.000 m²

Height: ca. 32,0 m (10 floors)

Circulation: exterior stairs and inner core

Bay widths: ca. 7,0 - 7,5 m

Program:

25 maisonette apartments

30 parking spots, bike storage

Target group: families

Dwelling typologies: maisonette

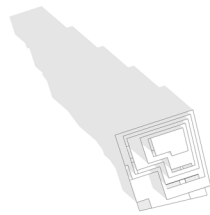
Dwelling sizes: ca. 70 - 135 m²

The project's main idea is the "street in the air" - a continuous vertical circulation that leads around the whole building circularly and vertically. The reason for that is providing multiple levels of connections between individual apartments, allowing children to play safely with each other without walking out to the street.

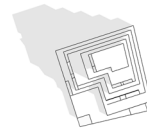
All dwellings are maisonettes. The ground floor of each unit has a connection with the "street in the air" - a plateau for neighbor's interaction and meetings. Kitchen and living room are located also on the ground floor, allowing direct connection to outdoor spaces. More private rooms: bedrooms, bathrooms and storage are located on the upper floor of each dwelling.



Sun analysis UTC +1.00



March 21, 10:00



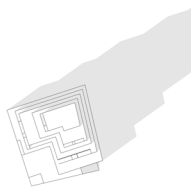
June 21, 10:00



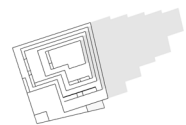
March 21, 13:00



June 21, 13:00



March 21, 16:00



June 21, 16:00

Circulation

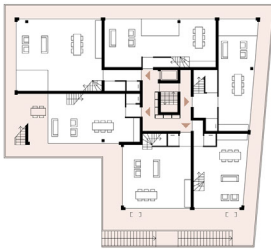


left:
ground floor

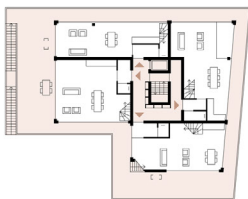
right: 1st floor



left: 2nd floor
right: 3rd floor



left: 4th floor
right: 5th floor



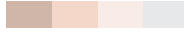
left: 6th floor
right: 7th floor



left: 8th floor
right: 9th floor



collective

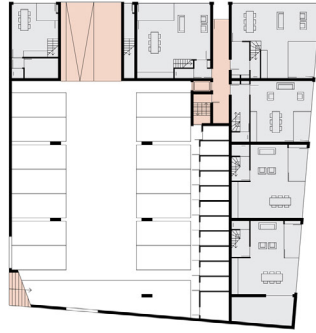


private

Collectivity vs privacy

left:
ground floor

right: 1st floor



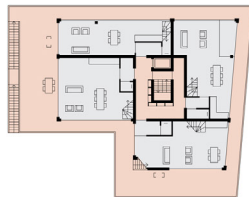
left: 2nd floor
right: 3rd floor



left: 4th floor
right: 5th floor



left: 6th floor
right: 7th floor



left: 8th floor
right: 9th floor



Dwelling analysis

Apartment 1

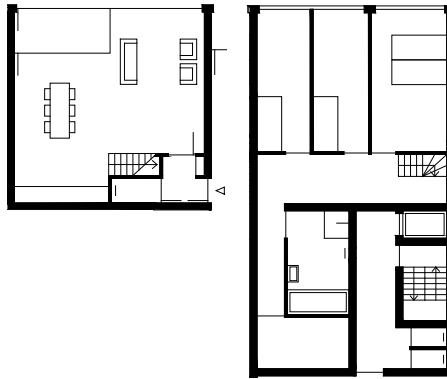
Net dwelling size: 116,1 m²

Window orientation: N

Bay width: 7,1 / 13,2 m

Bedrooms: 3

Target group: family of 2 kids



Apartment 2

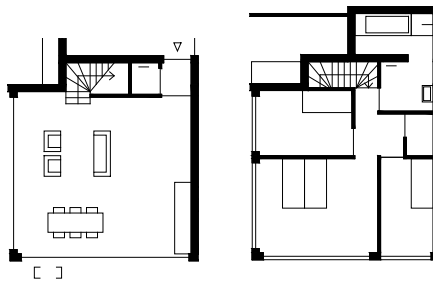
Net dwelling size: 73,5 m²

Window orientation: W, S

Bay width: 7,2 / 8,9 m

Bedrooms: 3

Target group: family of 2 kids



Apartment 3

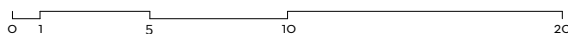
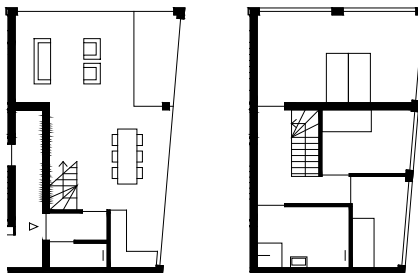
Net dwelling size: 94,0 m²

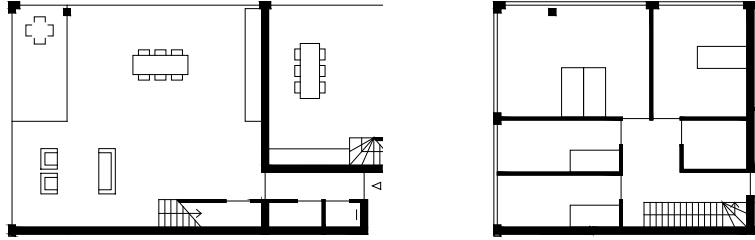
Window orientation: N, E

Bay width: 4,1 - 6,1 m

Bedrooms: 3

Target group: family of 2 kids





Apartment 4

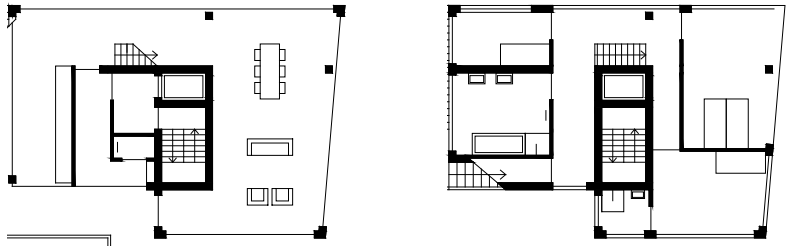
Net dwelling size: 119,5 m²

Window orientation: N, W

Bay width: 8,1 / 9,1 m

Bedrooms: 4

Target group: family of 3 kids



Apartment 5

Net dwelling size: 135,0 m²

Window orientation: N, S, E, W

Bay width: 4,7 - 6,5 m

Bedrooms: 3

Target group: family of 2 kids

Main research questions:

- What makes an urban neighborhood inclusive?
- What is a desirable live-work environment for a diverse group of dwellers?
- What constitutes attractive housing conditions in dense urban surroundings?

Community related research questions:

- When does a group become a community?
- How to create a neighbor-friendly housing community without interfering with people's privacy?

Expatriate related research questions:

- Do lifestyle patterns of expats differ from the ones of Dutch people?

Urban segregation and social exclusion related research questions?

- How to create an open community that consists of both international and local inhabitants?

Having expats as the starting point of my research, I started focusing on the general issues of urban segregation and social exclusion in the cities today. That's why my main research questions and design goals concern creating an inclusive urban neighborhood, live-work environment for diverse population and attractive housing conditions in dense urban surroundings.

According to my research, to answer to the problem of exclusion, **inclusive neighborhood** must provide a sense of equality, safety and social cohesion. The design is also focused on the principle of **collectivity**. It concerns not only common spaces, play areas and outdoor areas for in-person interactions, but most of all: a collective responsibility for the neighborhood and the inhabited space. The building also enhances a **diverse character** of current and future urban populations. It provides a large variety of dwellings, a general flexibility of their plan and freedom of appropriating spaces. So to summarize, when it comes to M4H, a perfect district environment for a diverse community would be one that makes everyone feel home. An **open neighborhood**, where residents take care of the space they inhabit and at the same time contribute to the overall sustainable development of the area.

When it comes to the urban plan that we created at the beginning of the graduation year, I chose plot 6 as the design context. It's located directly along the park, which creates a suitable environment for example for families with children, but also stimulates social gatherings in general. The other feature that needs special attention is the proximity of the existing warehouse described by the municipality as a monument building

Inclusivity



equality



social cohesion

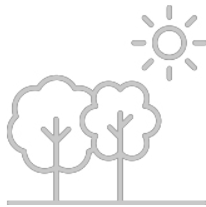


safety

Collectivity



common play areas

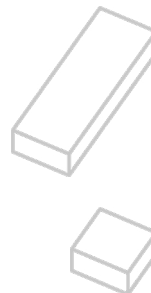
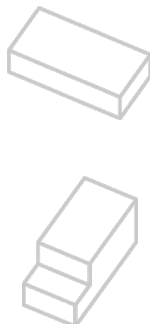
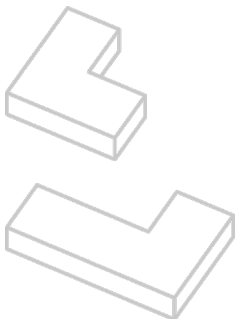


common outdoor areas



collective responsibility

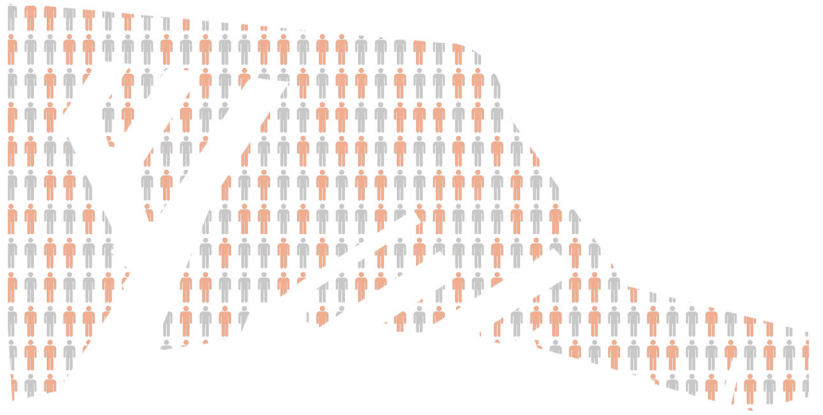
Diversity

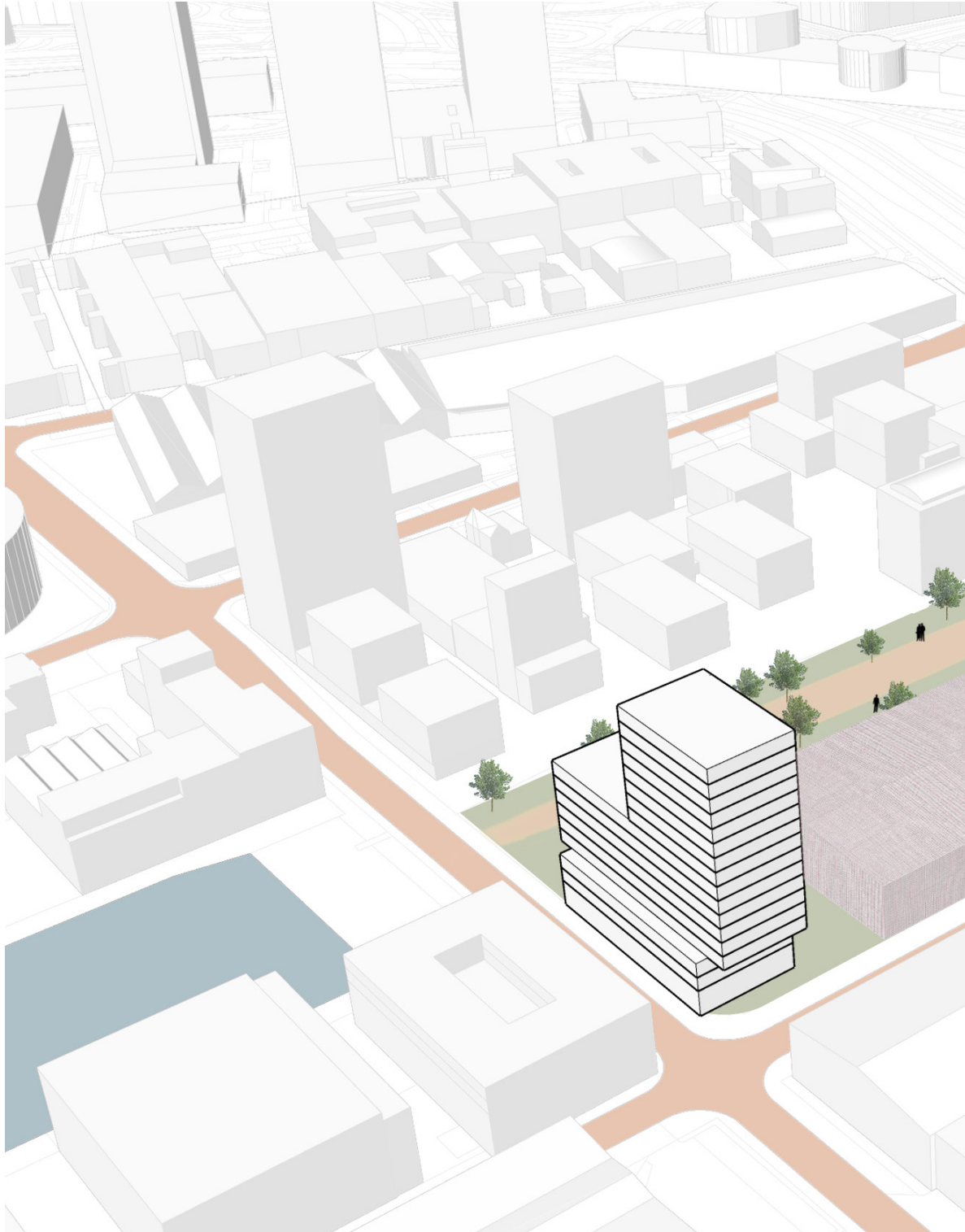


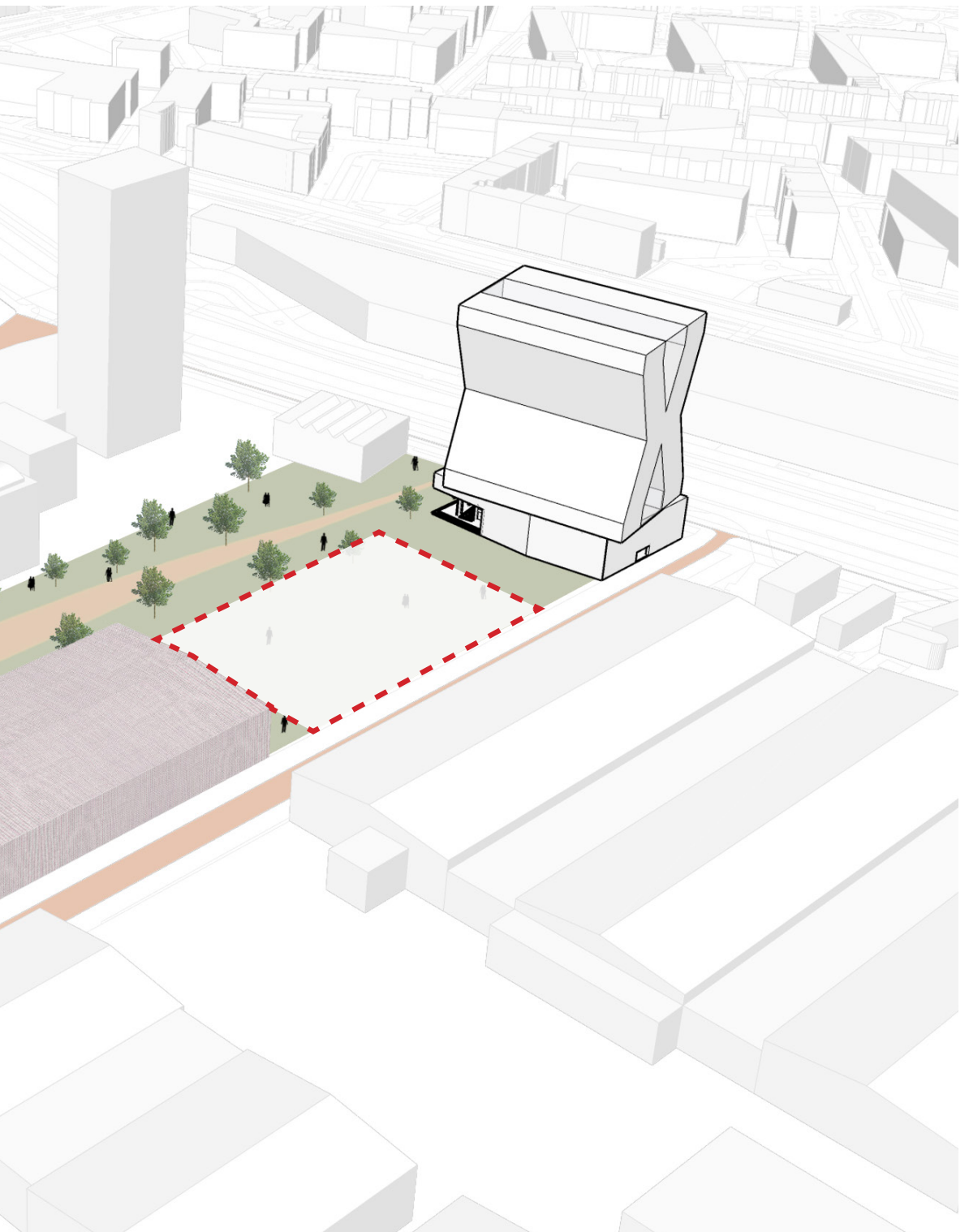
flexibility in plan -> large variety of dwellings

M4H

A community of expats
diverse community for singles, couples and young families











Except for the design principles mentioned in the previous chapter, the concept of the building involves a study of volumes that fit both the context and its site specific conditions, as well as the research results formulated in the first chapter.

Next pages illustrate final results of the conducted volume studies, resulting in a building mass that facilitates all the necessary functions.

Considering the size of the plot, it allows for creating a courtyard typology. Considering a huge need for housing in the Netherlands and 1 million homes program, the building volume aims to densify the area. As for site specific conditions, the volume is adjusted according to the sun orientation, providing appropriate amount of light not only in the dwellings, but also in the courtyard. Next, lower part of the building creates a setback to adjust to the monumental warehouse. The ground floor of the residential part is lifted 6 m up in order to create commercial spaces on the level of the park. The center of the ground floor contains private parking and car sharing for those, who don't have a car. The building's volume has a cut that creates a connection with the park, allowing the courtyard to become park's extension. So basically the courtyard can be accessed directly from the ground level with the stairs that lead to the merely residential area.

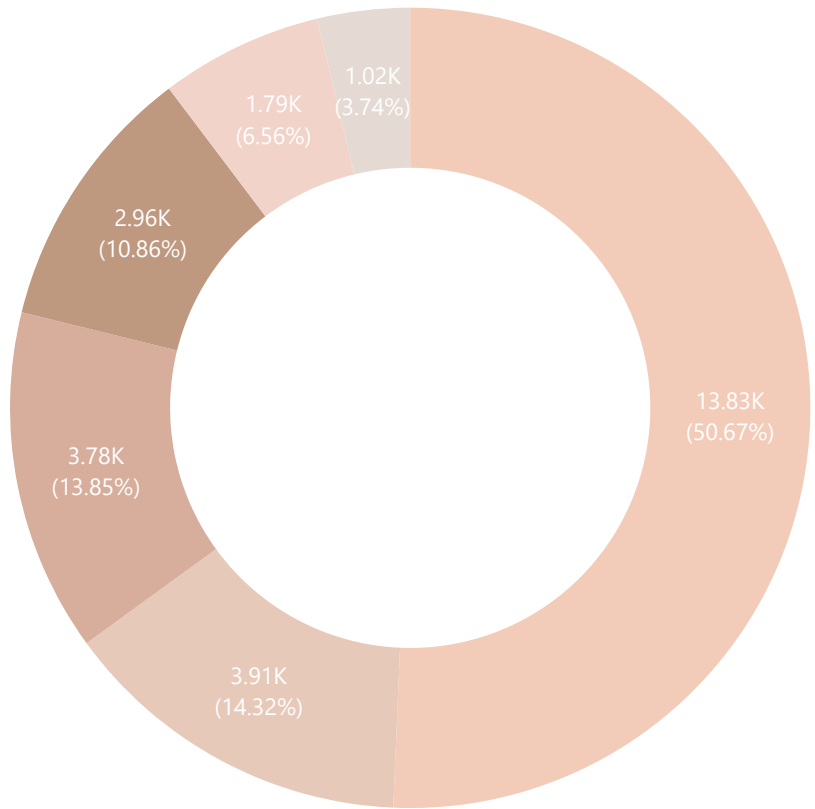
When it comes to more specific architectural aspects, one of the most relevant ones is the theme of collectivity. At the beginning of the graduation year, I conducted ethnographic research in Peperklip building in Rotterdam. After visiting this neighborhood, based on its characteristics, I created a list of spaces that enhance social interaction between the inhabitants:

- courtyard,
- spaces for children's play,
- gallery,
- private outdoor spaces: loggias/balconies.

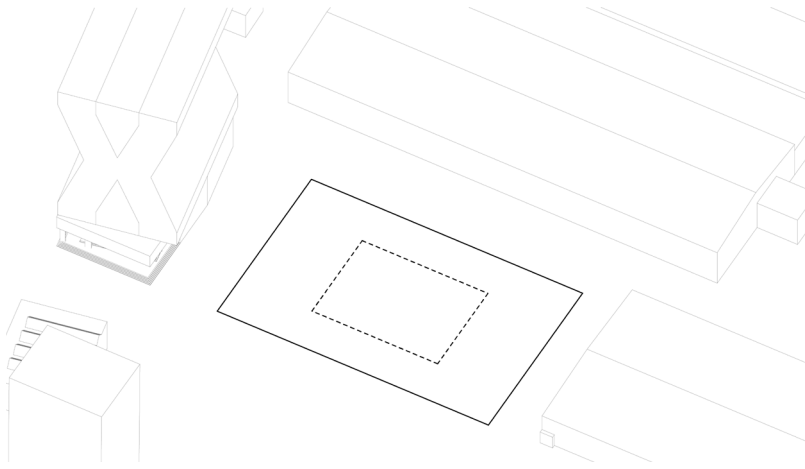
Therefore I included all of these spaces in my design.

Programmatic concept of the building introduces 4 types of communities, answering the needs of all target groups. Ground floor remains commercial and public, courtyard level contains co-housing, 7th floor short stay apartments and the tower corresponds with more individualistic lifestyle.

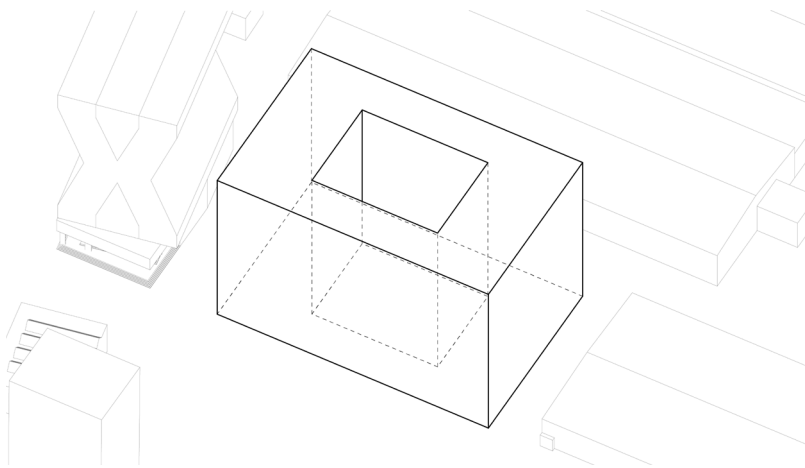
Apartments constitute 50.67% of the building's floor area, whereas 6.56% belongs to rentable spaces.



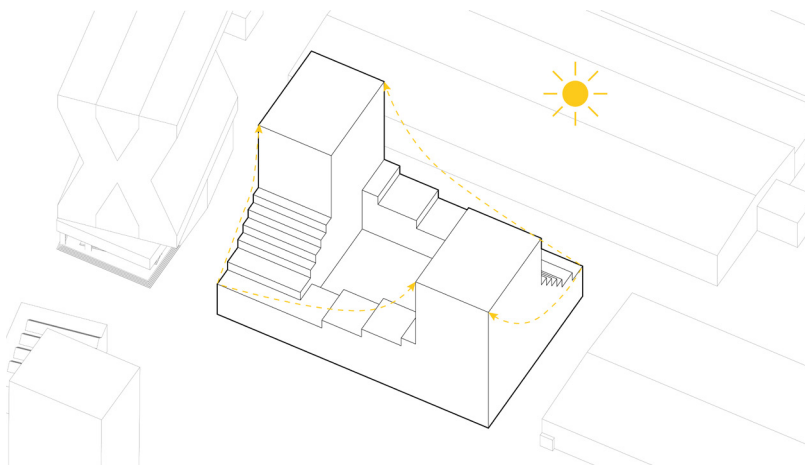
- apartments
- parking
- technical (incl. construction)
- circulation
- rentable spaces
- communal spaces



courtyard

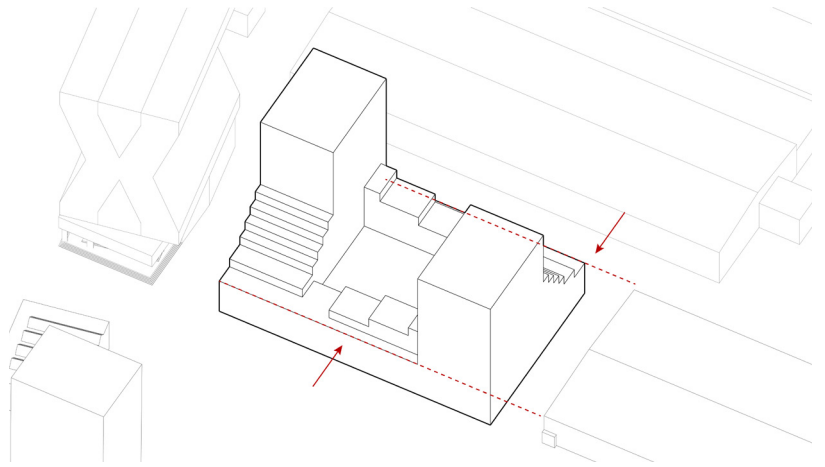


densification

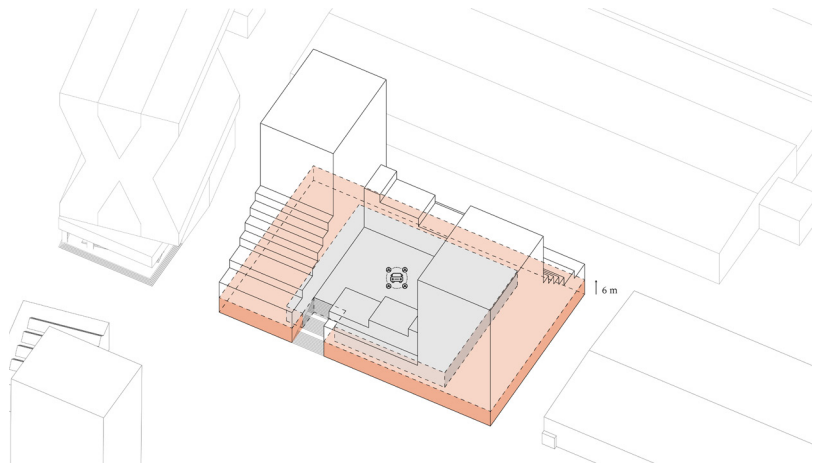


sun adjustment

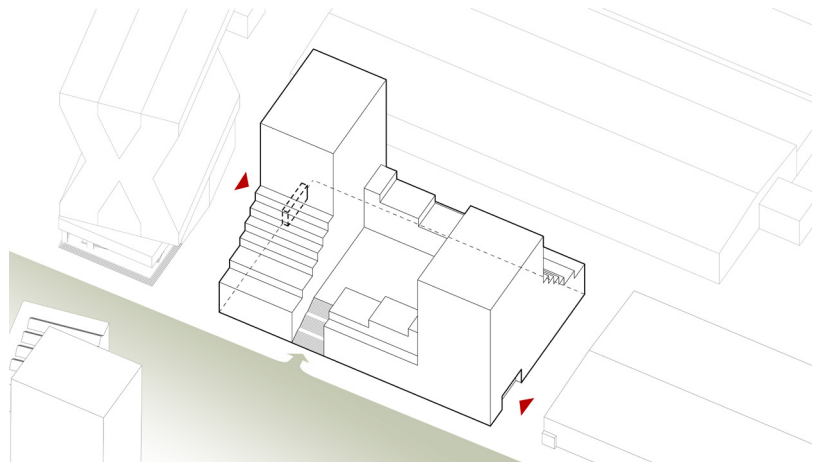
adjustment to
the context

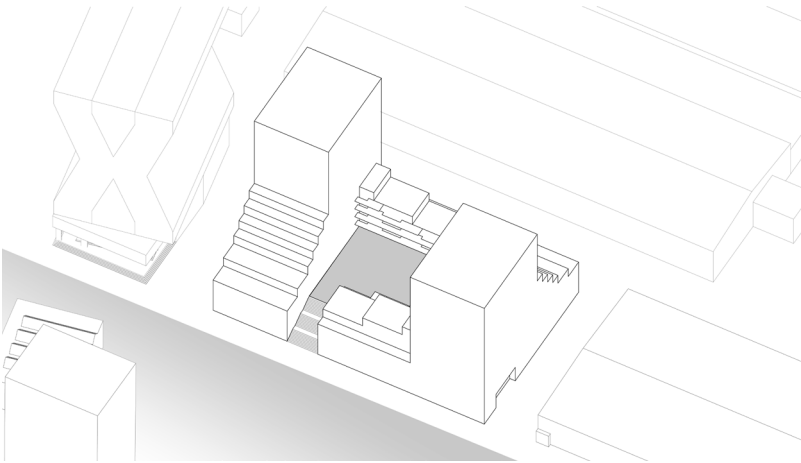


lifted
ground floor

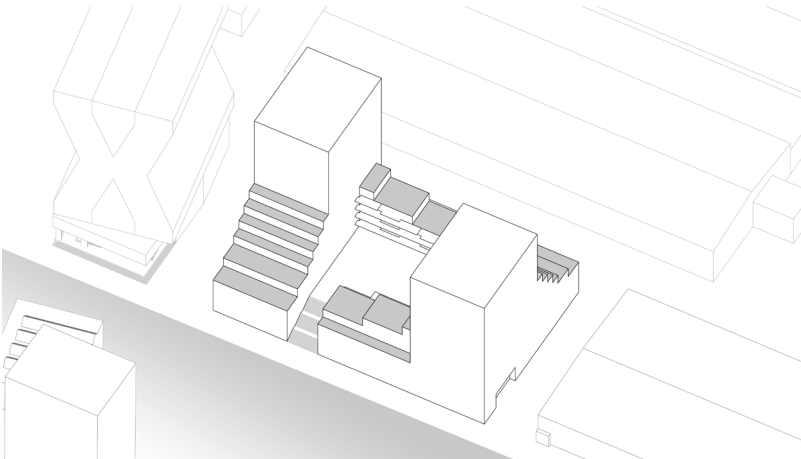


entrances and
relation to park



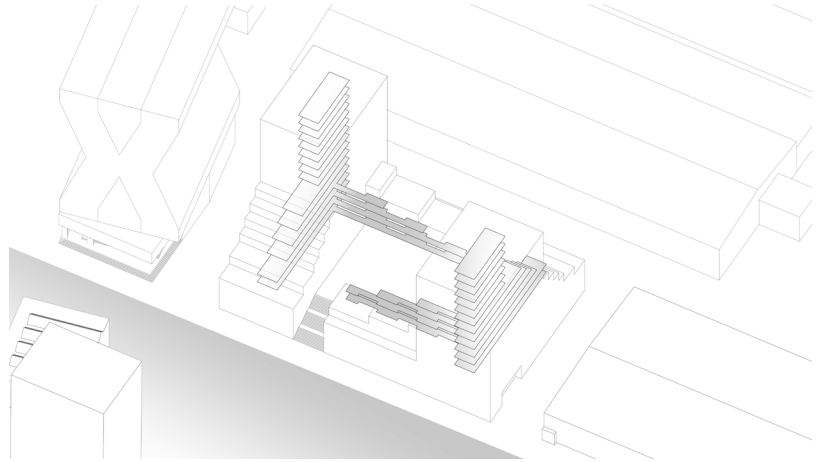


courtyard

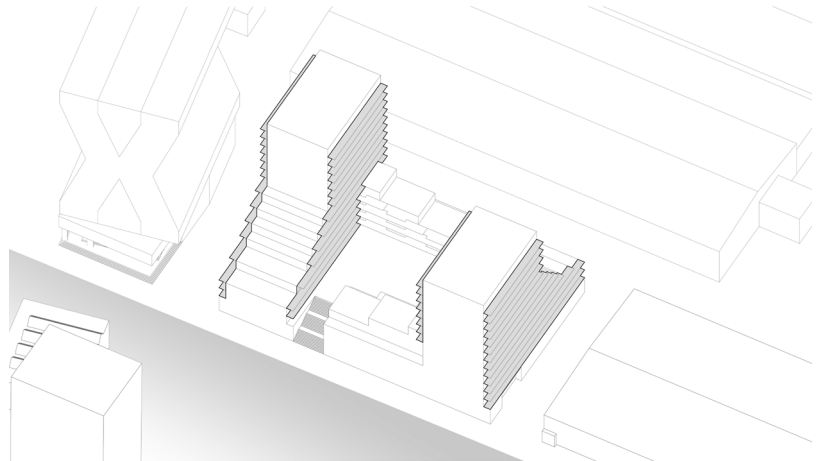


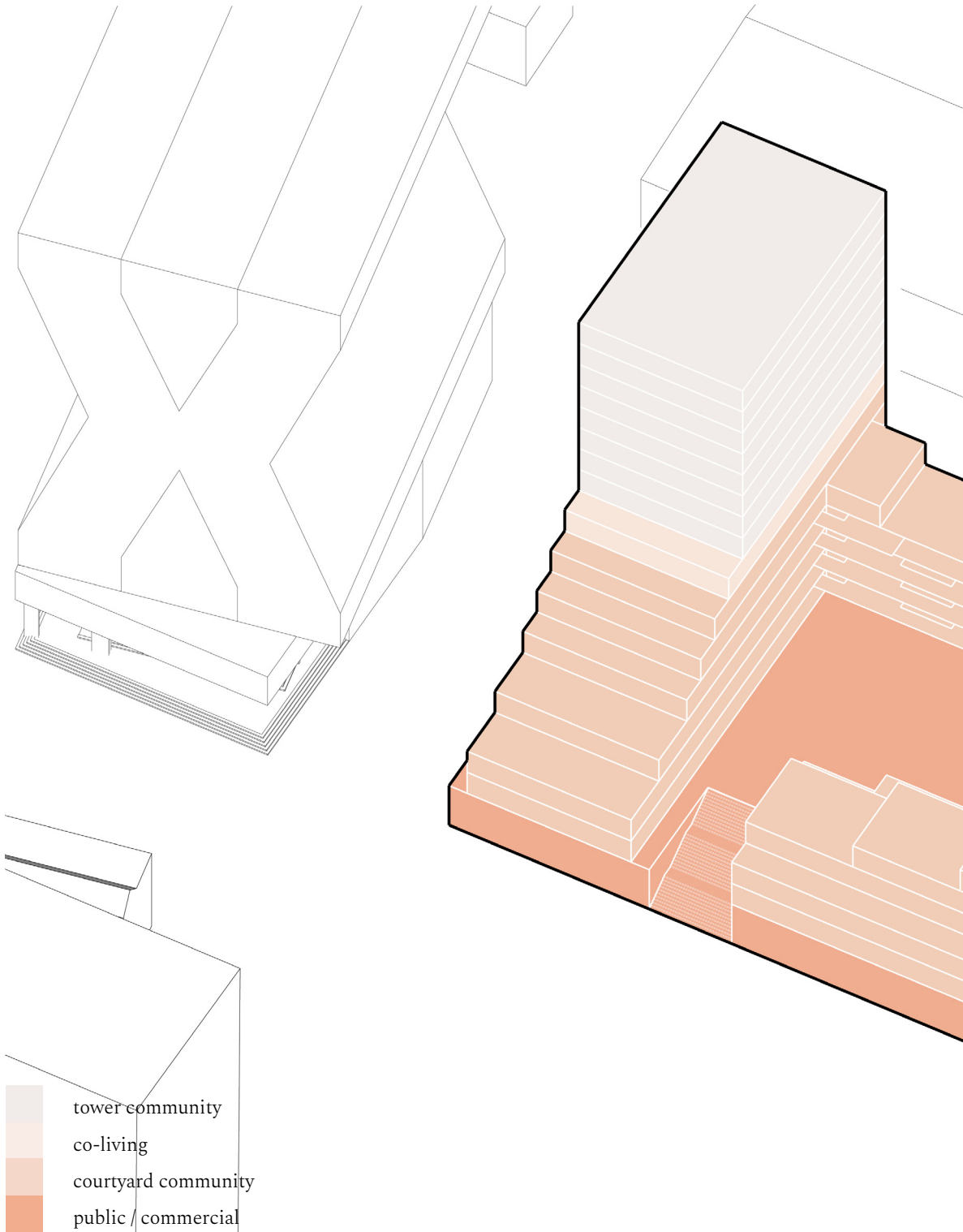
terraces

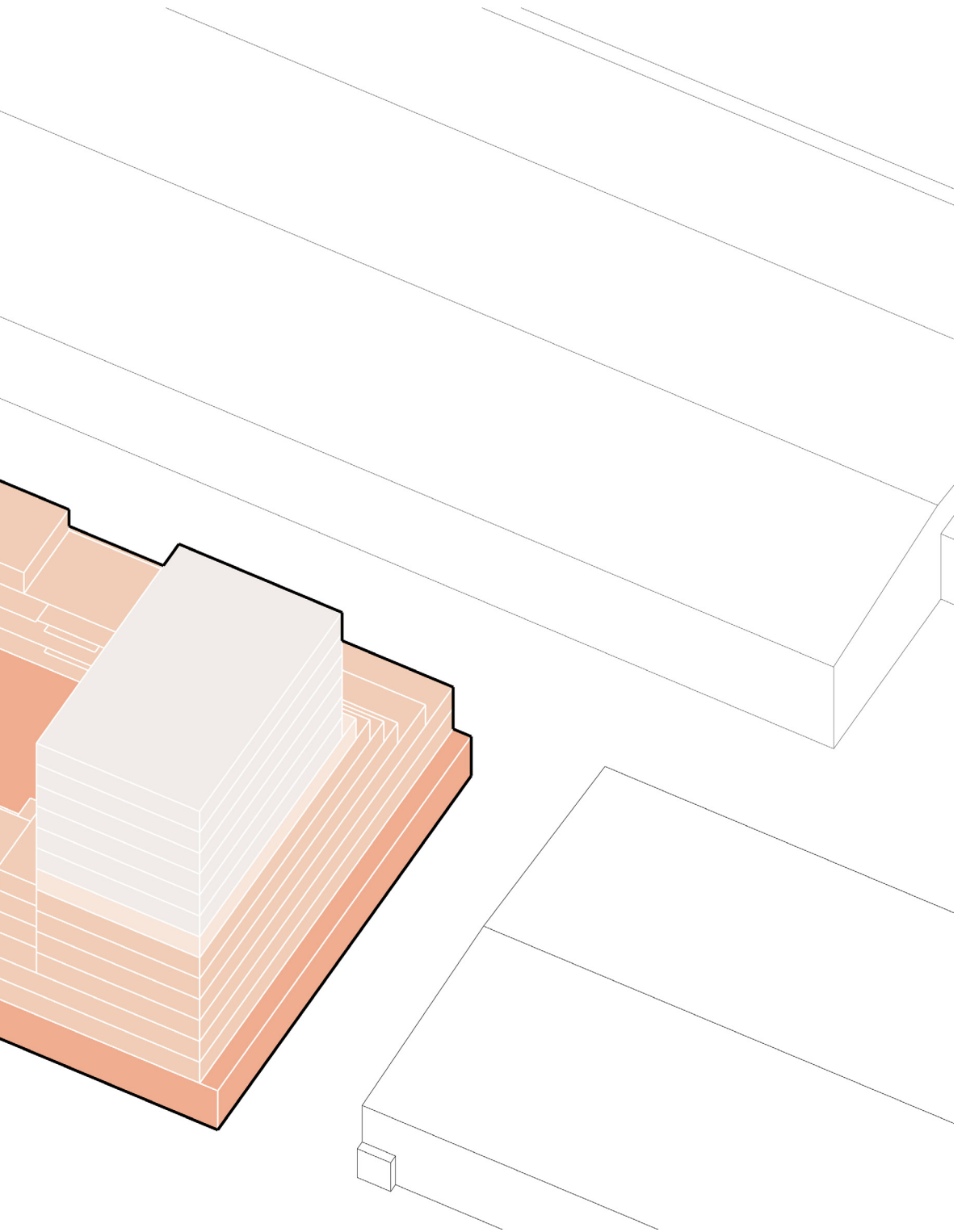
circulation

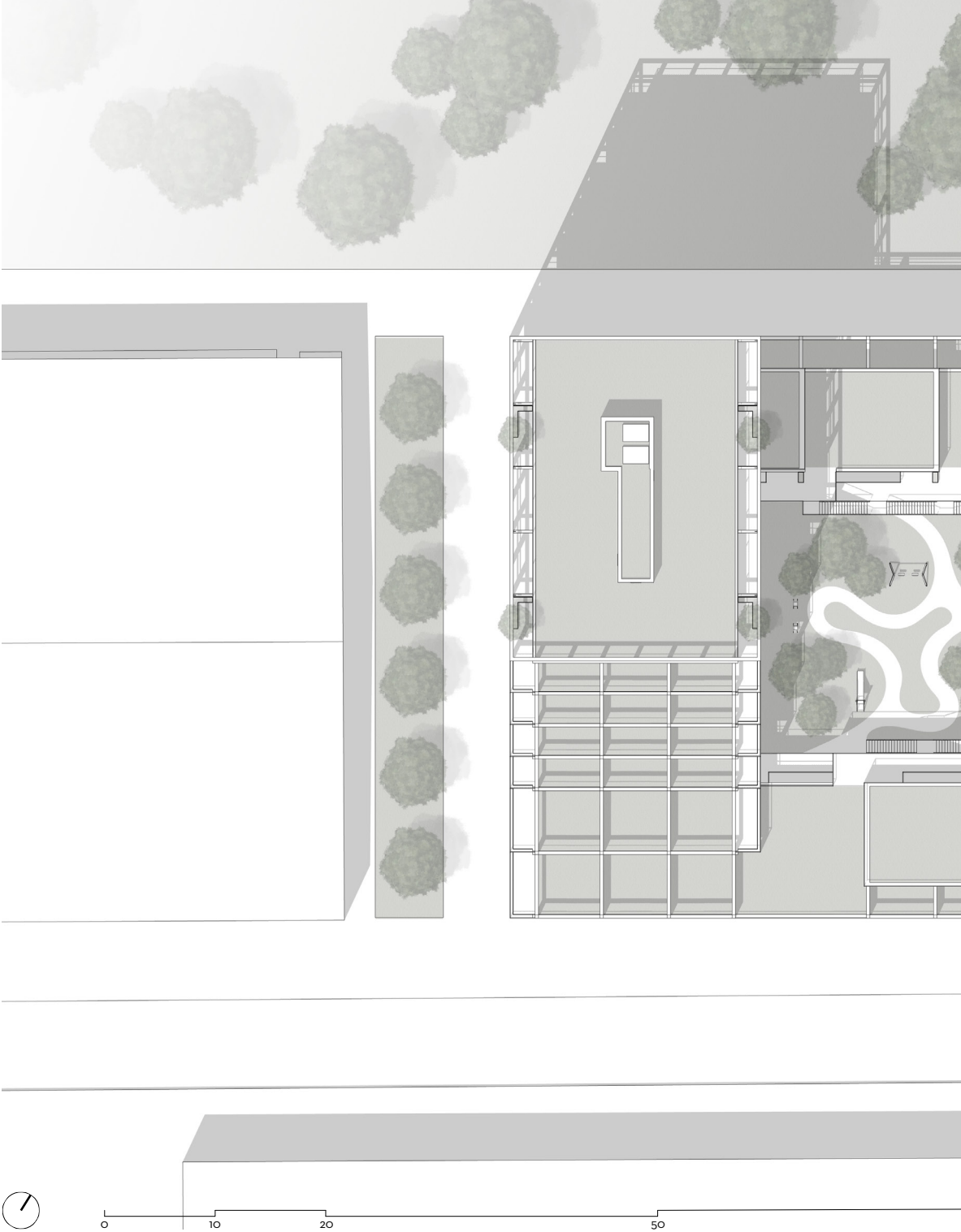


balconies







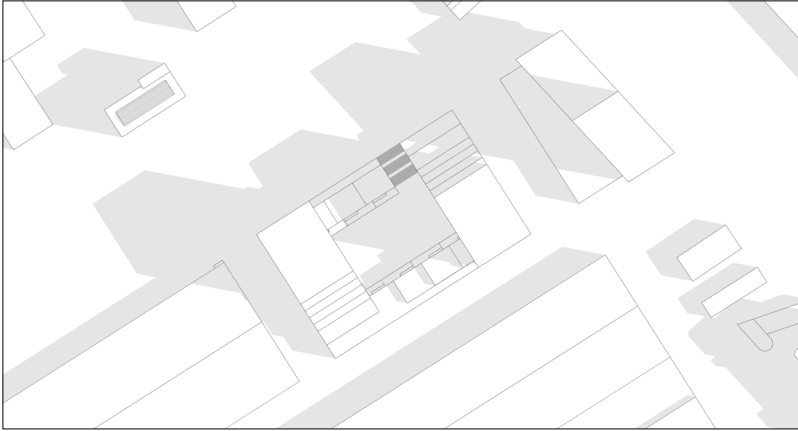




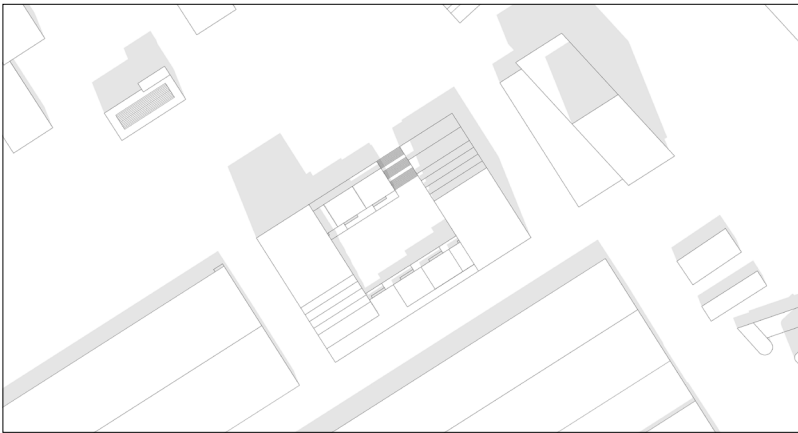
100

site plan

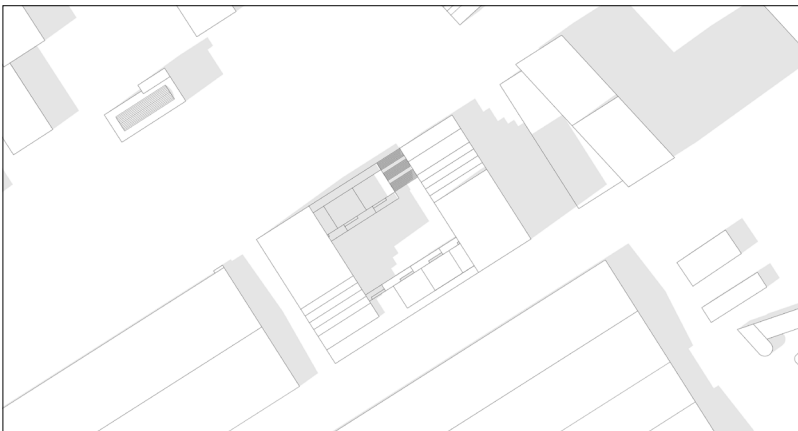
Sun analysis - June 21



9:00



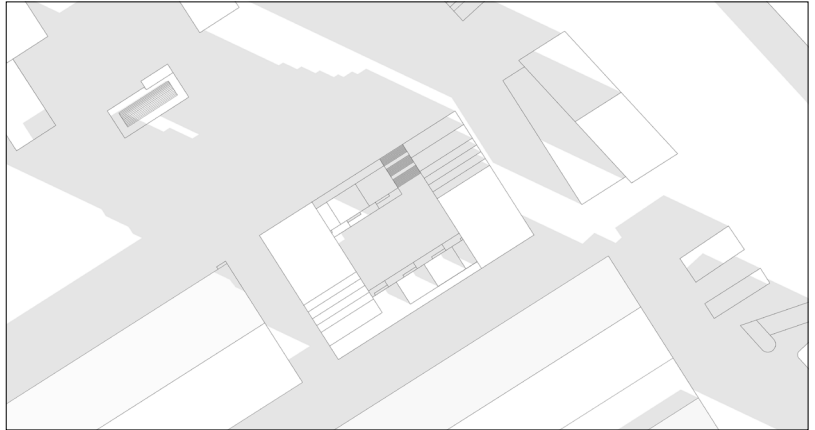
12:00



15:00

Sun analysis - March 21

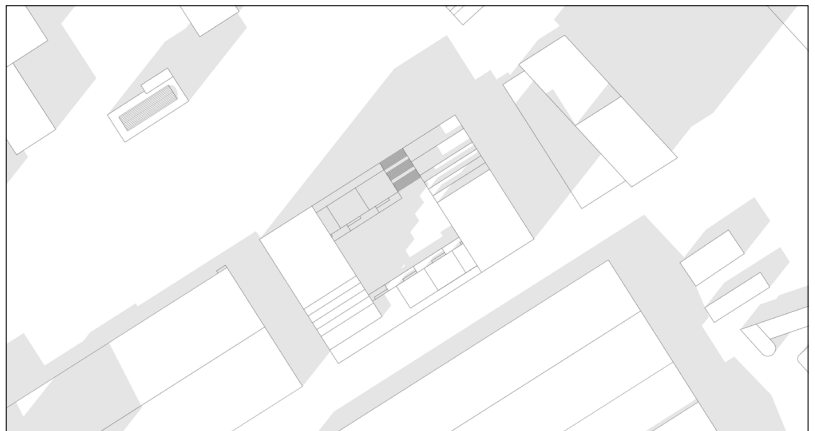
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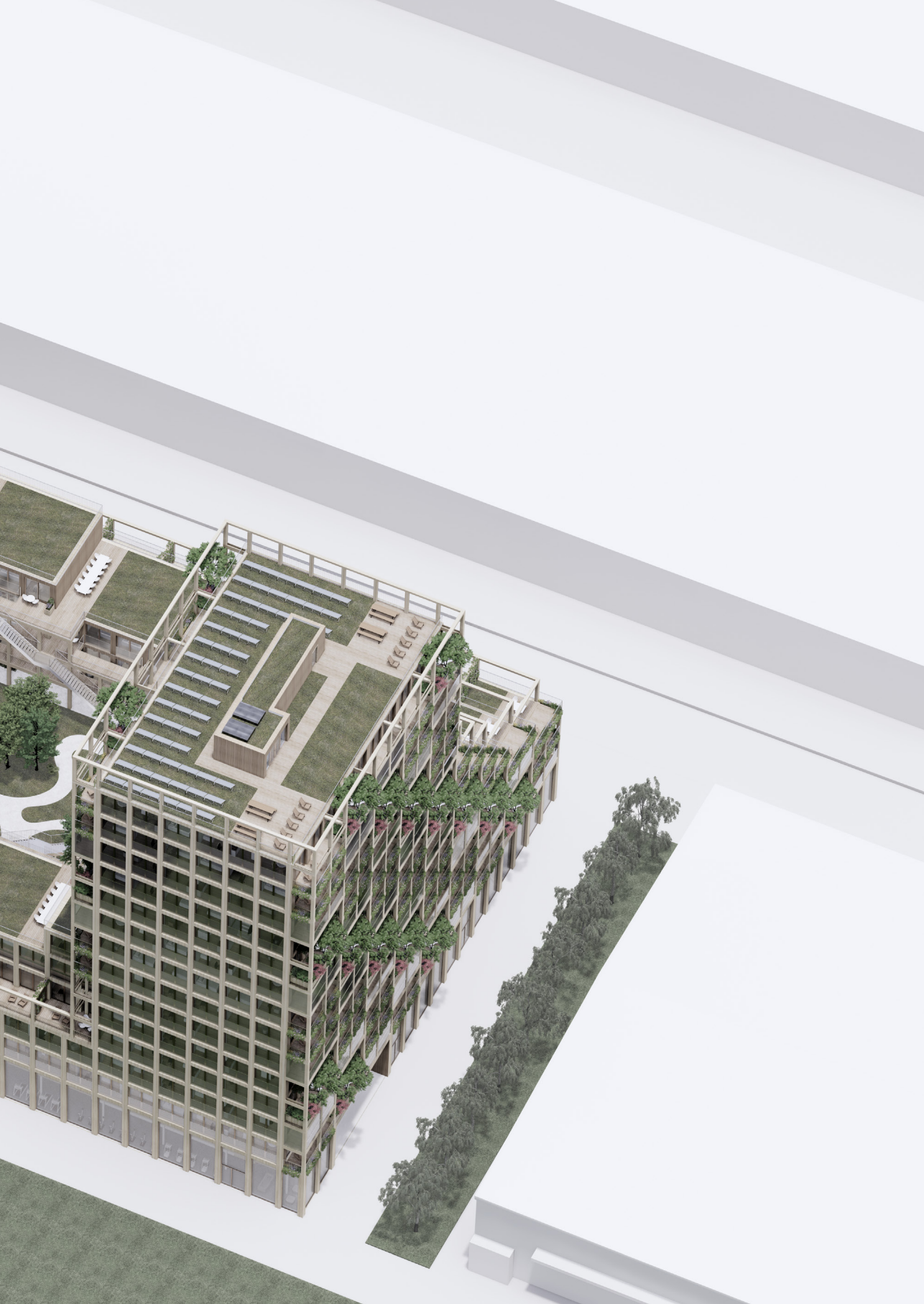
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15:00









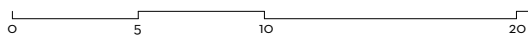
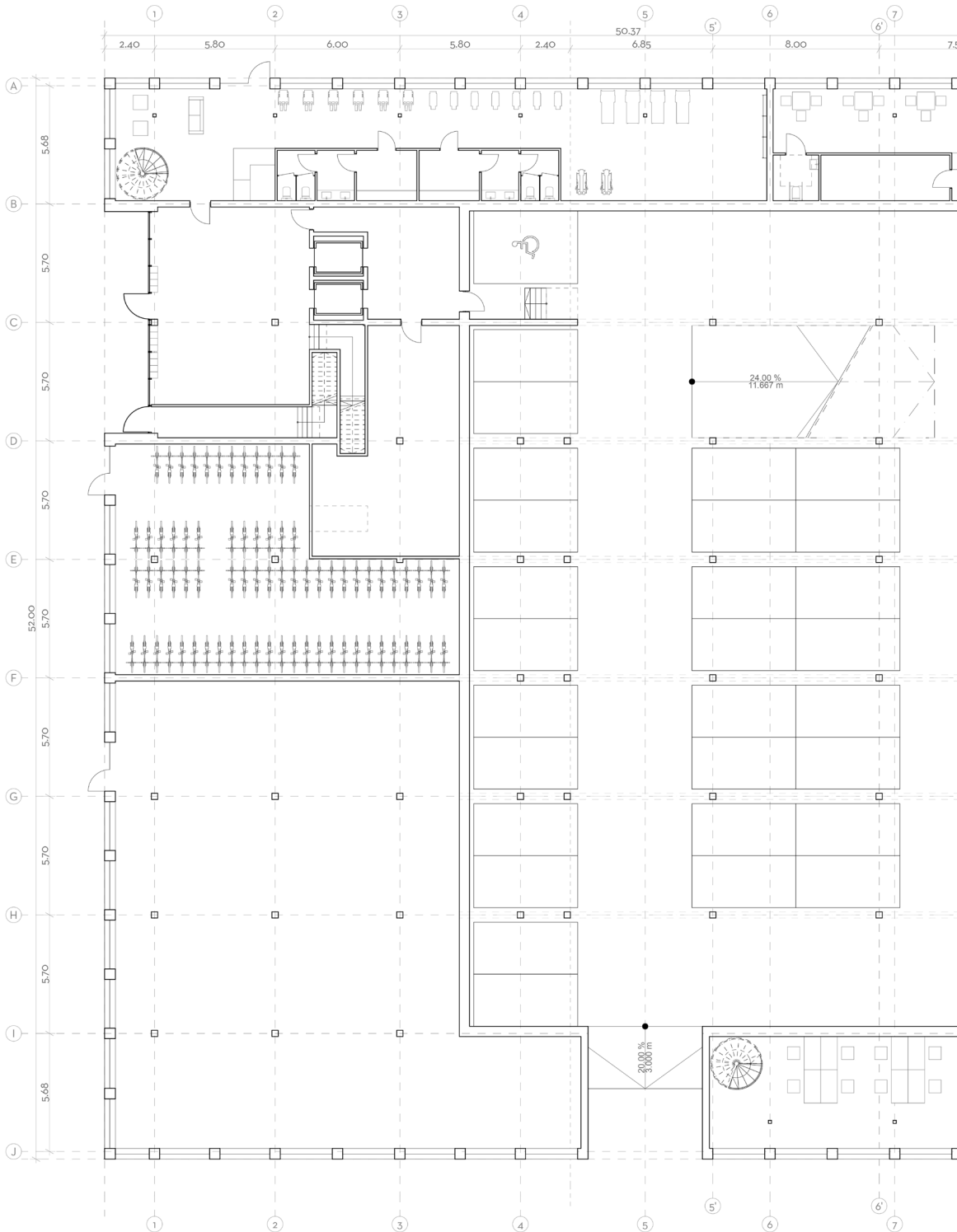


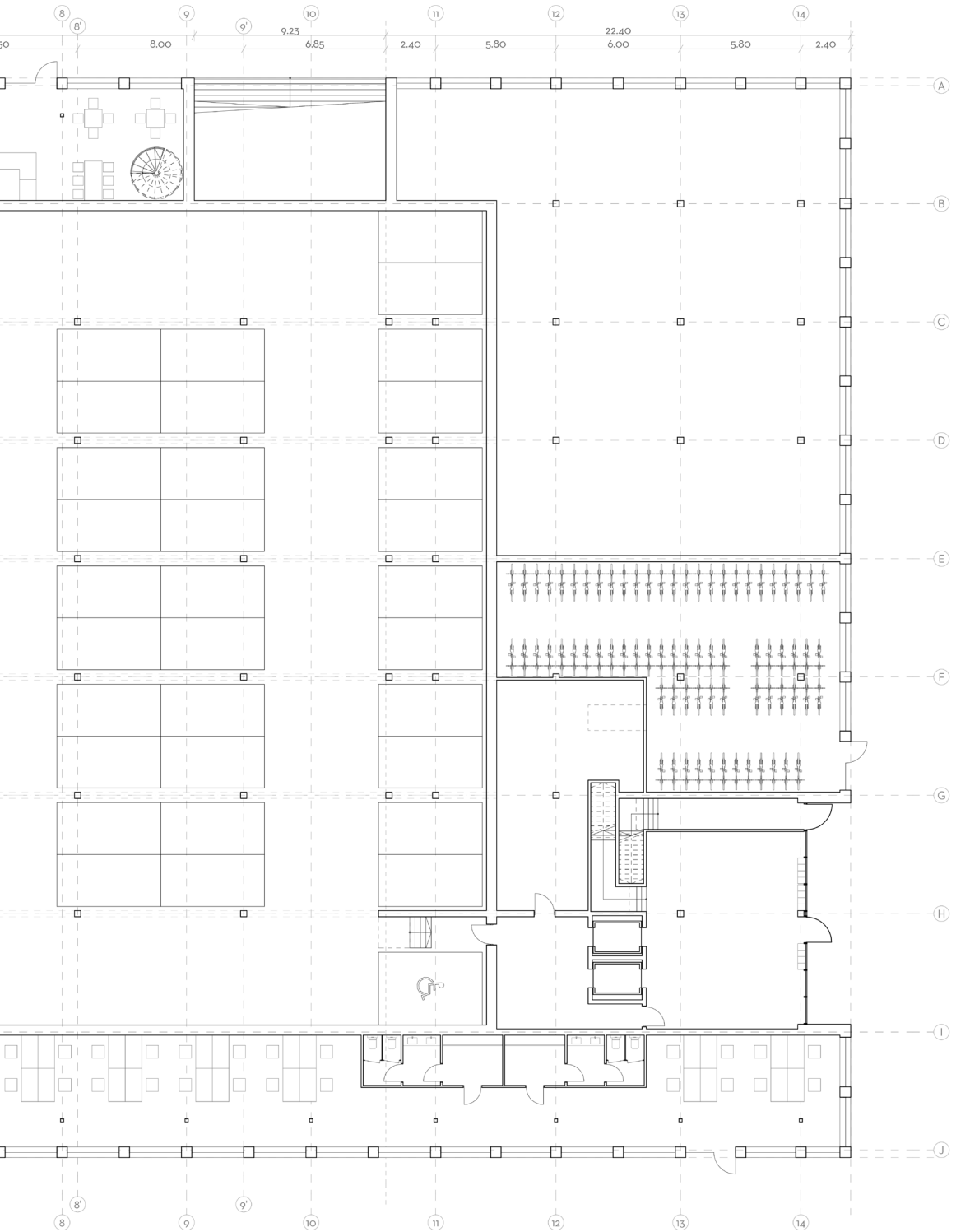
Keilestraat 7

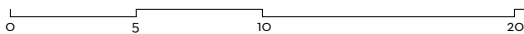
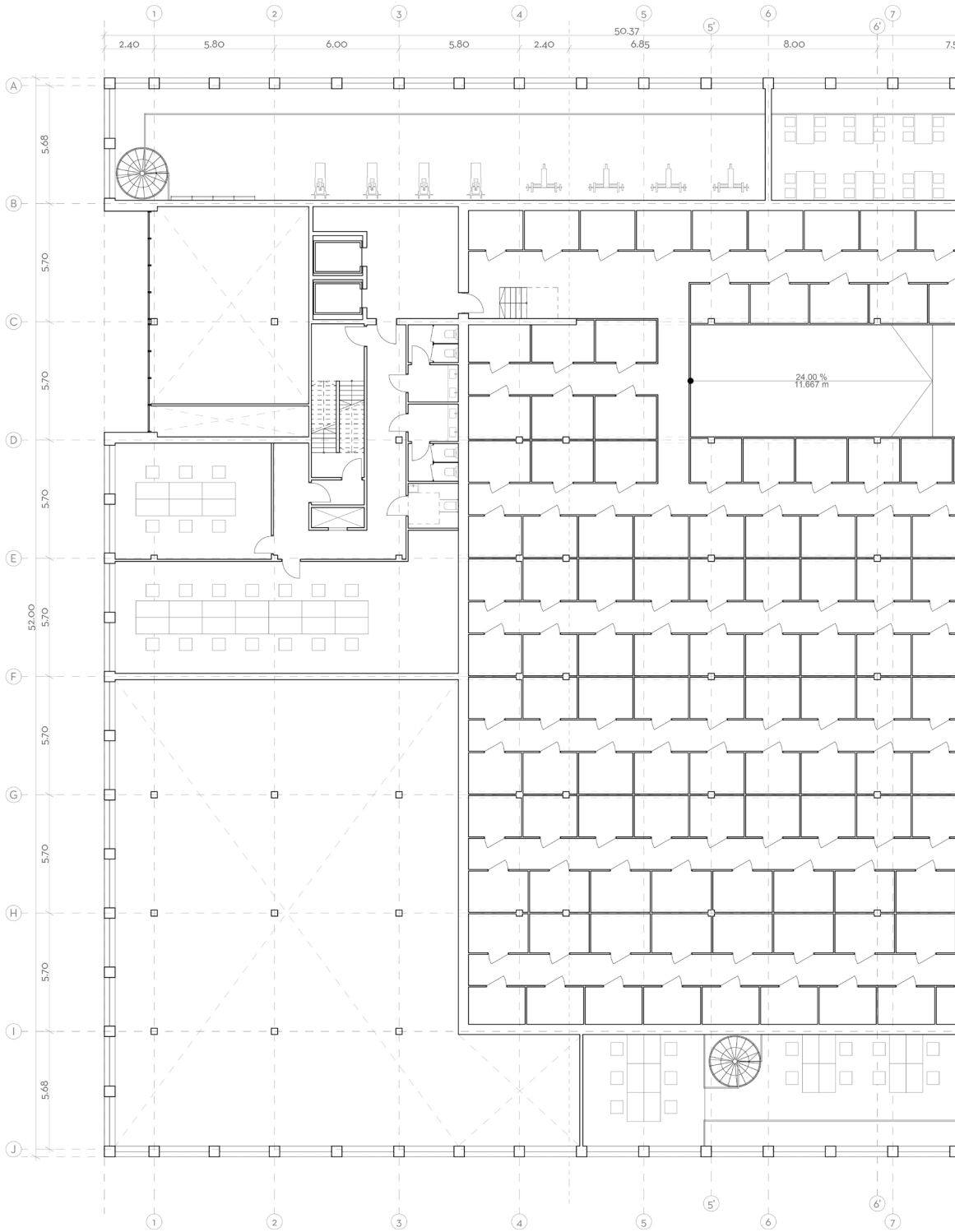


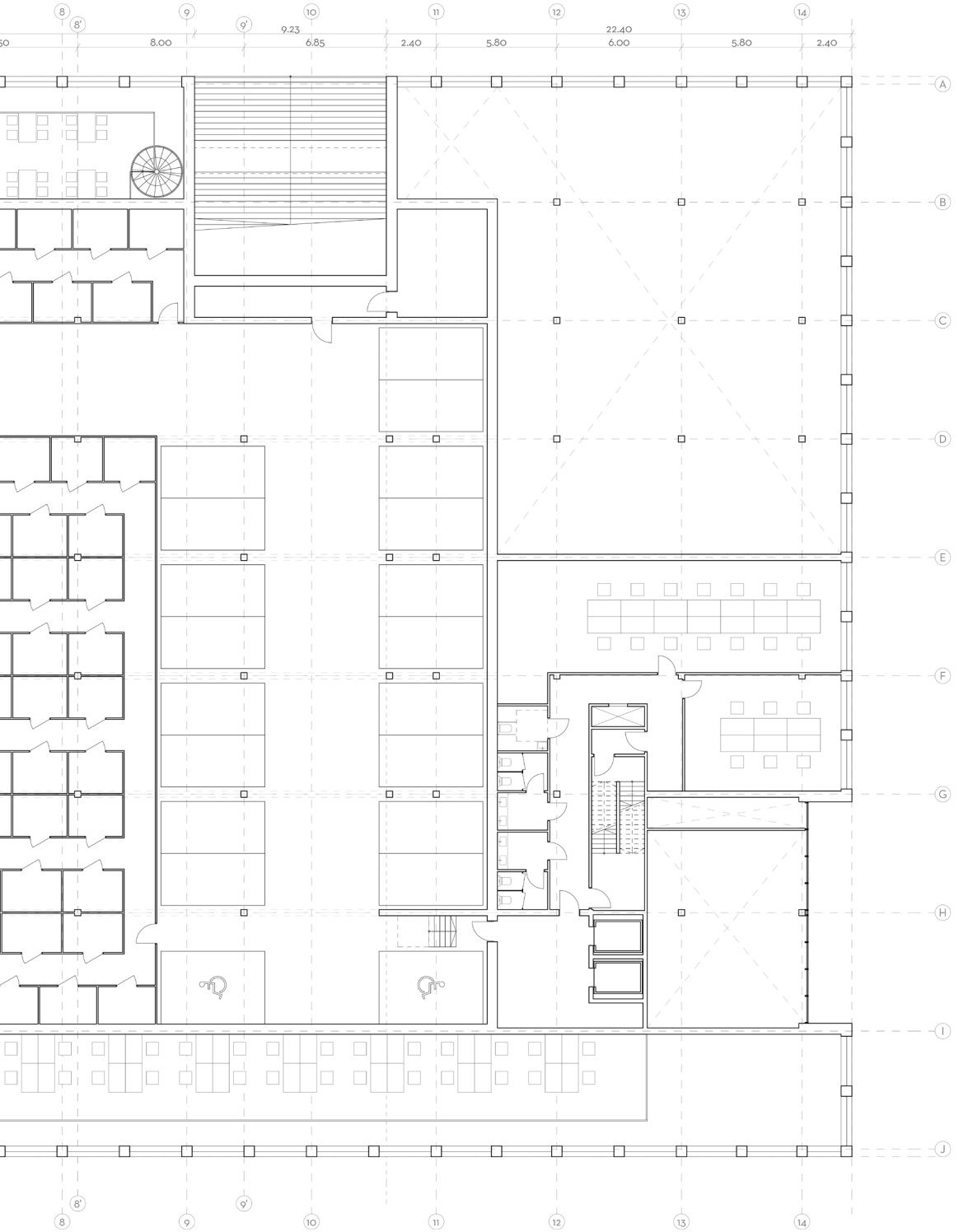


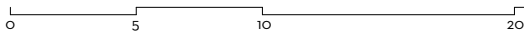
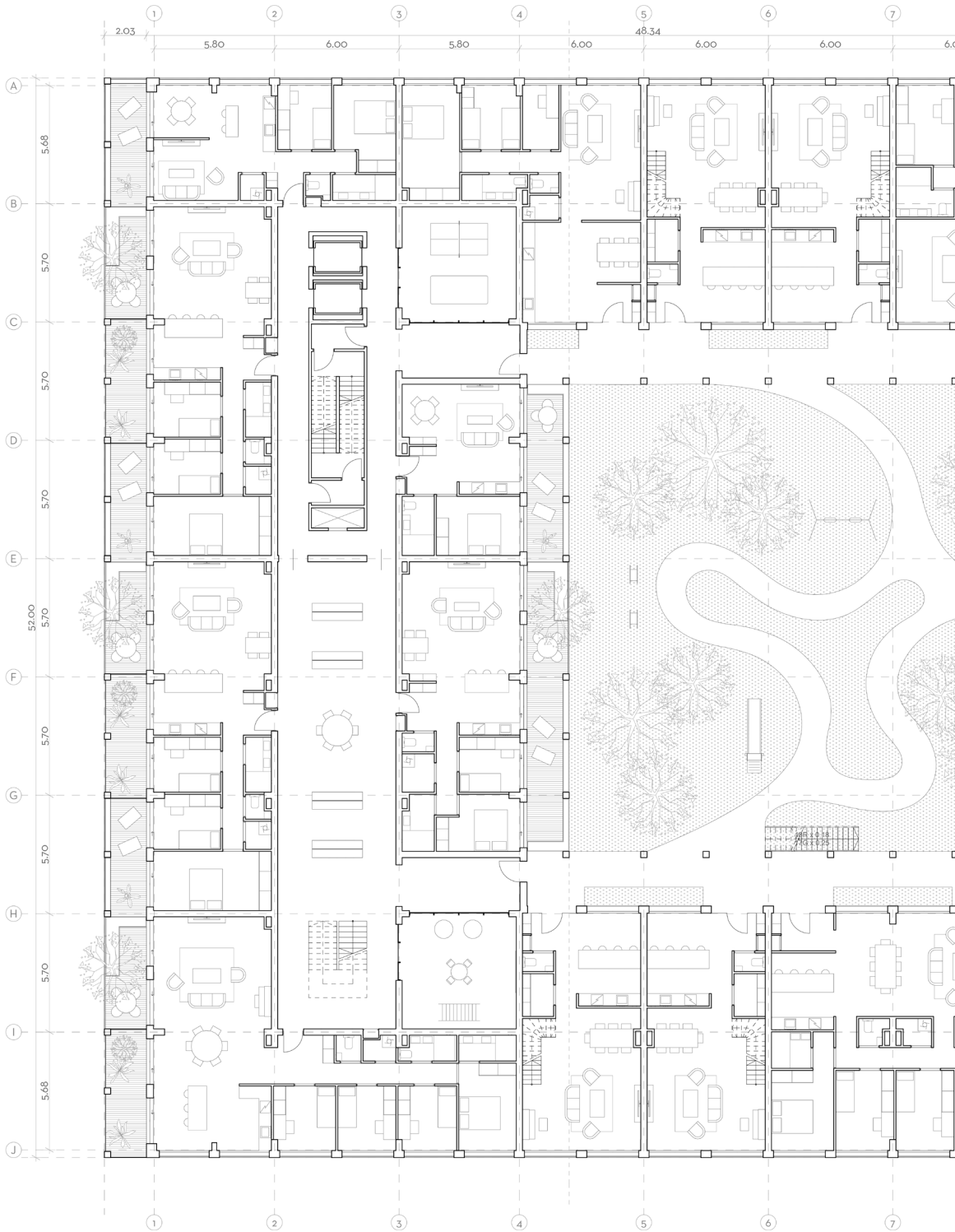
Floor plans

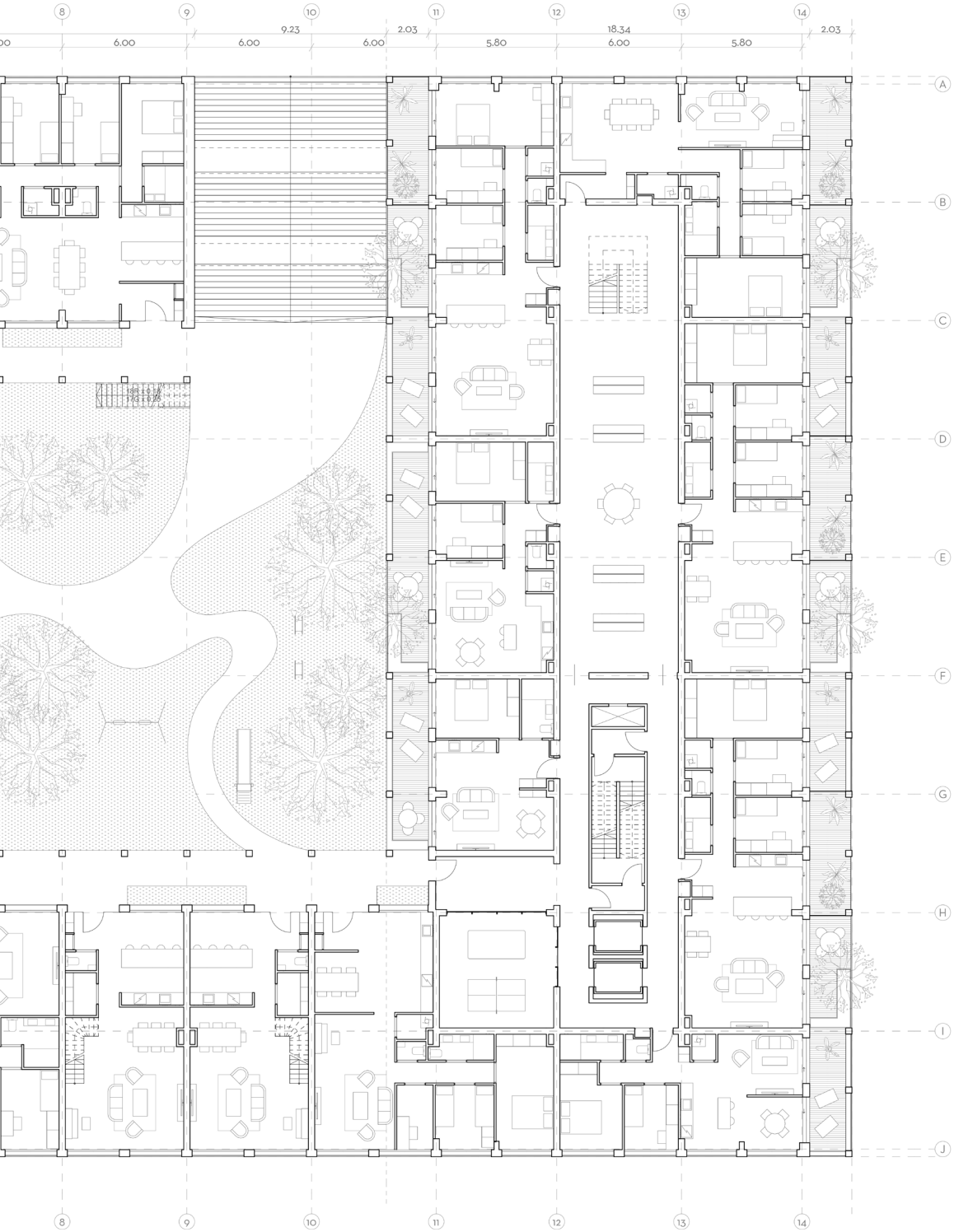


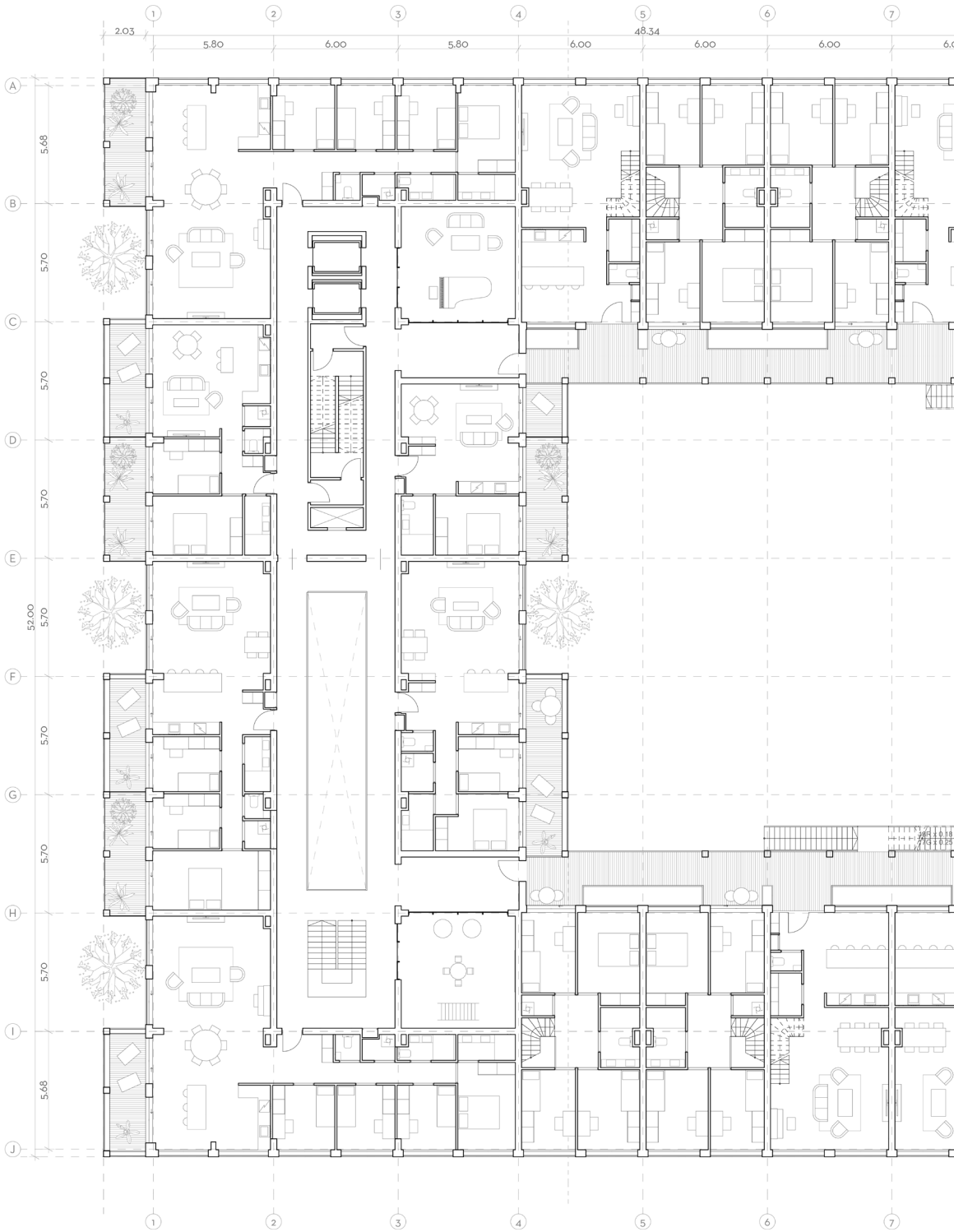


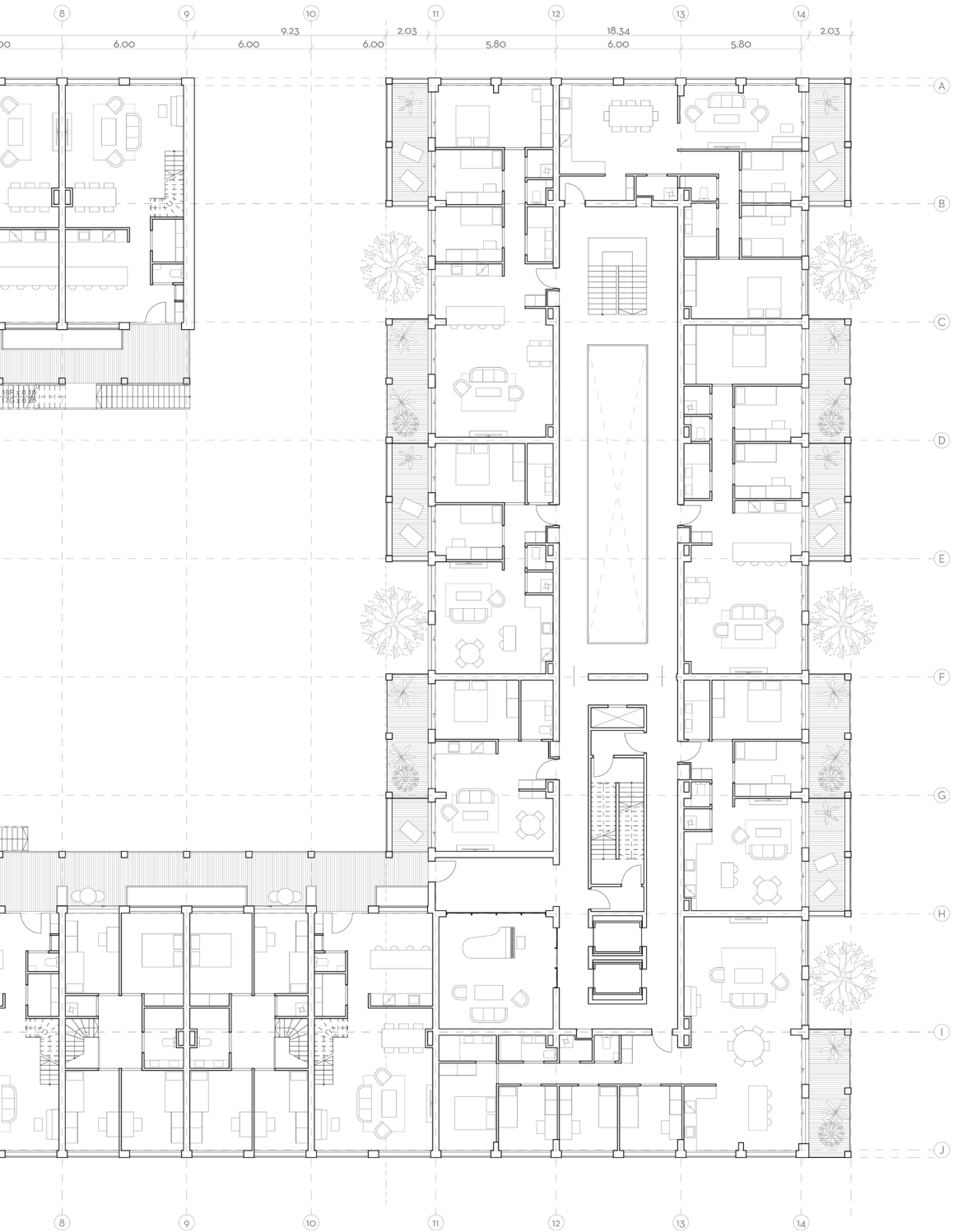


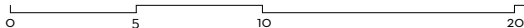
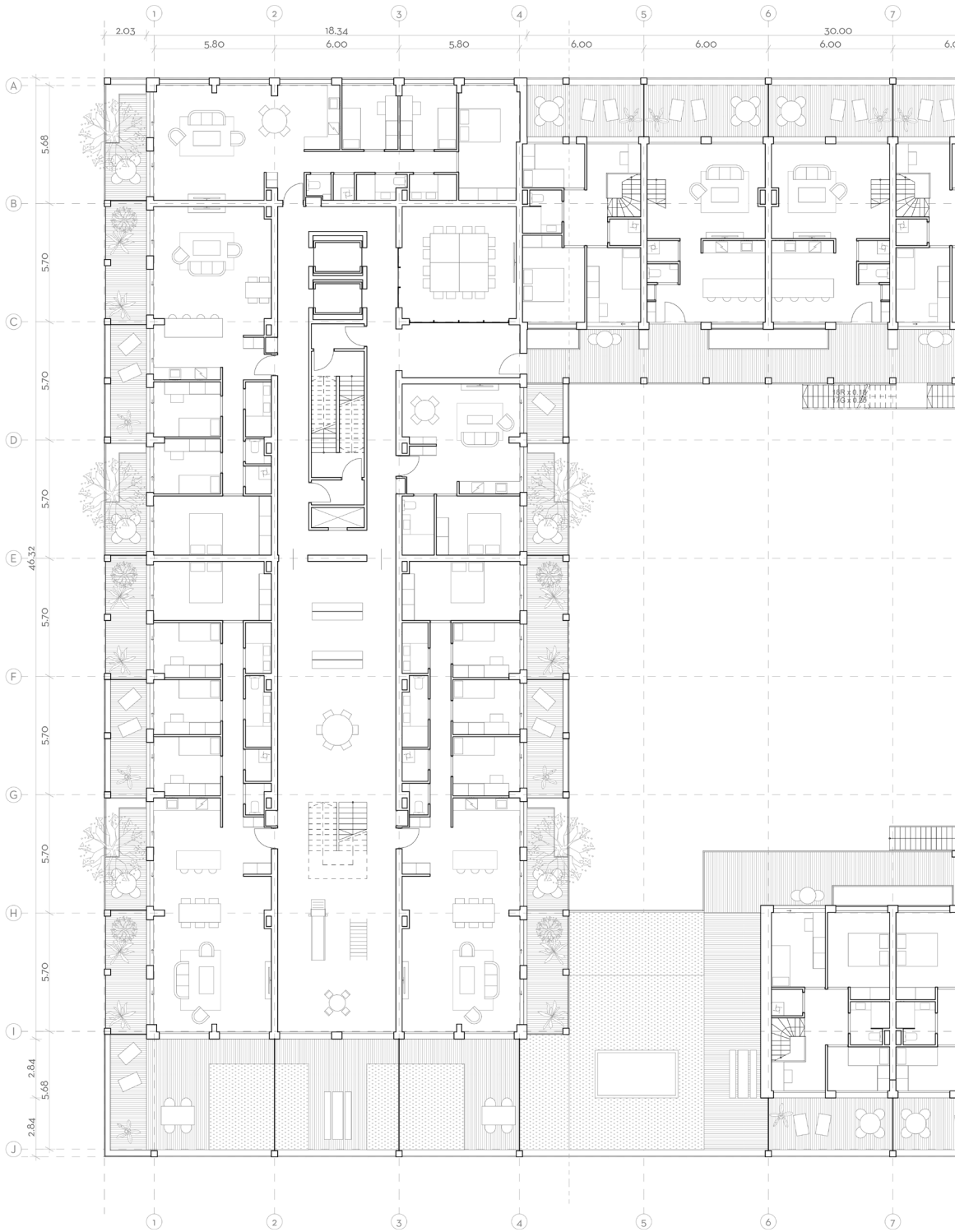


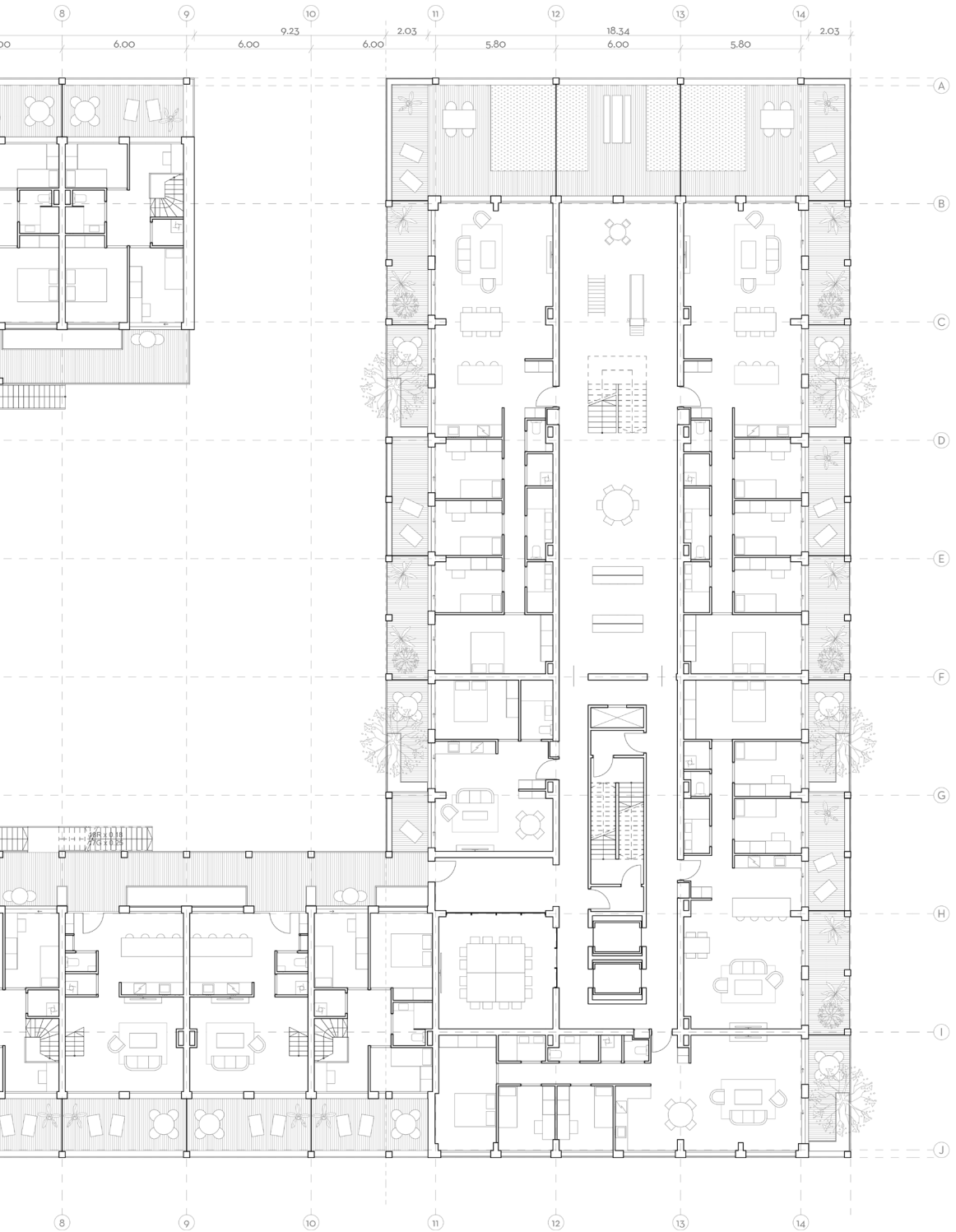


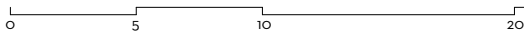
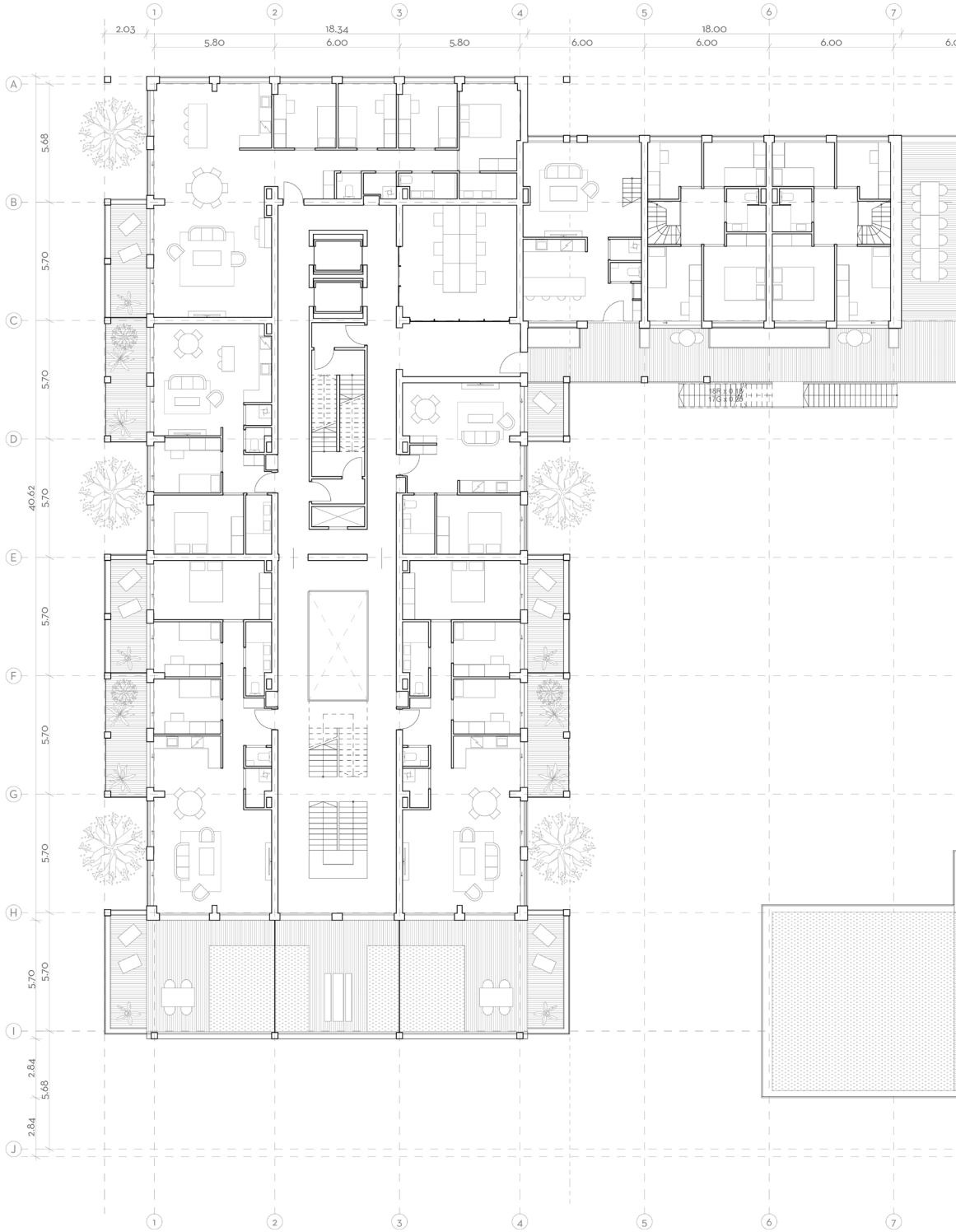


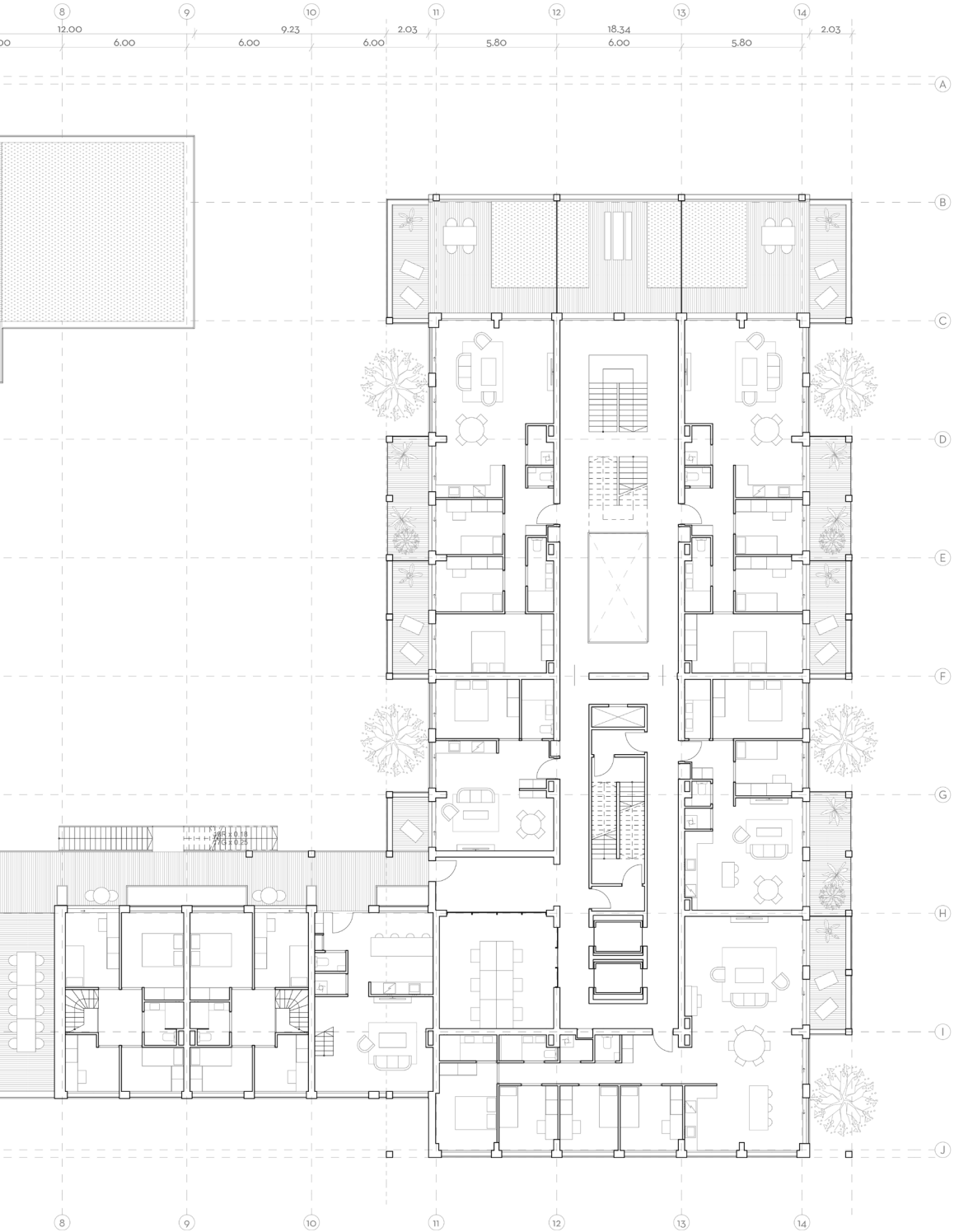


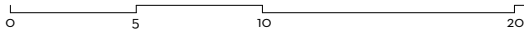
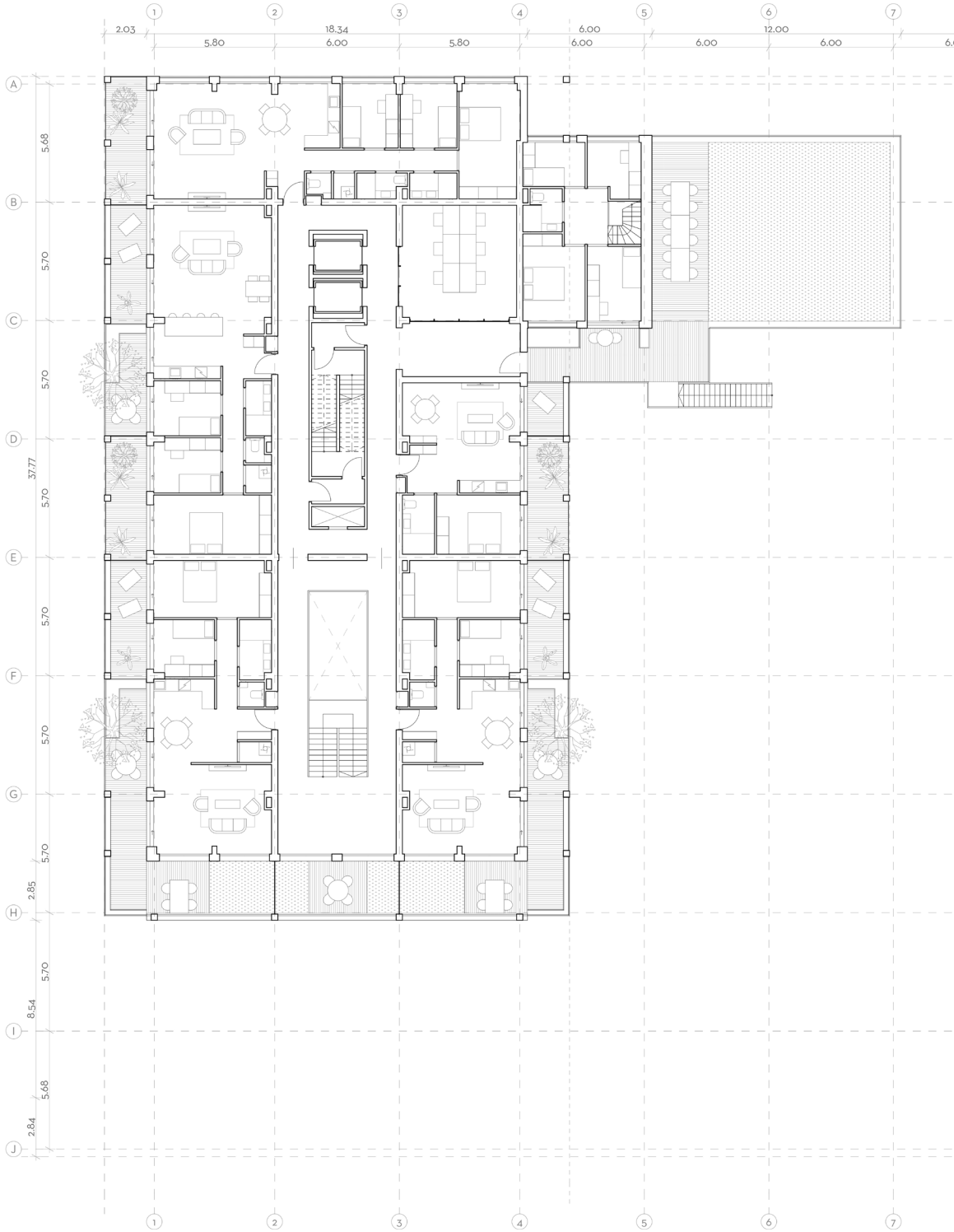


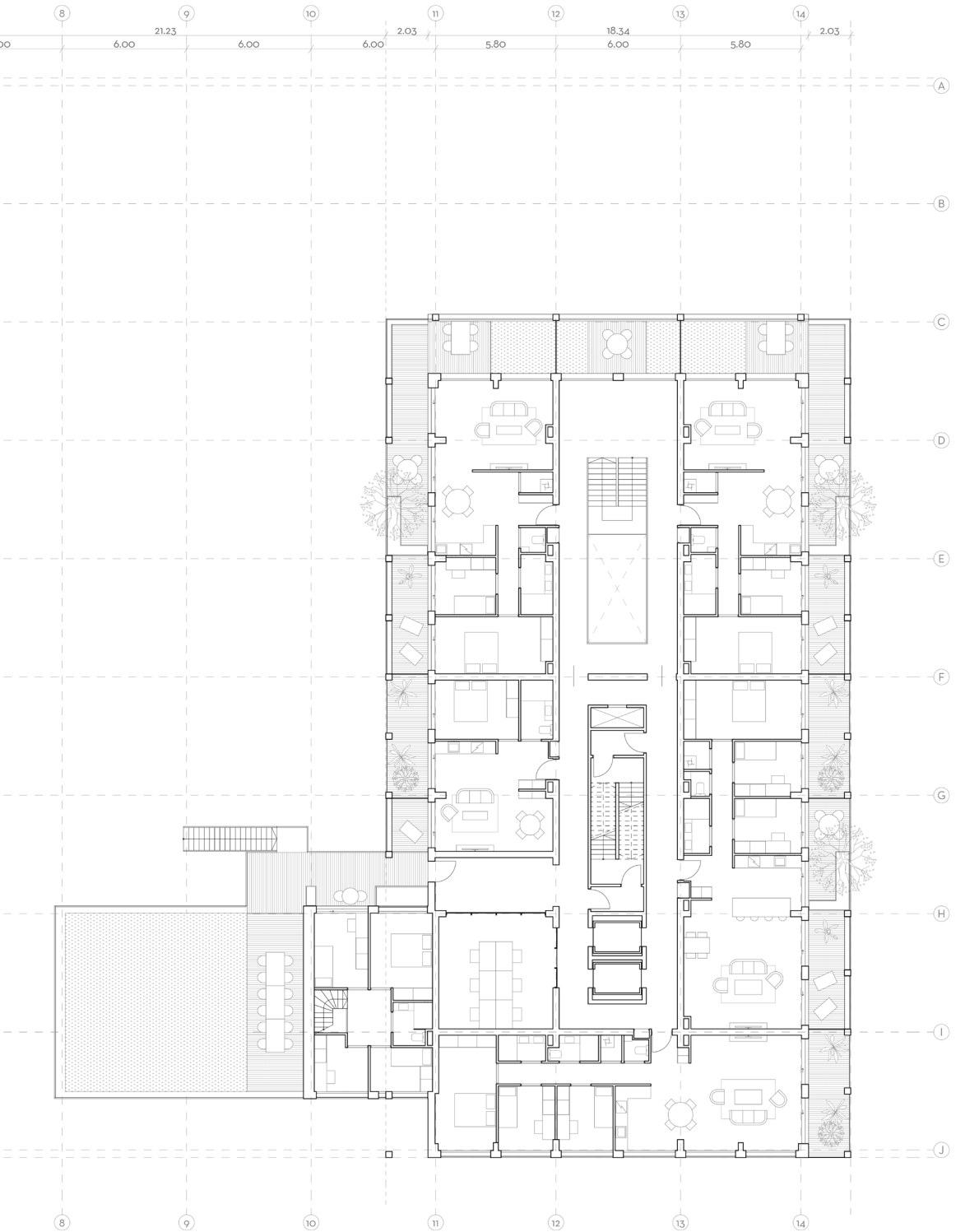


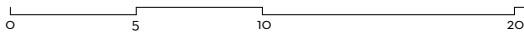
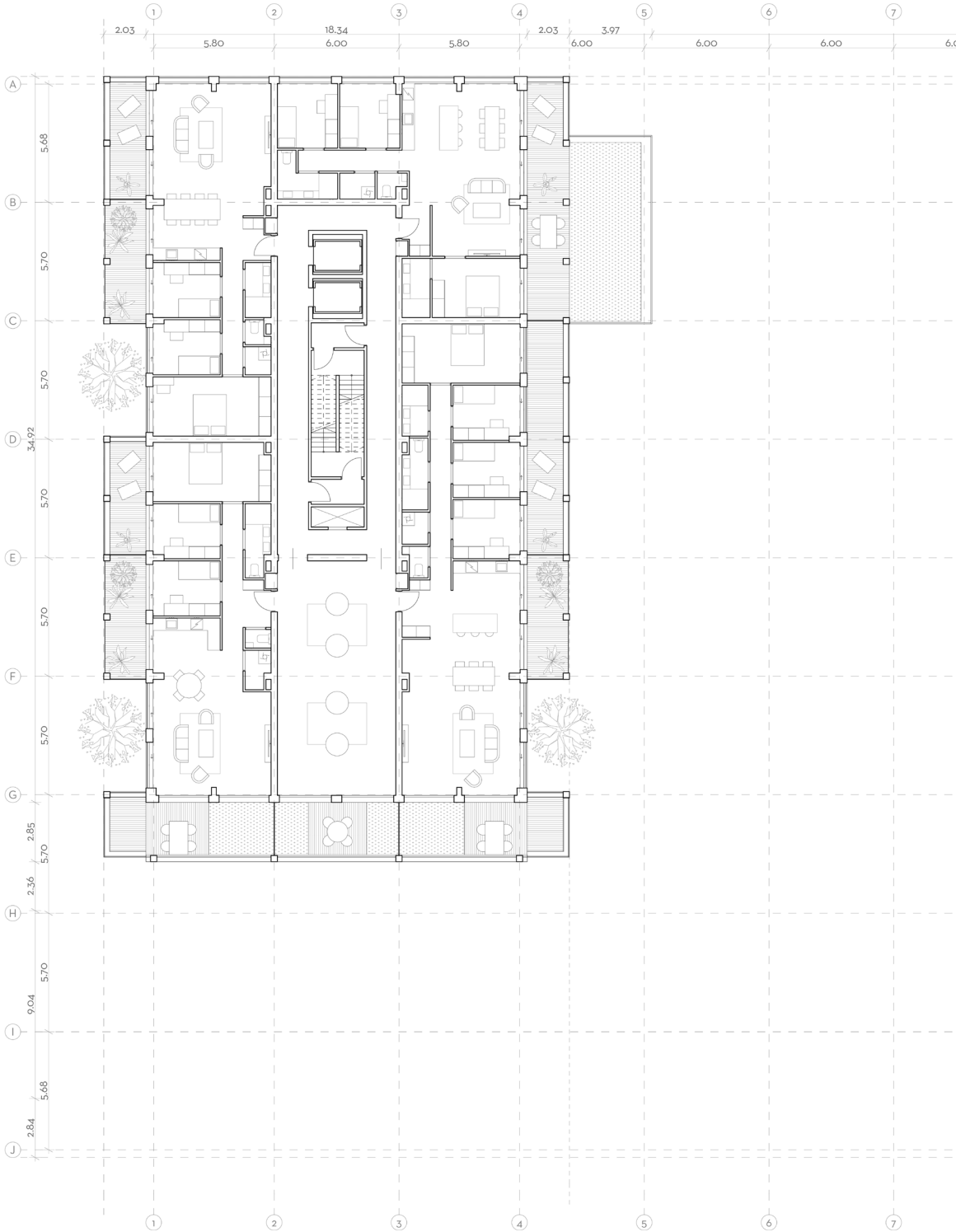


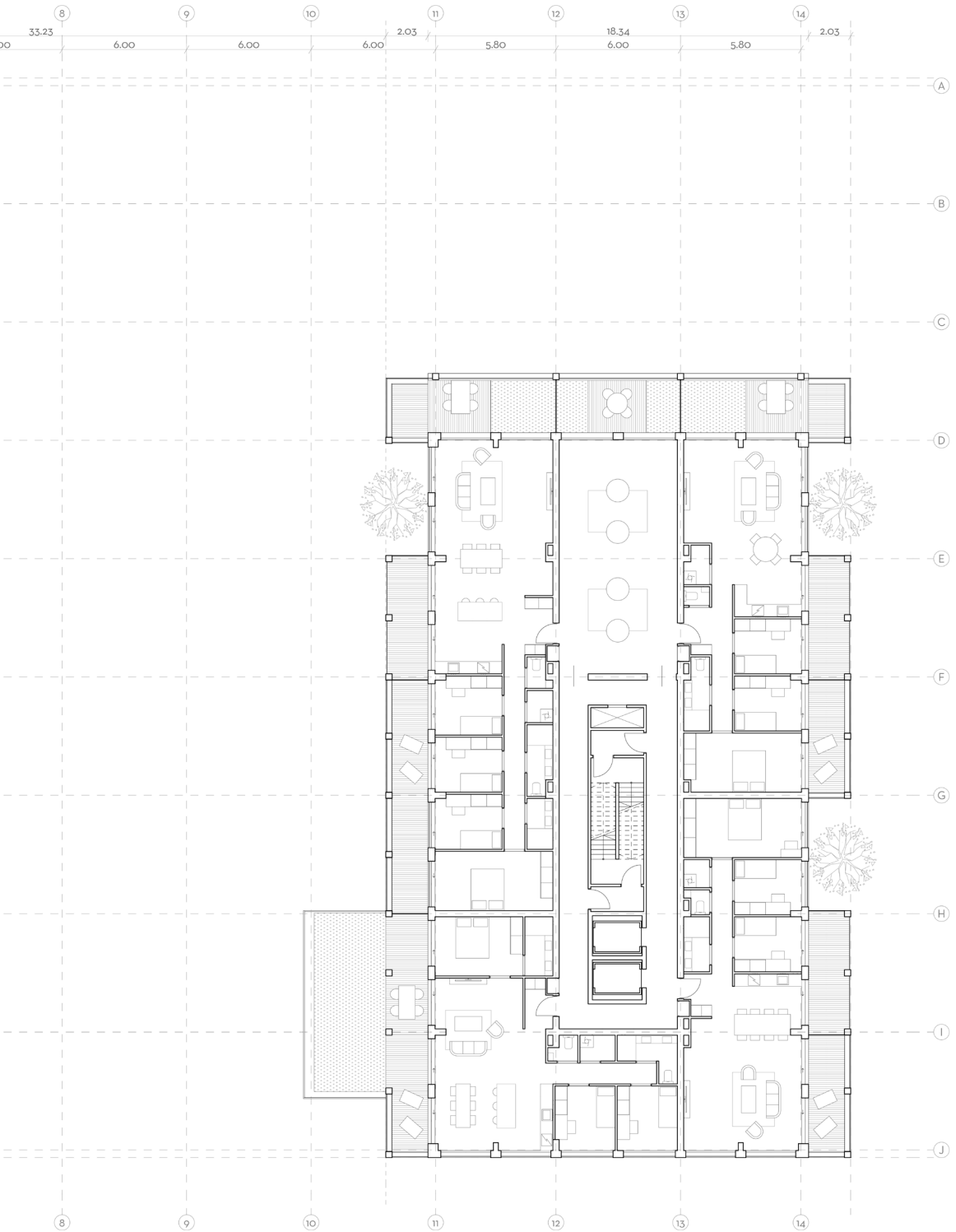


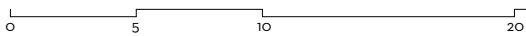
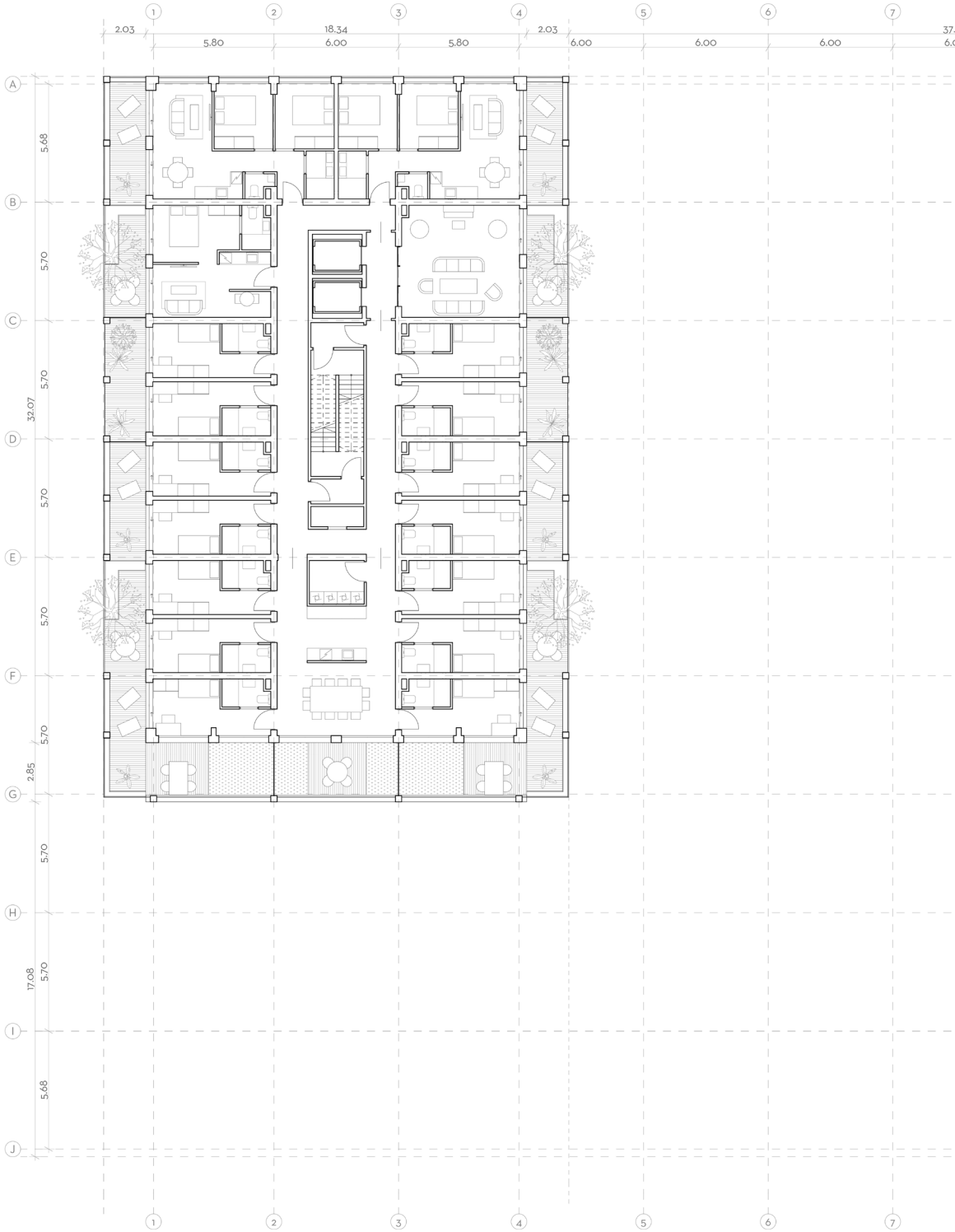


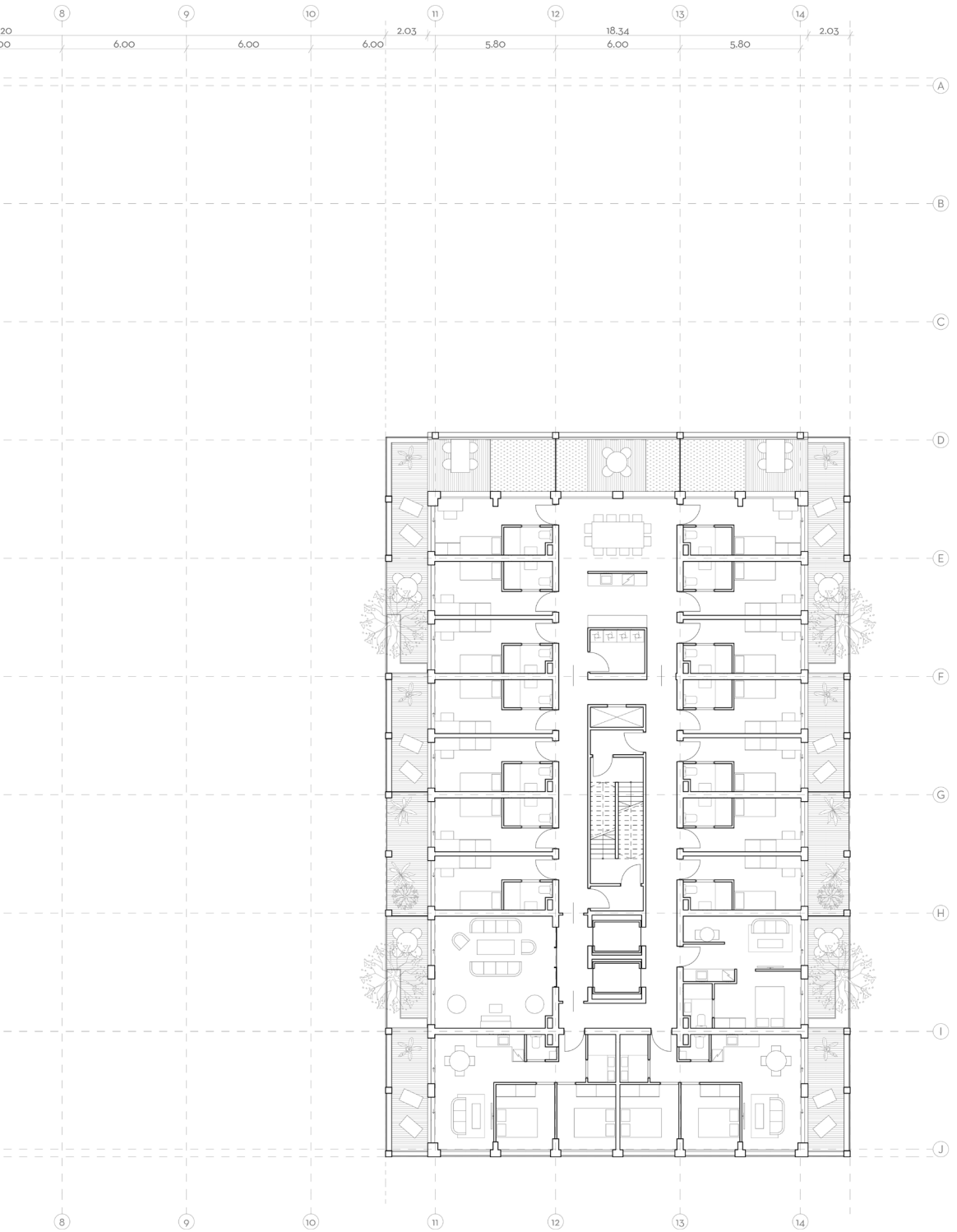


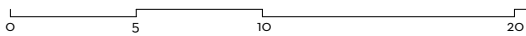
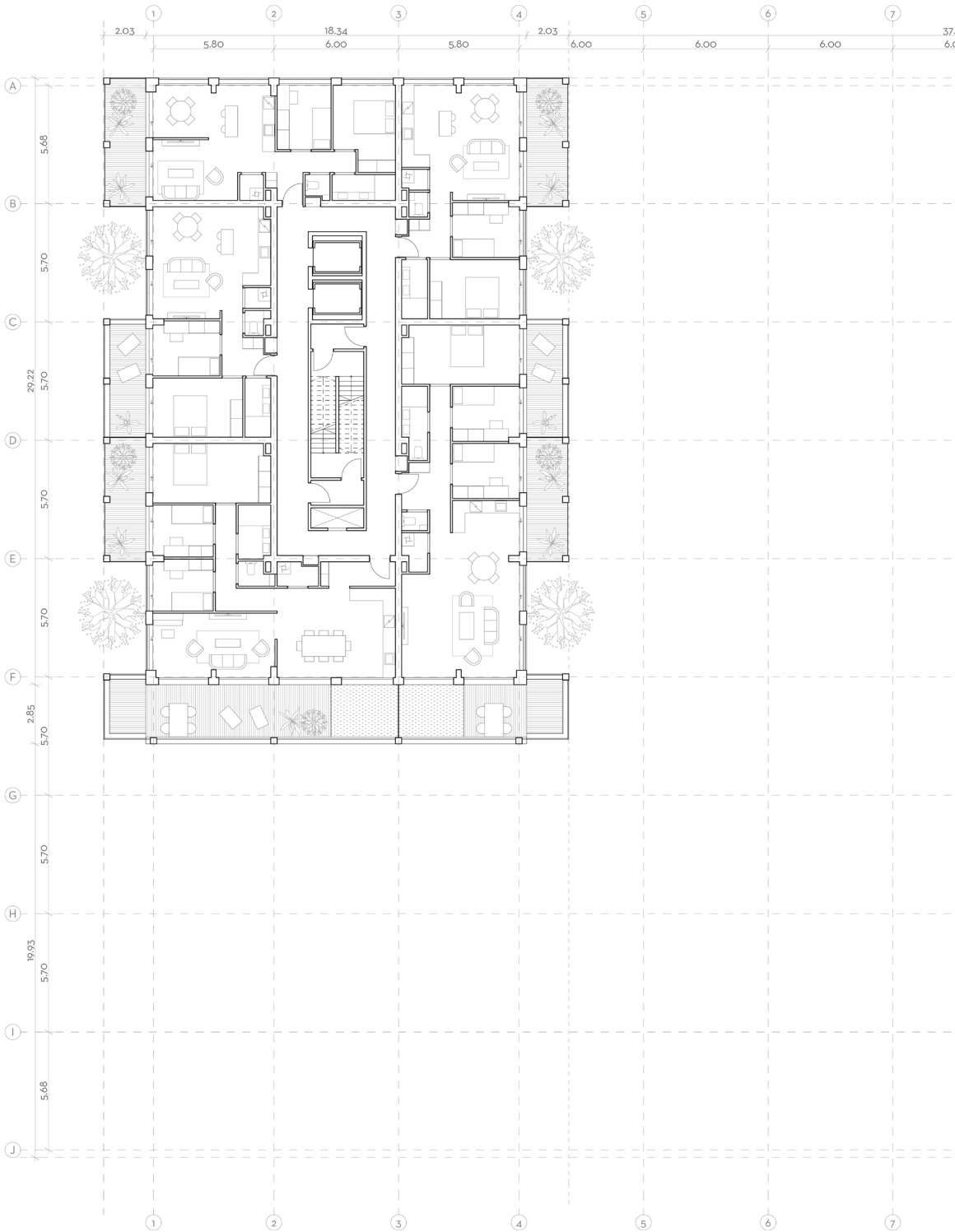


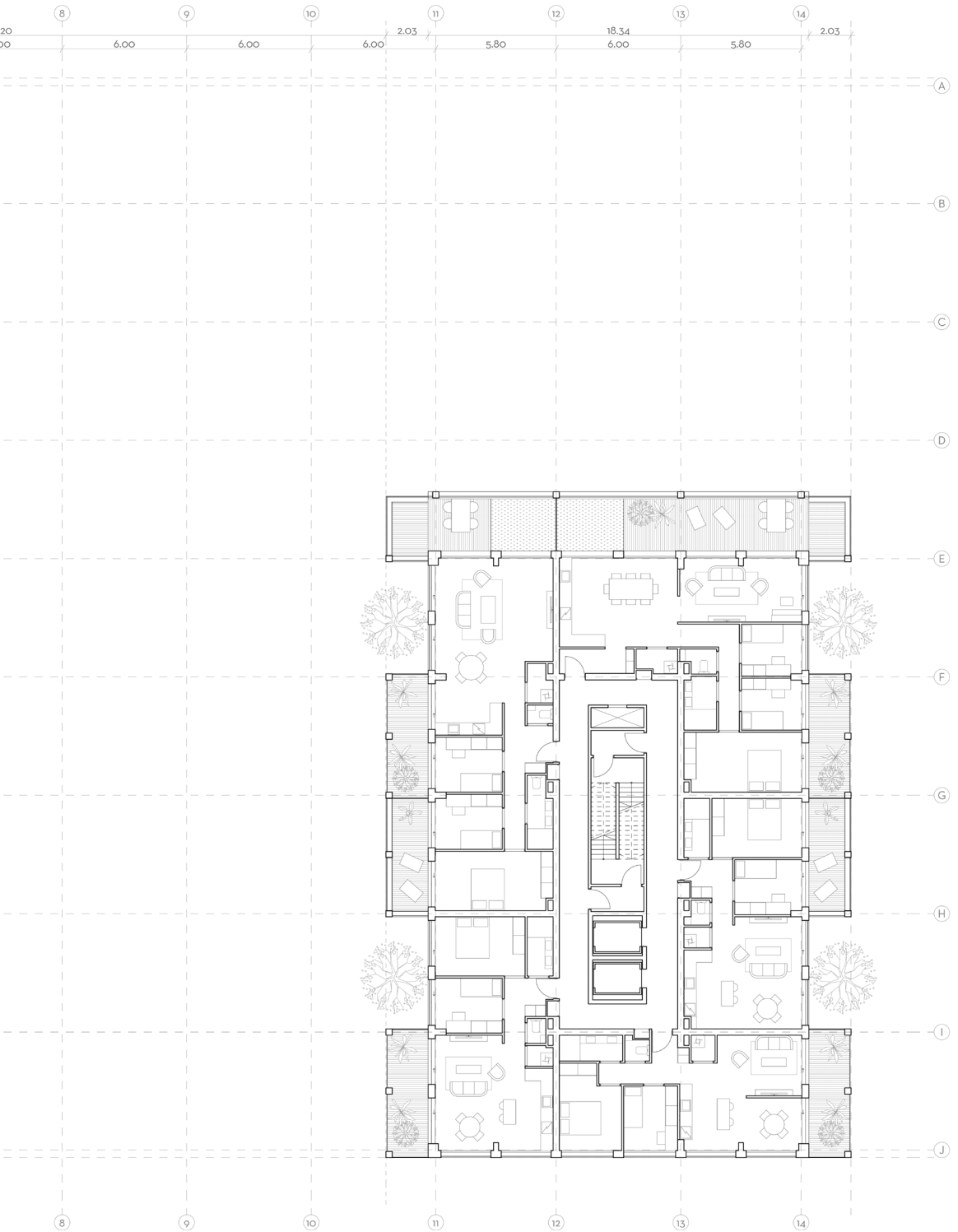


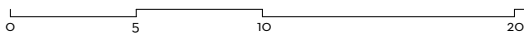
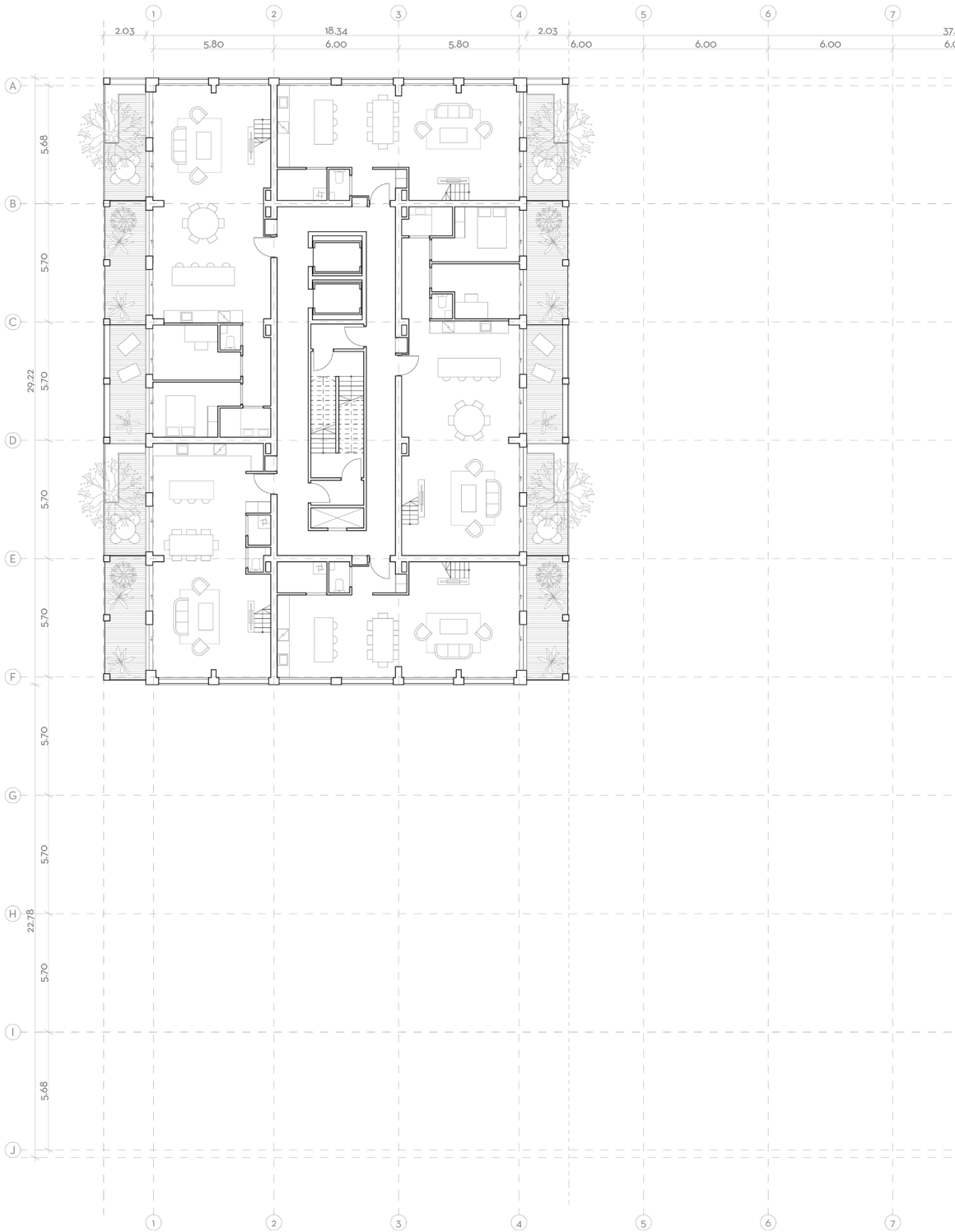


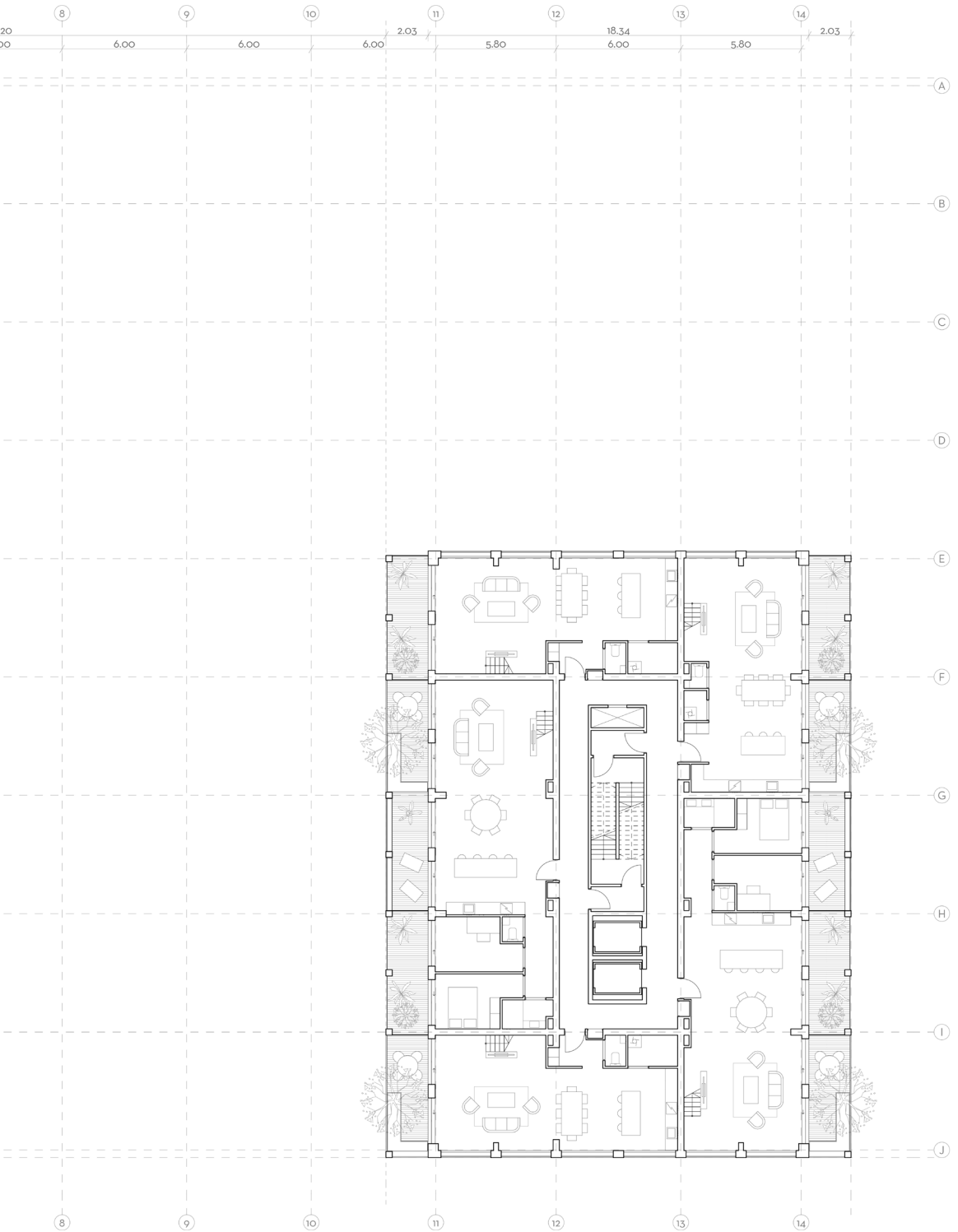


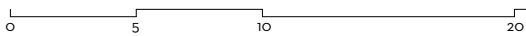
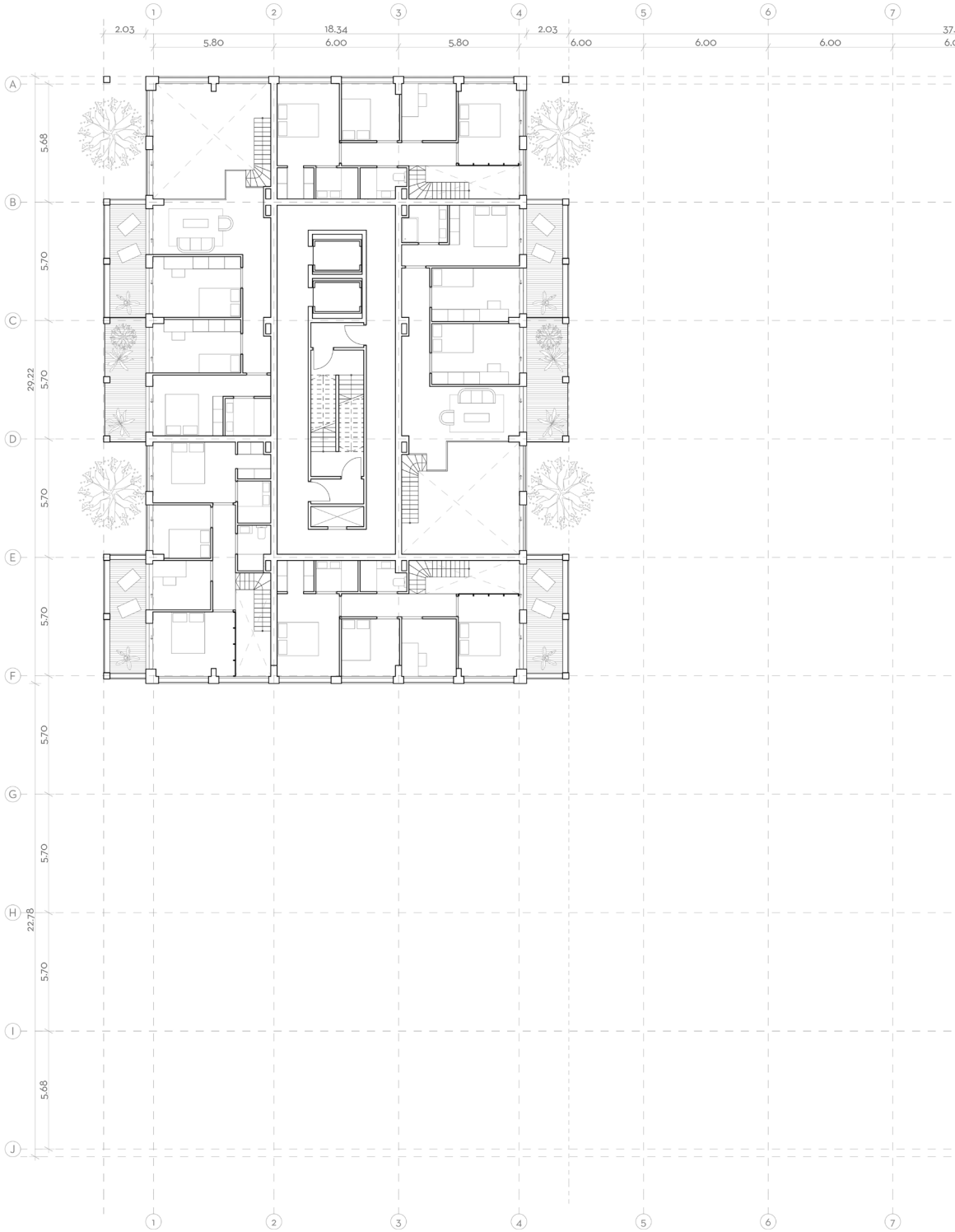


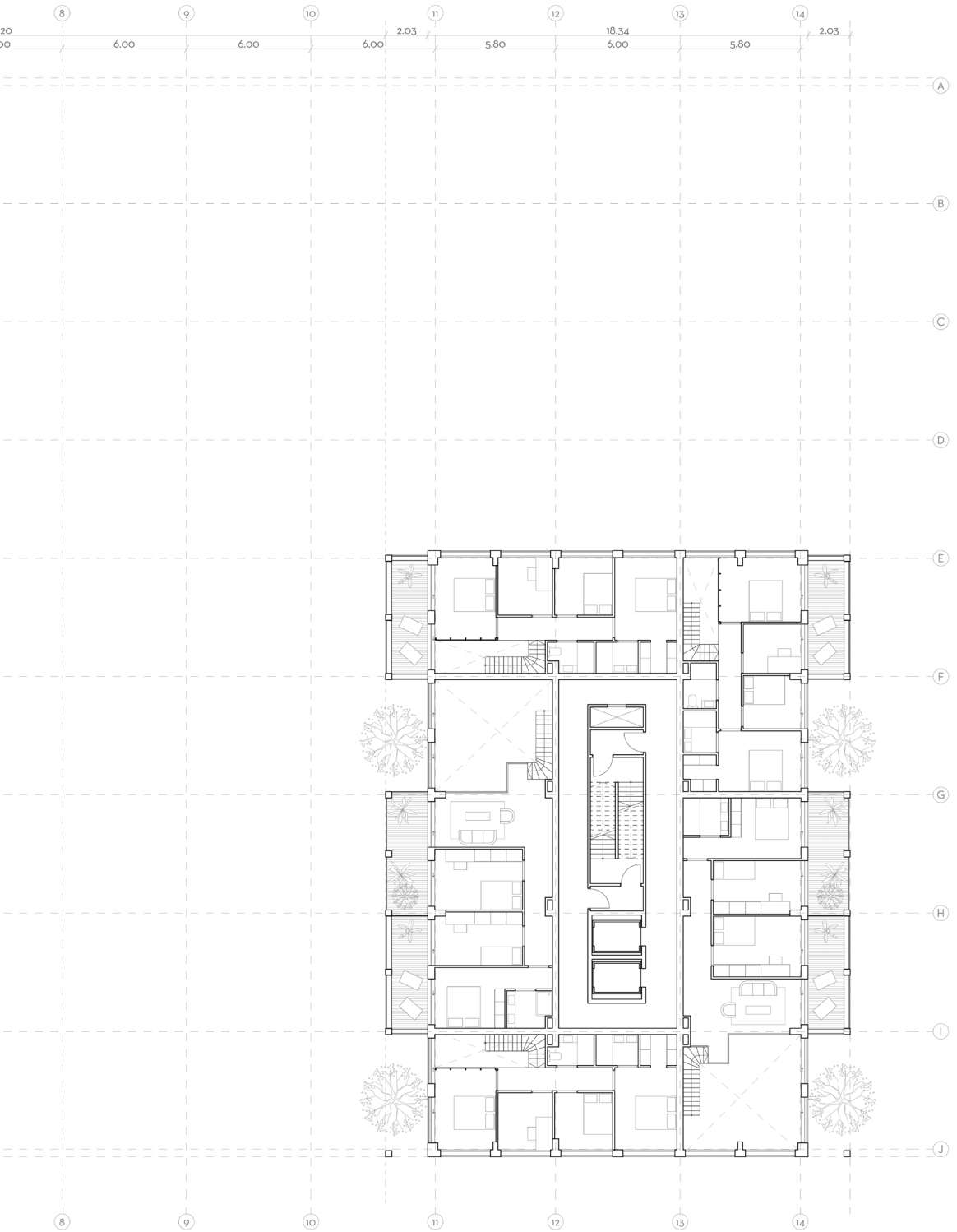


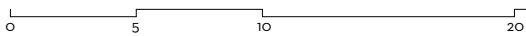
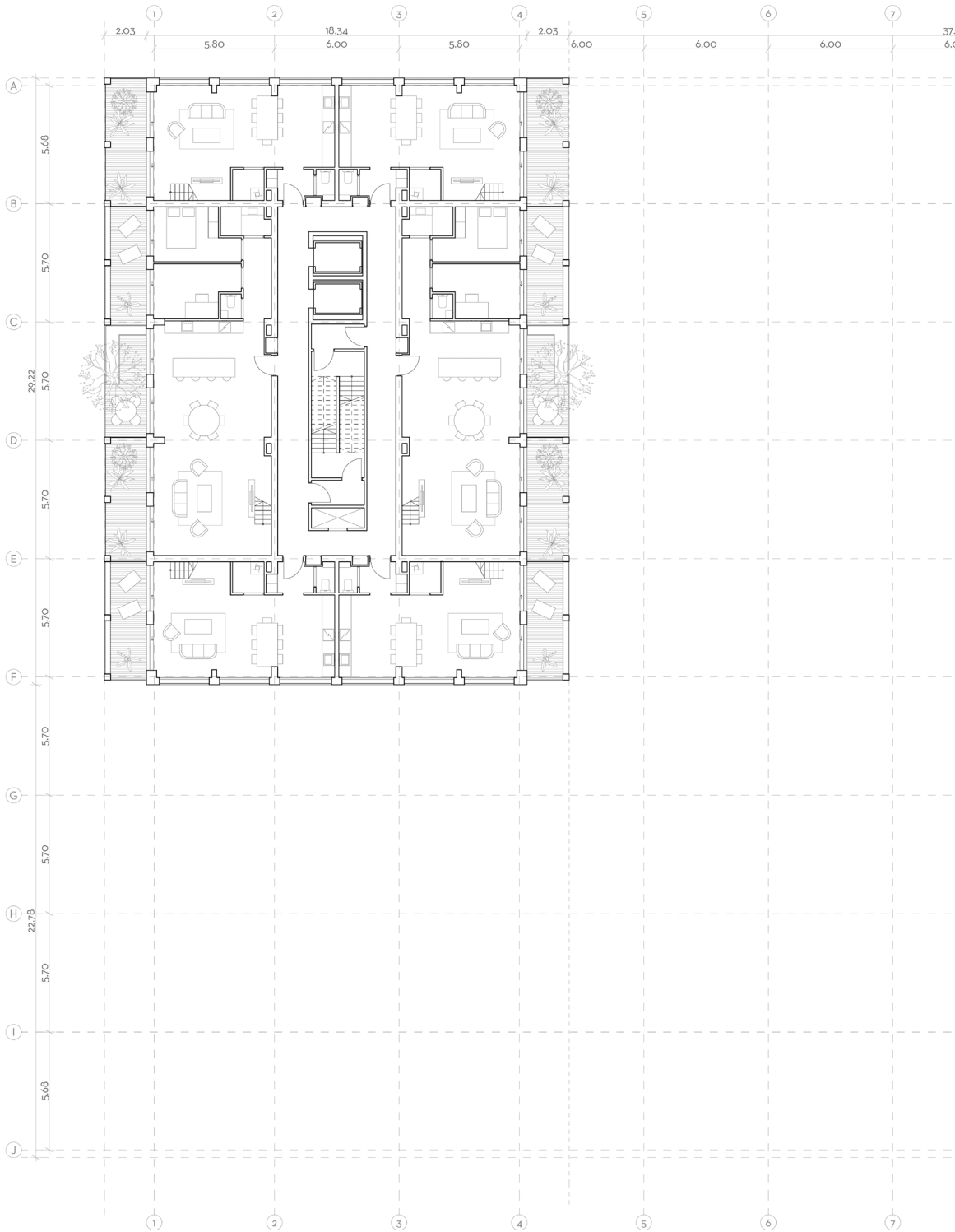


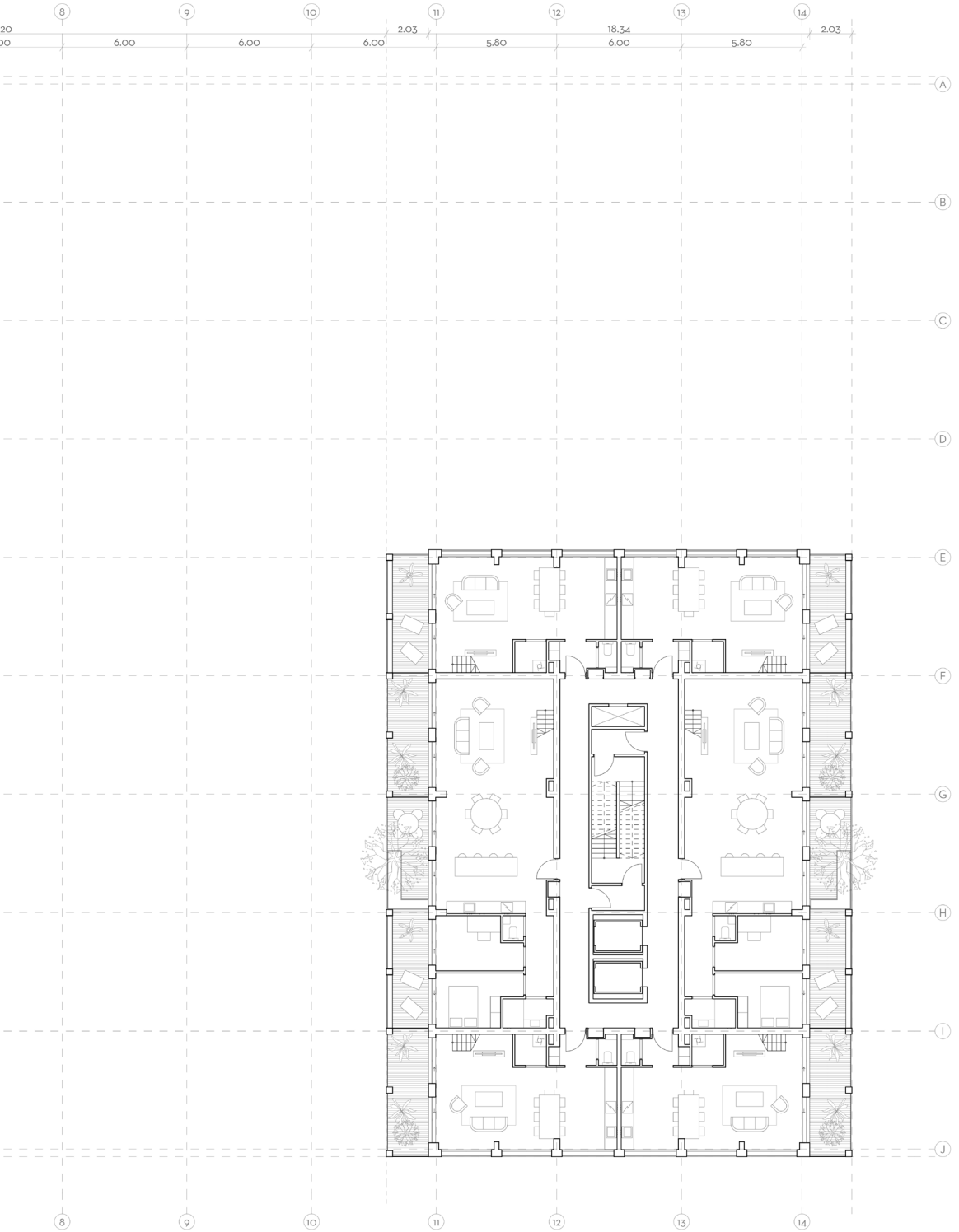


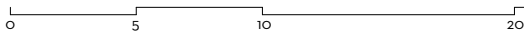
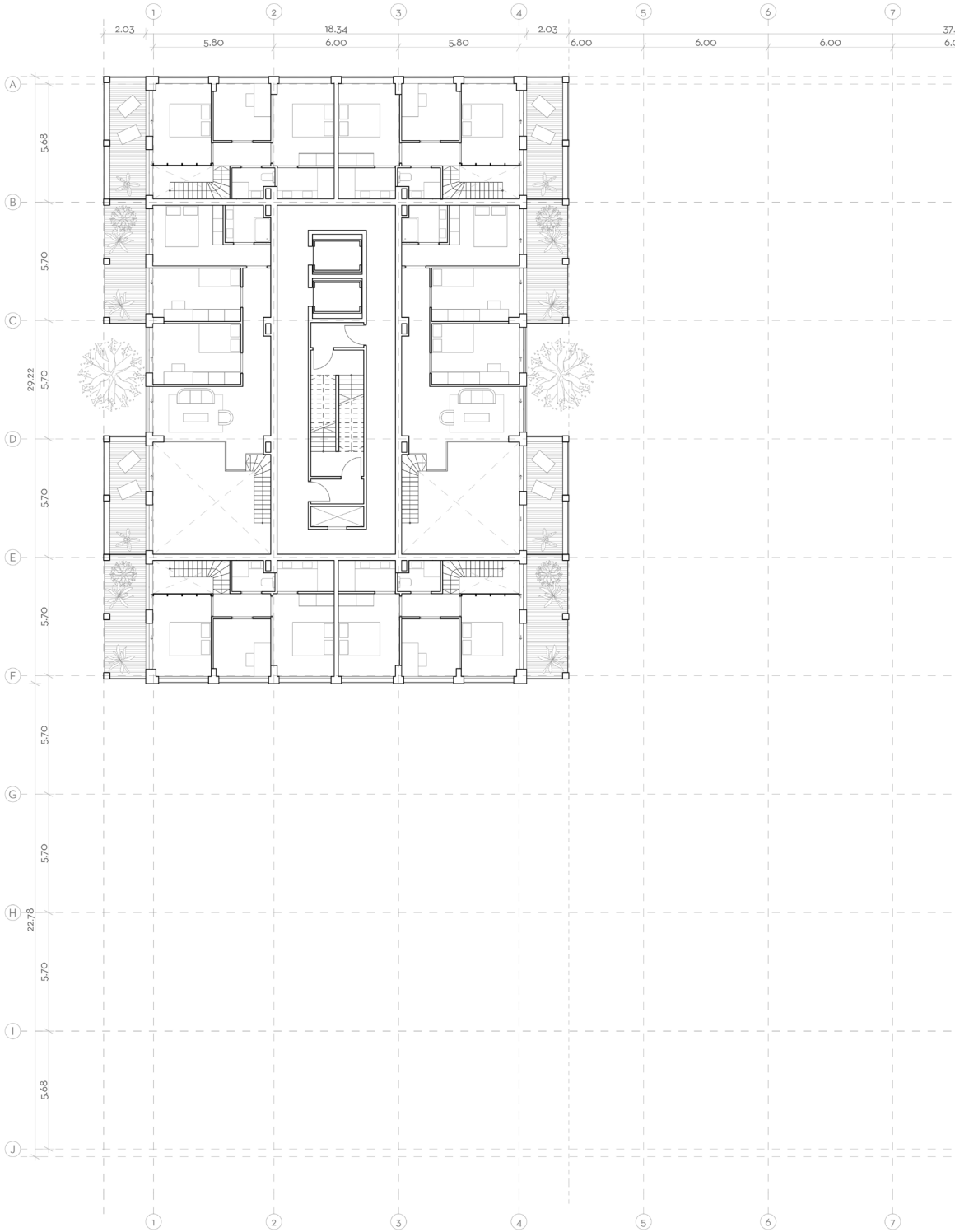


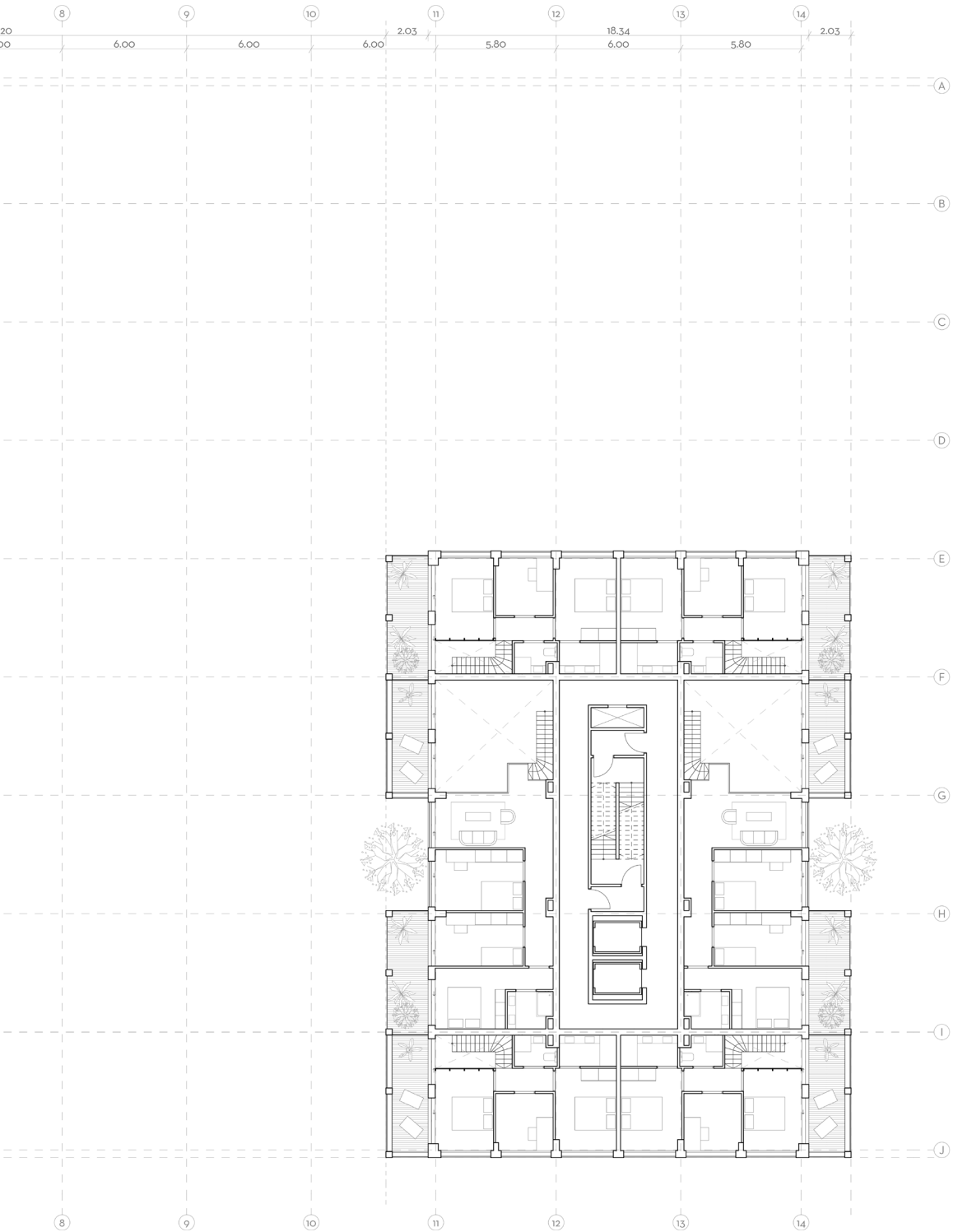


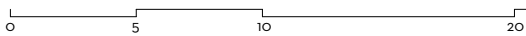
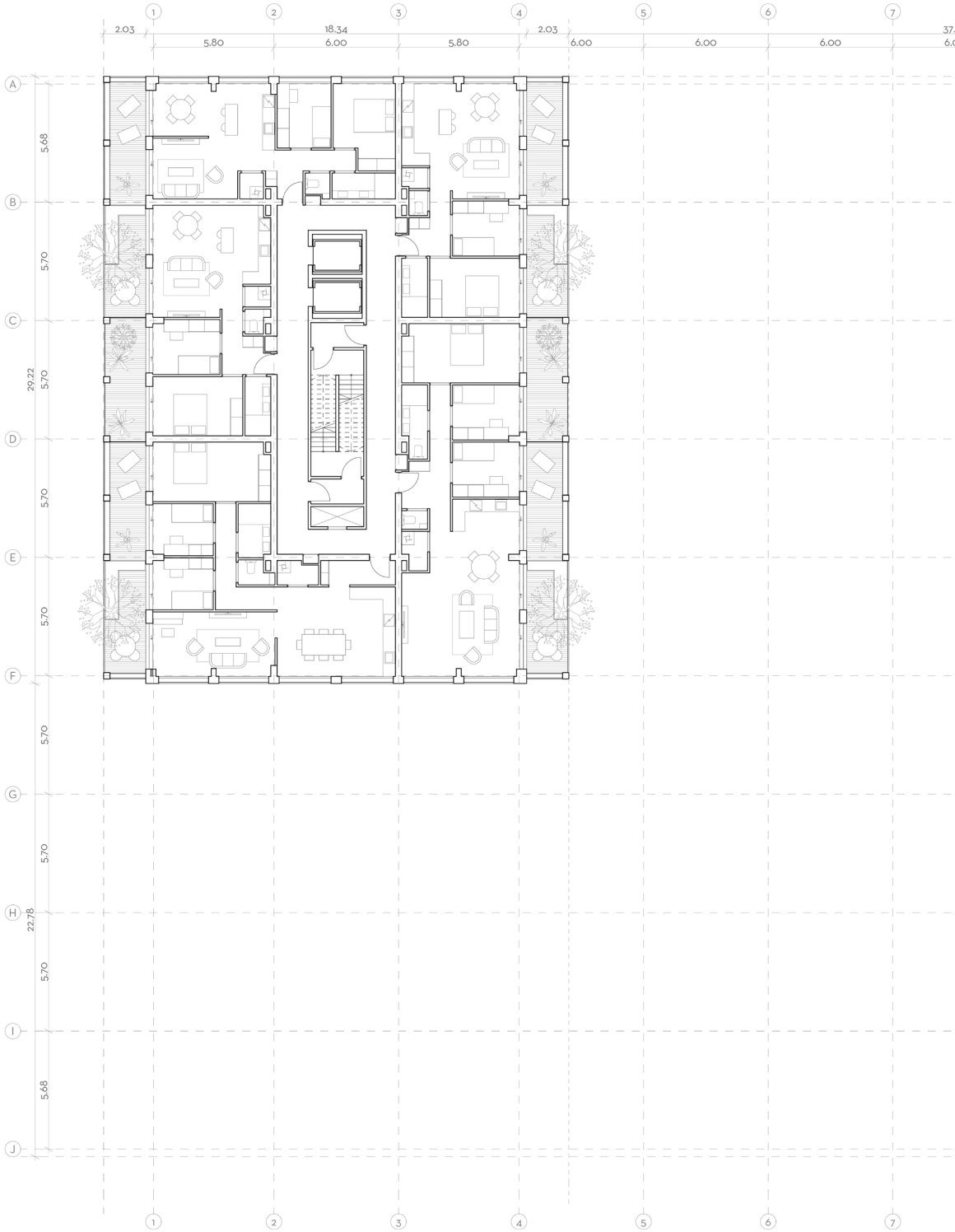


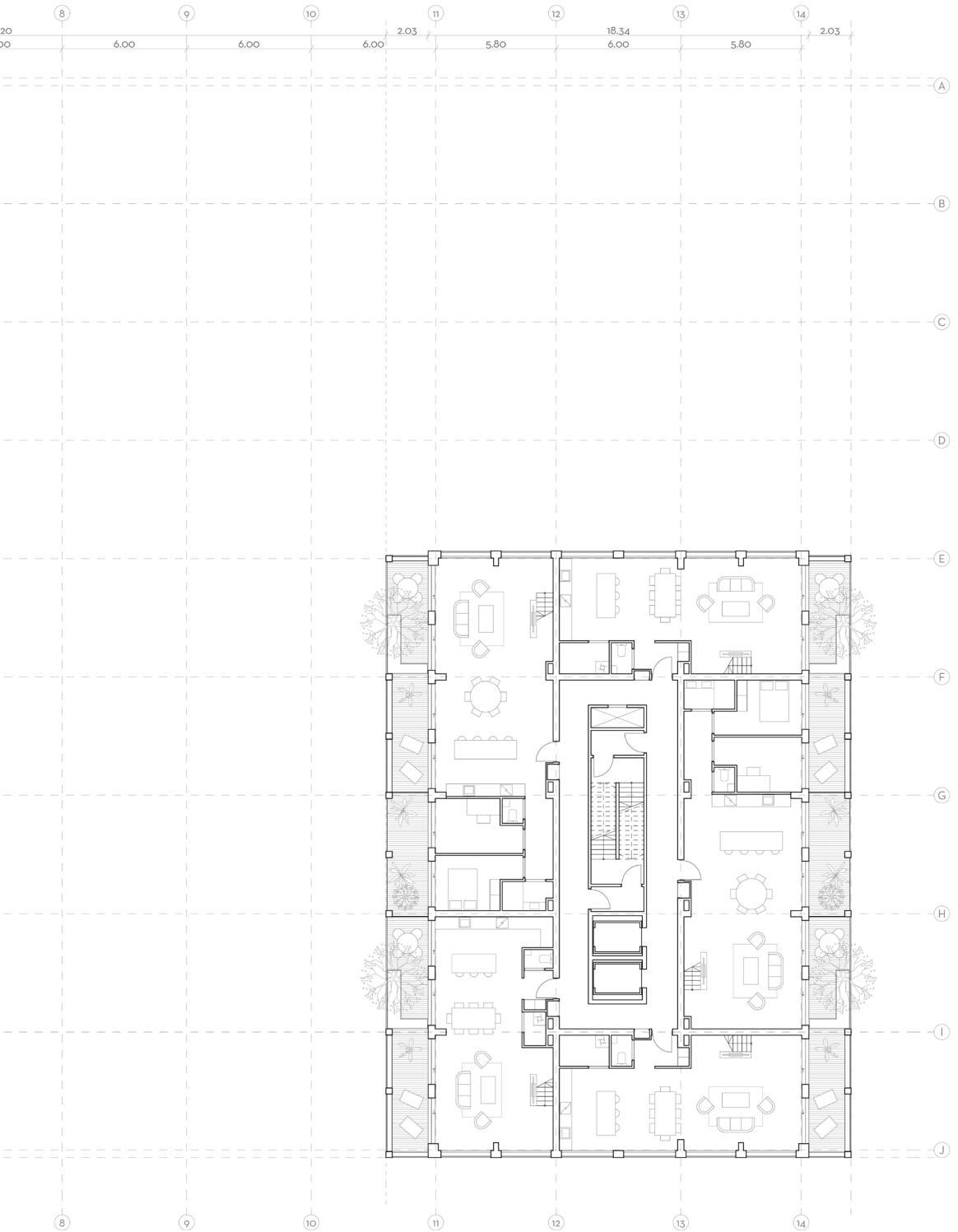


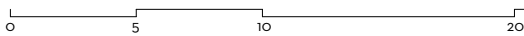
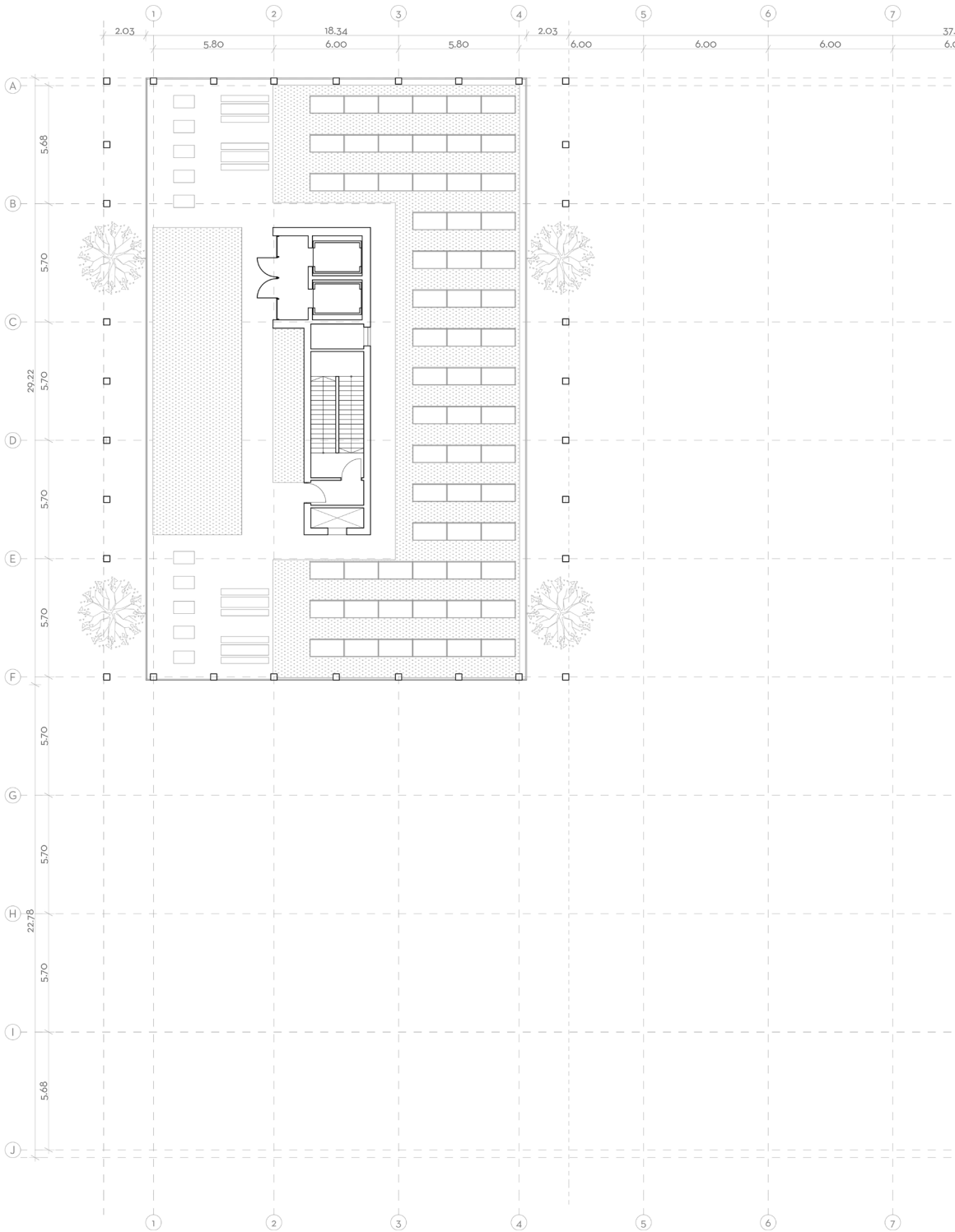


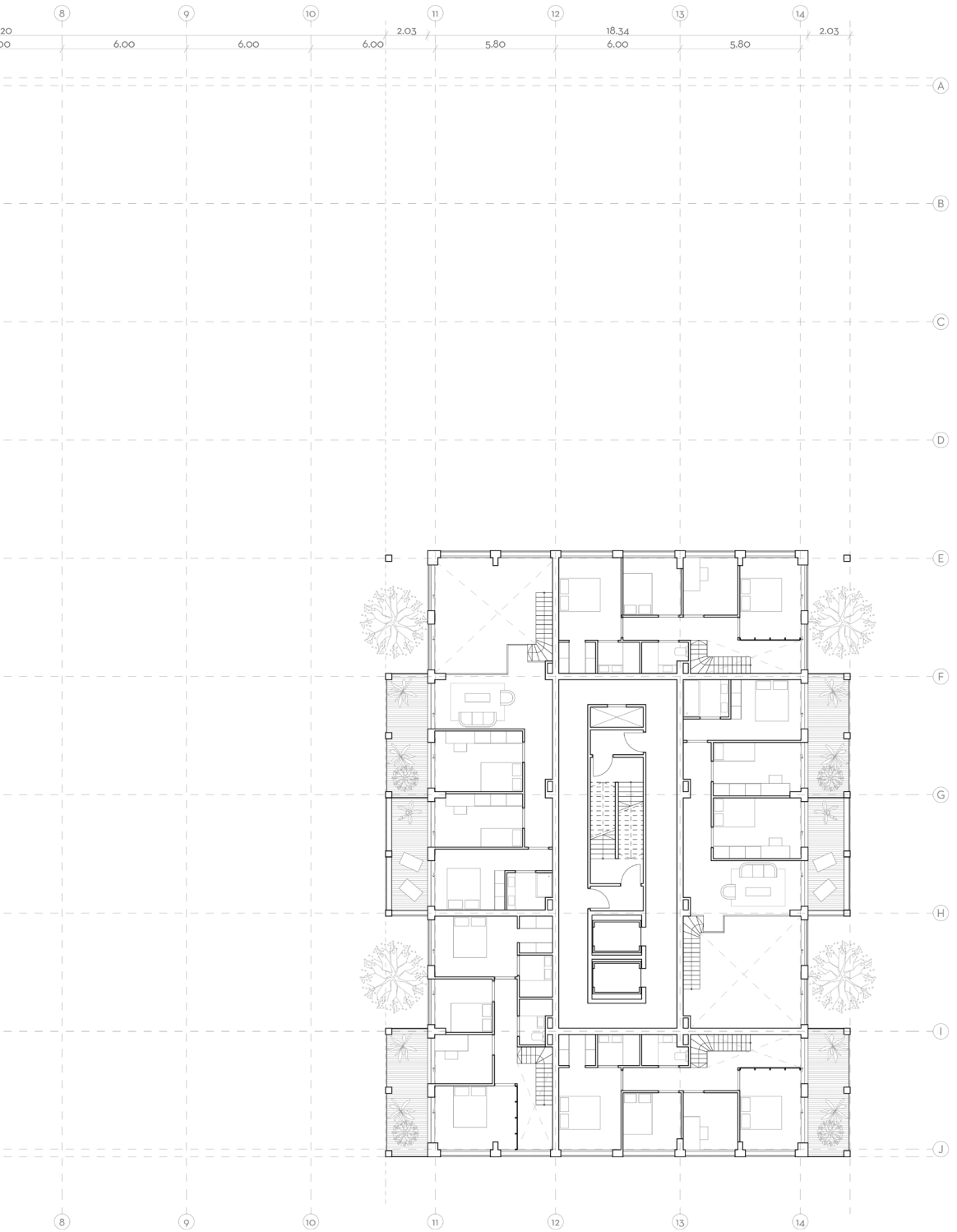


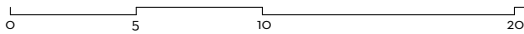


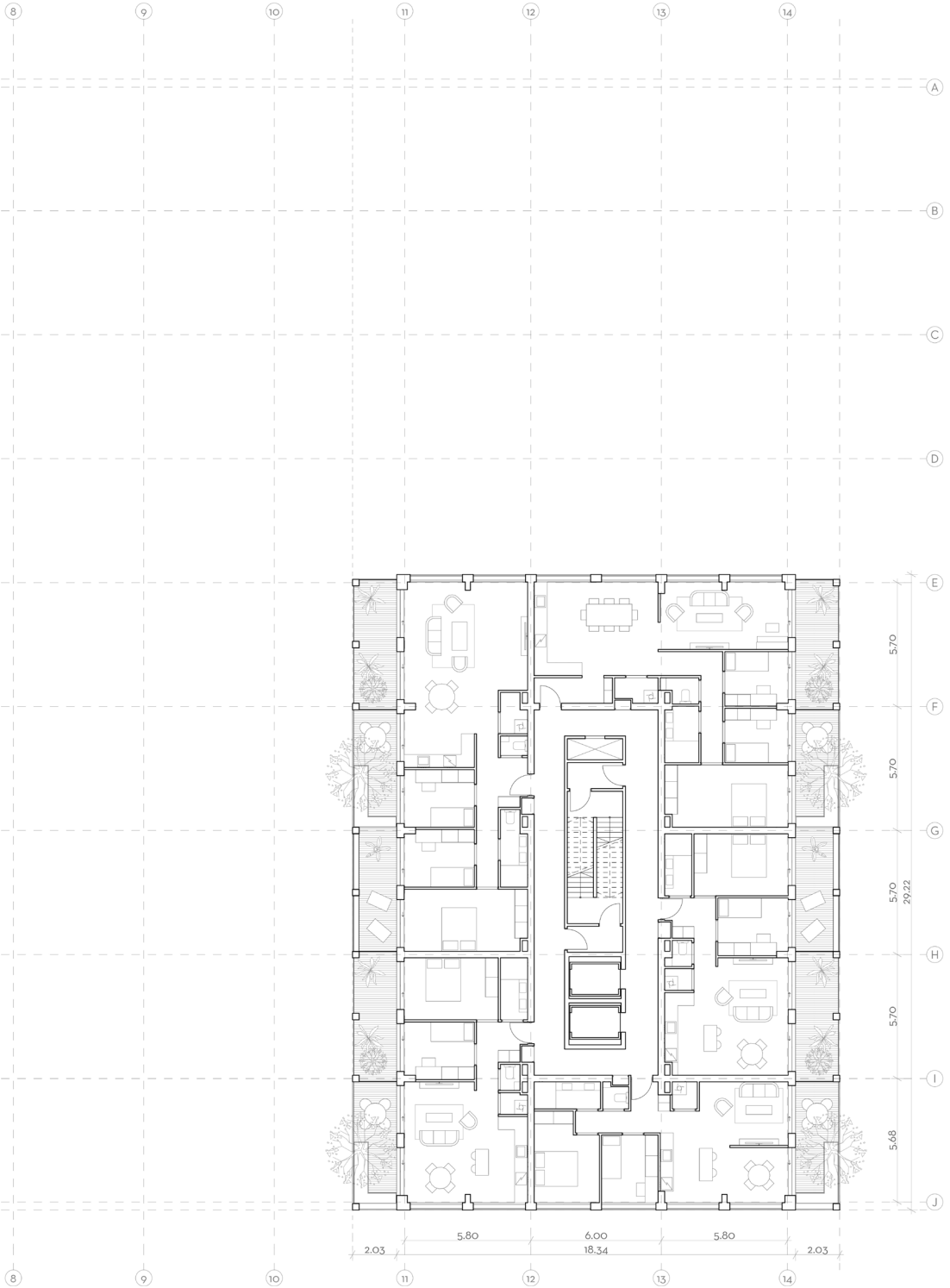


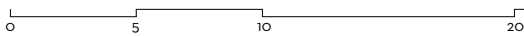
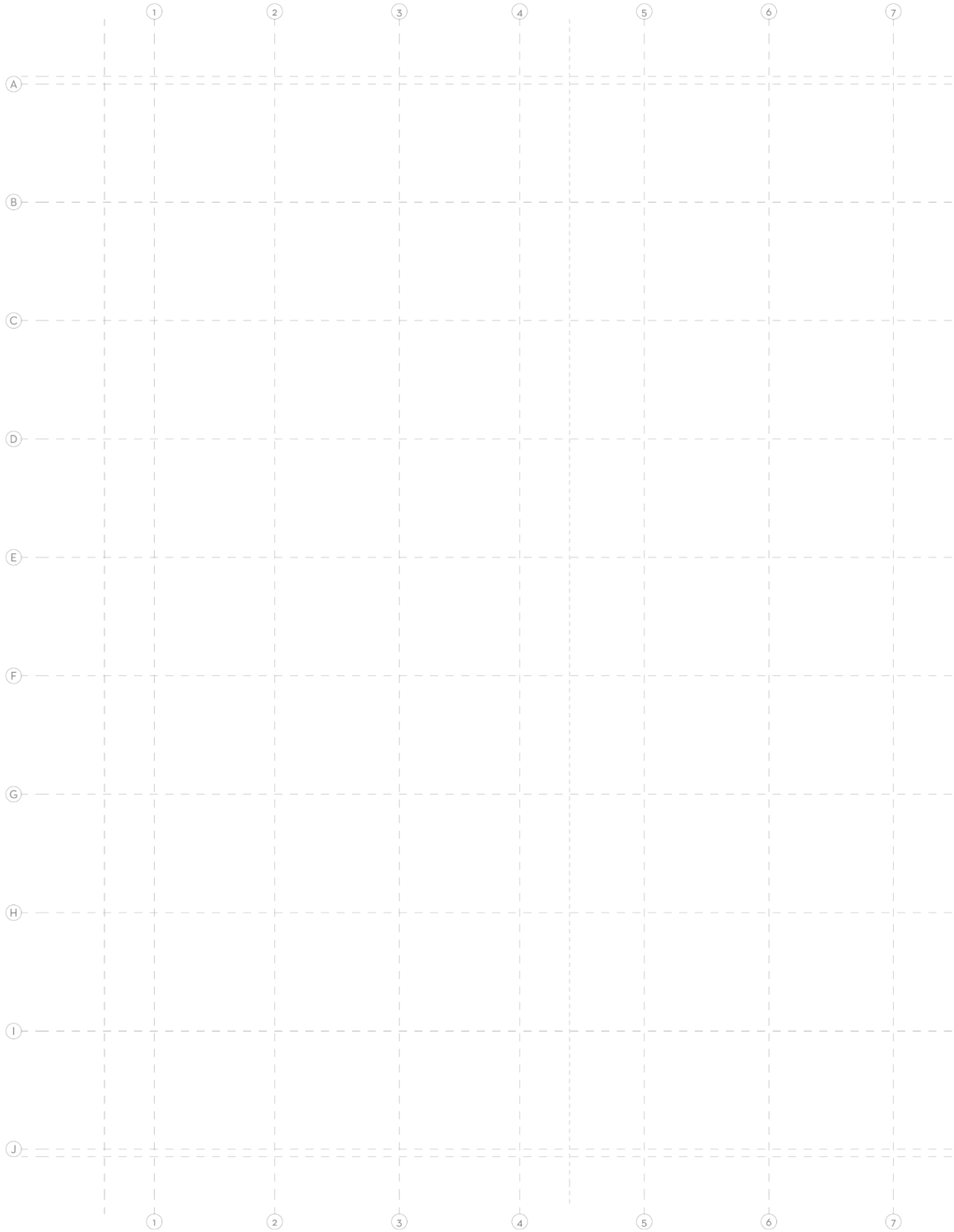


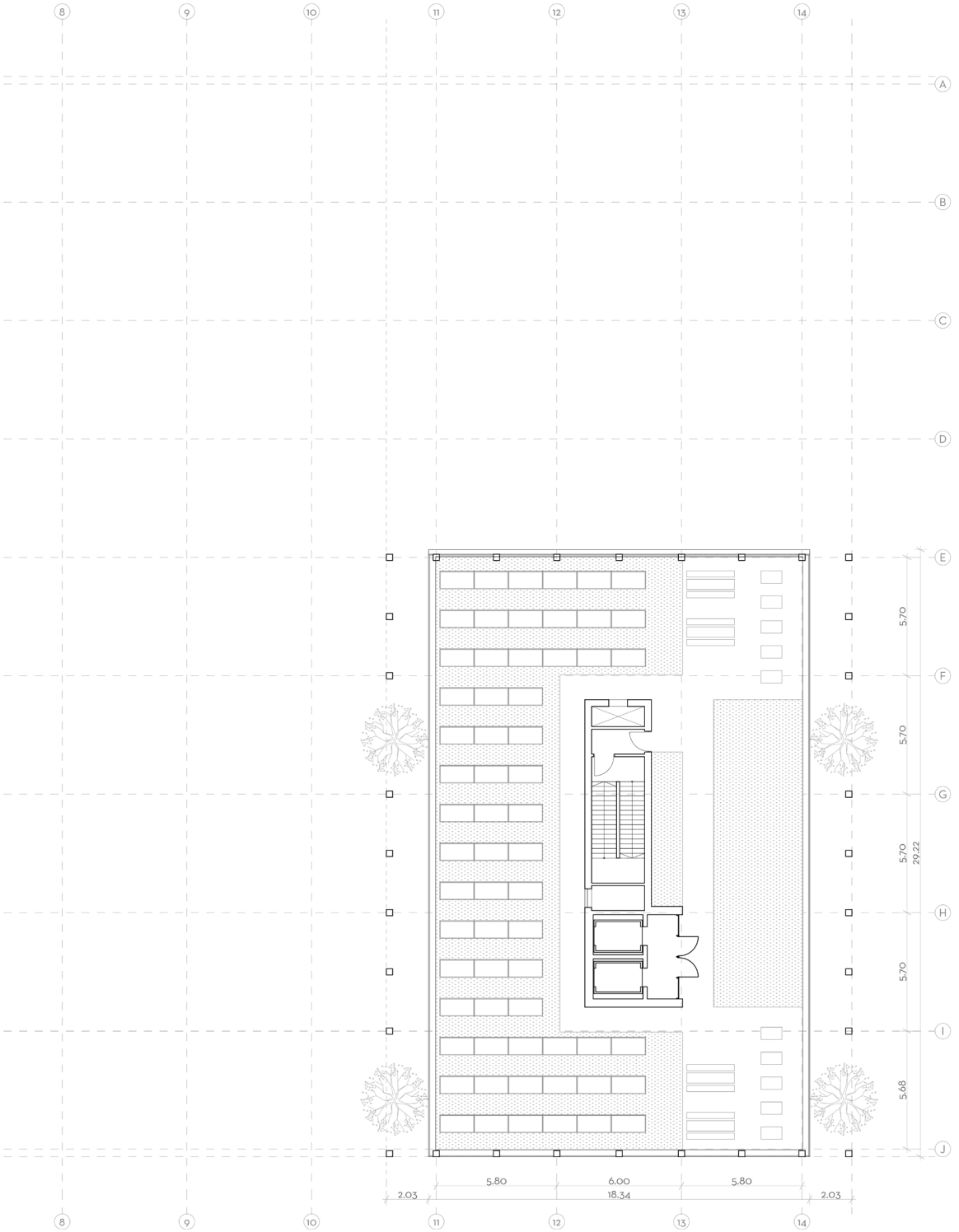
























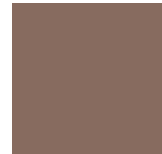
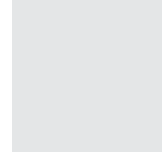
Materiality



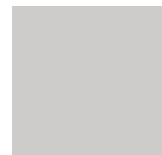
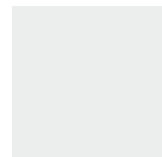


Analysis of the existing buildings in the proximity of the plot

Keilepand

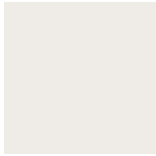


Vierhavenstraat 50-54

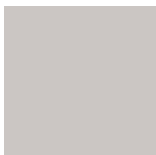


Analysis of the existing buildings in the proximity of the plot

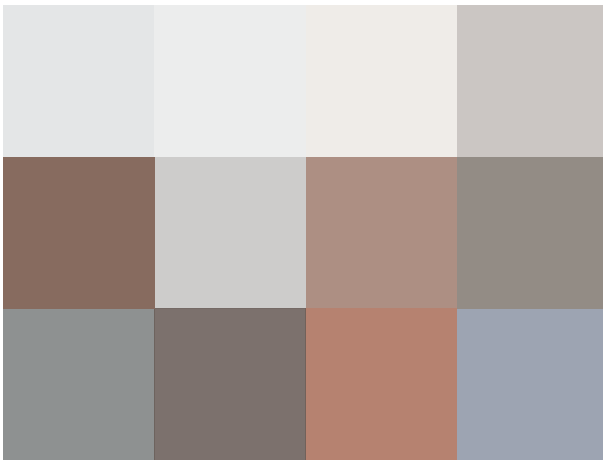
Fabriek Chefaro



Keileweg 26

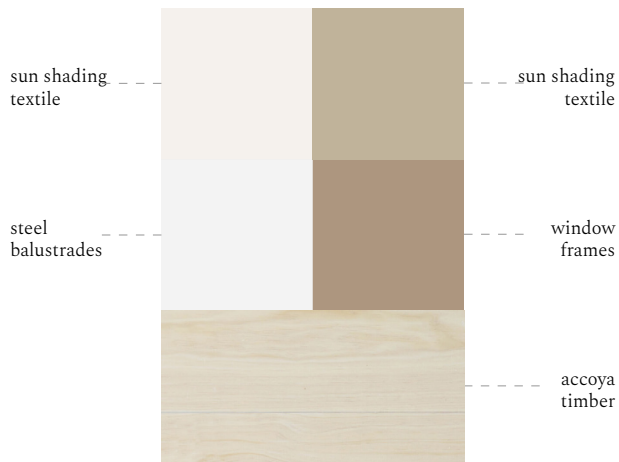


Existing buildings - color scheme



Closest neighborhood of the plot contains a few buildings considered either as a state monument, or as possible to become a future monument. Therefore, their materiality was reinterpreted in order to create a color scheme for the facades of the project. The closest monument is Keilepand, adjacent to the plot. On the opposite site of the park, there is old Chefaro Fabriek. Eastern and western end of the park contains Vierhavenstraat 50-54 and Keileweg 26, which are also important objects in the area.

Design - color scheme



Buildings in the closest proximity of the plot are mostly made of brick in a variety of brown hues. Therefore, elements of the designed building, such as window frames, textiles of the sun shading aim to represent brown colors present in the area. Large amounts of timber, in combination with glass and steel correspond with the industrial character of the harbor architecture in general.

Accoya timber



tree type	radiata pine
growth area	Spain, Chile, New Zealand
durability	class 1
lifespan	50 years

Choosing the right type of wood was a challenge considering its vulnerability to weather conditions, as well as the proximity of manufacturers that would provide large amounts of wood. Moreover, most of the manufacturers in the proximity of the Netherlands provide timber types, such as larch, which has a lifespan of only max. 10 years, or red cedar, which must be imported all the way from North America.

Accoya is a type of radiata pine, which grows in warm climate. Even though it can not be imported from anywhere near the Netherlands (the closest EUTR forests are located in Spain), its extremely long lifespan and resistance to weather make it the most sustainable choice for the design.

Accoya used on the designed building is treated with oil, which contributes to its longer lifespan and aesthetical appearance. However, pages 172 - 173 present a hypothetical analysis of the aging of the wood in case it will not be treated correctly.

Accoya timber - references

3XN
Royal Arena
Copenhagen
2017



Kraaijvanger
American
School of the
Hague
Wassenaar
2013



Accoya timber - weathering analysis



Stains on the facade can be a result of weather influence due to water.



Plants present on the facade will look different in winter.

Accoya timber - aging analysis (untreated)



Accoya color after 1 year of no treatment.



Accoya color after 5 years of no treatment.

Nature inclusiveness

The pattern of the eastern and western façade creates a structure that combines a number of balconies and winter gardens. Winter gardens have foldable glass screens, which allow to stay open as balconies according to the needs of the users. So again, the users can decide how they want their space to be. But the focus of this project isn't only on the individual, but also the collective. Everyone is free to appropriate their own space the way they want, but community of neighbors is responsible for the sustainable and healthy development of their neighborhood. That's why the whole façade is made of timber, to emphasize the importance of sustainable living. Including nature in the building is another way to reach this goal.

Planting pots are integrated within the balcony structure. They are directly connected to the gutters which allows them to stay irrigated by rainwater. The plants are chosen in terms of providing variety of species and suitability for the climate of Rotterdam. There is a number of shrubs that give colorful flowers and attract insects. Climbing shrubs are also used as separation walls between the terraces, as you can see on the right side of this façade. This image also shows how dynamic the façade can be considering the nature that grows as its integral part. Especially the trees give a distinct representation, as they change color seasonally. They are carefully chosen in order to create a healthy environment for the animal species that they attract. That's why all the chosen trees are either offering food for birds, bees or butterflies. Considering the climate of Rotterdam, these trees are also resistant to strong winds and suitable for placing in the pot.



intensive roof
70% of the roof area
contains sedum

**native trees
in the inner court**
- holladse iep
- plataan
- tilia cordata

climbing shrubs
provide nectar
for butterflies





extensive roofs
for urban gardening

planting pots
attract insects

winter residence
for bats

nests for small birds
such as house sparrows,
great tits and blue tits

potted trees
attract birds, bees
and butterflies;
resistant to strong wind

- acer campestre
- acer cissifolium
- betula utilis
- cornus controversa
- cornus kousa
- cornus officinalis
- crataegus xlaivallei
- malus toringo
- magnolia
- tilia kiusiana



berberis thunbergii



buddleja alternifolia



calluna vulgaris



photinia fraseri



prunus lusitanica



salix rosmarinifolia



spiraea betulifolia



ulex europaeus



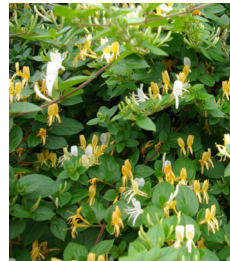
weigela florida



campsis grandiflora



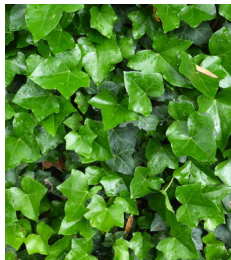
lonicera green junkie



lonicera japonica



wisteria balka



hedera helix



parthenocissus quinquefolia



acer campestre



acer cissifolium



betula utilis



cornus controversa



cornus kousa var. chinensis



cornus officinalis



crataegus xlavallei



malus toringo



magnolia



tilia kiusiana





view north-west from the park

Elevations and sections





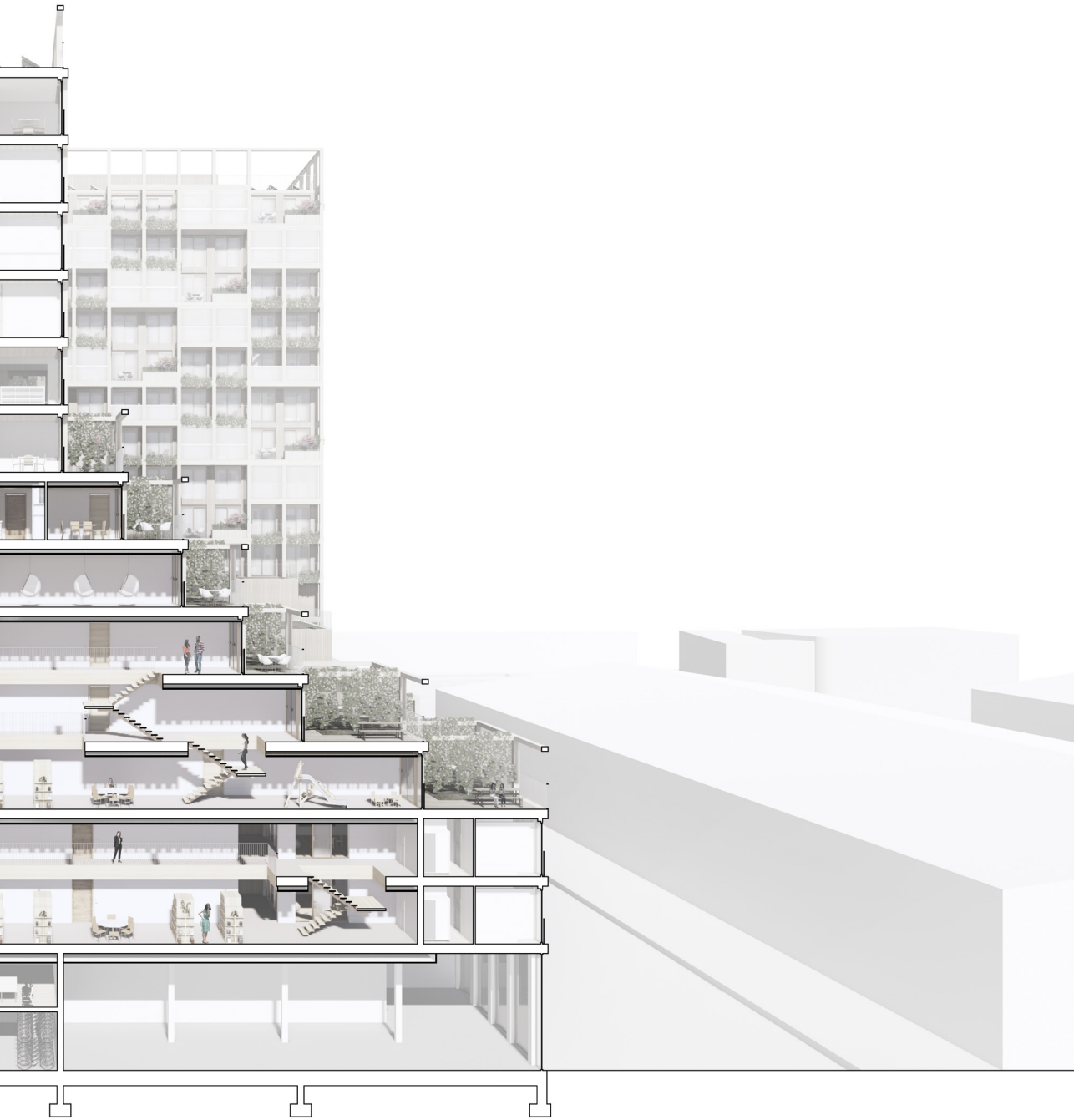
facade W





facade N



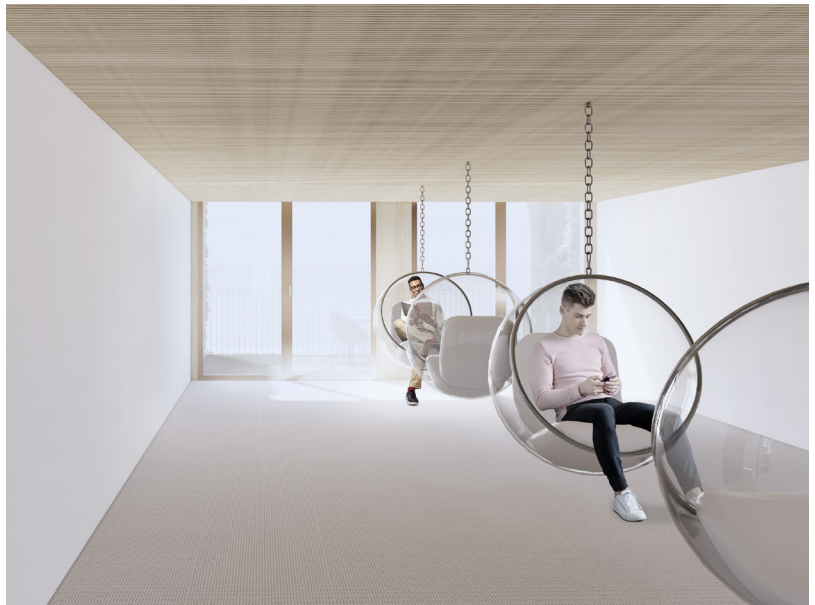








common spaces: library

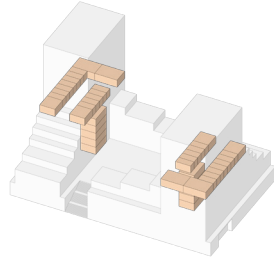


common spaces: meditation corner

Dwellings

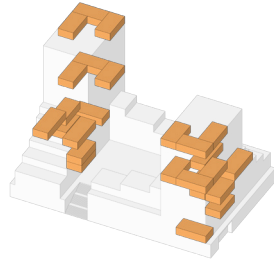
Dwelling typologies can be divided into 5 groups in terms of sizes. I determined the total amounts of each type after analyzing a survey among expats, but also based on the requirements that the municipality of Rotterdam has for this area. So the largest group of dwellings are ones of the size around 100 m², for which the demand is the highest. They constitute 39% of all the dwellings in the building. Second type is between 110 m² and 130 m², giving 26% of all the apartments. Next come the apartments are between 60 m² and 80 m², which make 20%. The rest are studios and large dwellings of 160 m², which constitute 7% per each group.

In total, excluding the co-living scheme, the building offers 22 types of apartments. They offer housing for diverse target groups with diverse needs and requirements. There are apartments with up to 4 bedrooms. Some of them are accessed directly from the gallery and some from the corridor. All of them are north-west or south-east oriented. Some have direct access to the terraces. All dwellings however have their own outdoor space in the form of a balcony or a winter garden. This way everyone has similar qualities of the spaces they inhabit, which corresponds with the concept of providing equality in the neighborhood.



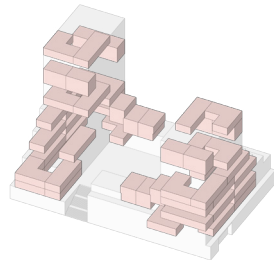
35 -55 m² studio

10 apartments + 32 co-living units
7% of all the apartments



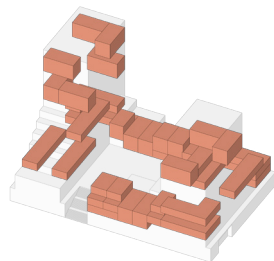
60 - 80 m²

26 apartments
20% of all the apartments



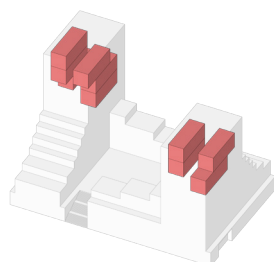
90 - 100 m²

52 apartments
39% of all the apartments



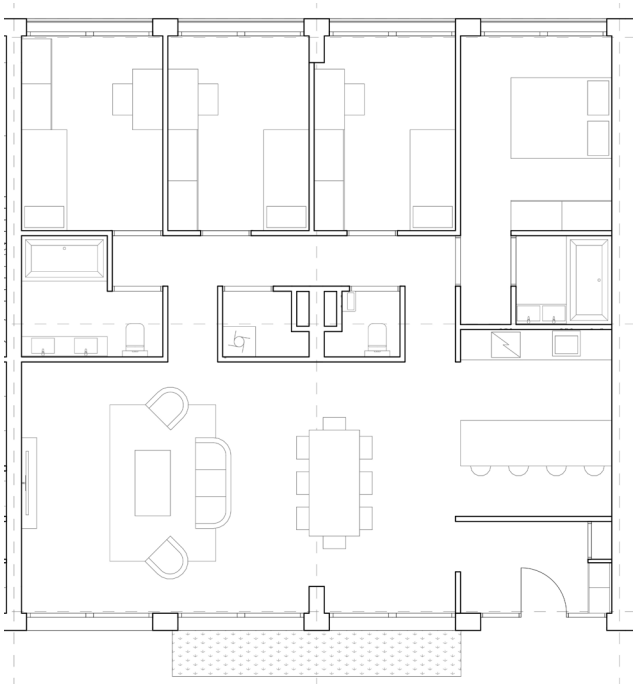
110 -130 m²

35 apartments
26% of all the apartments



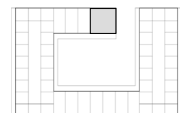
160 m²

10 apartments
8% of all the apartments



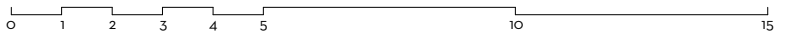
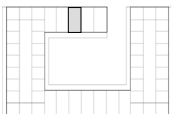
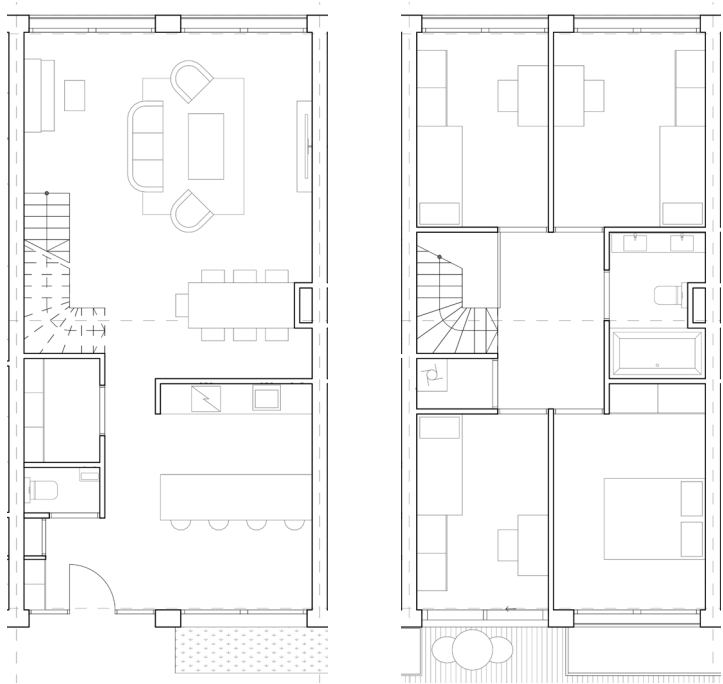
Type 01
132.8 m²
4 bedrooms

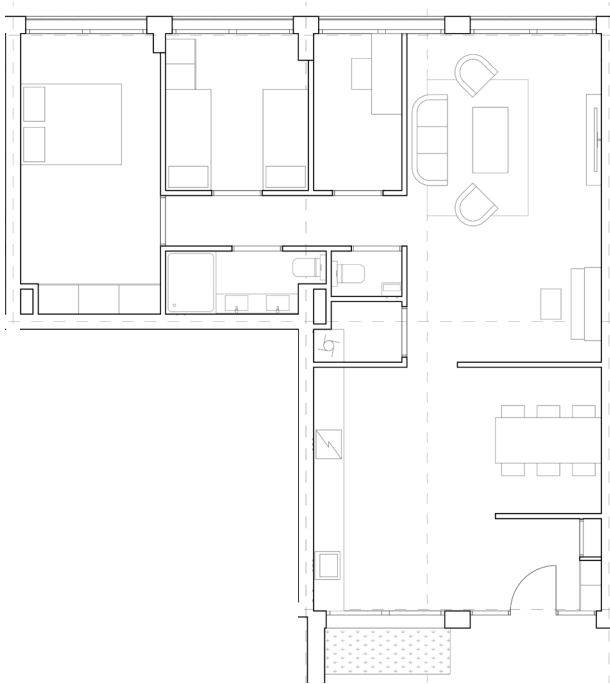
ground bound
2 dwellings





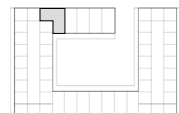
Type 02
126.0 m²
4 bedrooms
gallery access
6 dwellings





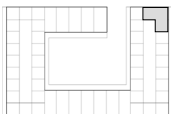
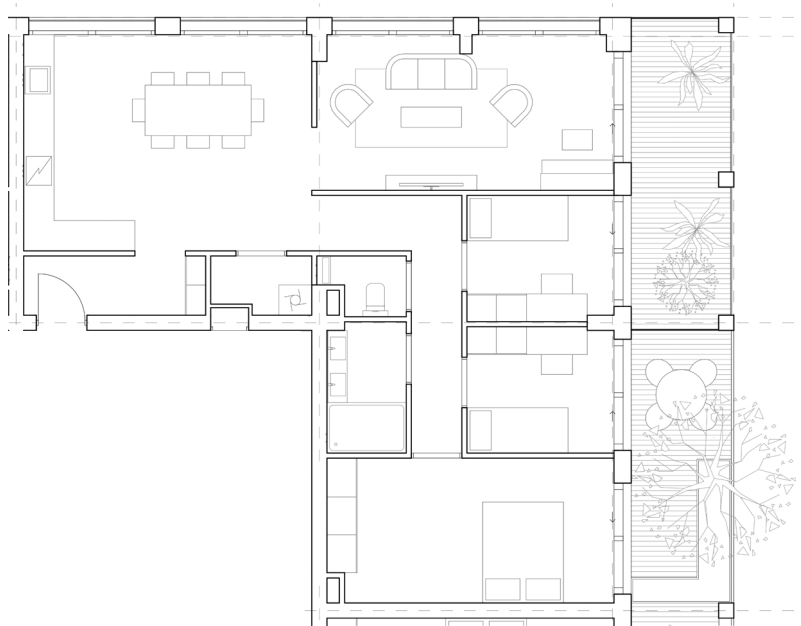
Type 03
96.8 m²
3 bedrooms

ground bound
2 dwellings





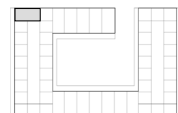
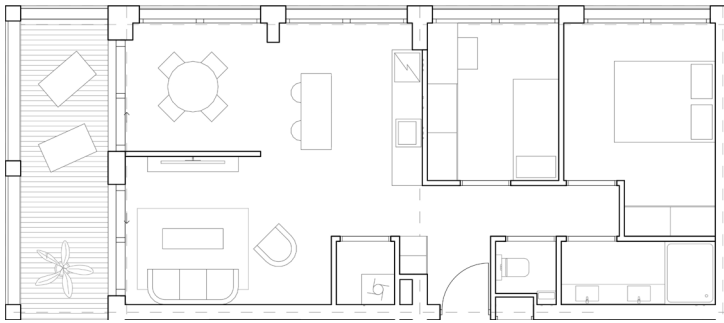
Type 04
96.4 m²
3 bedrooms
corridor access
6 dwellings





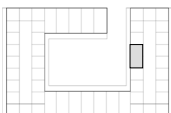
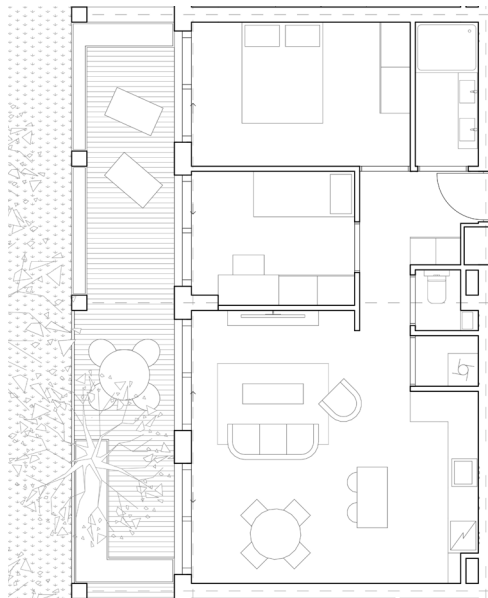
Type 05
64.5 m²
2 bedrooms

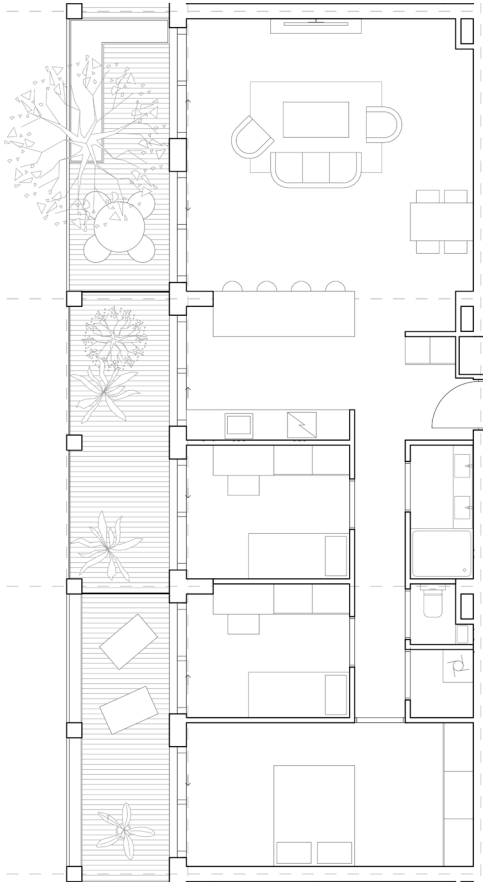
corridor access
6 dwellings





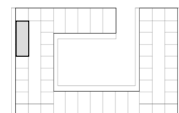
Type 06
62.4 m²
2 bedrooms
corridor access
14 dwellings





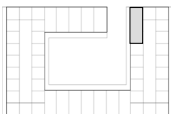
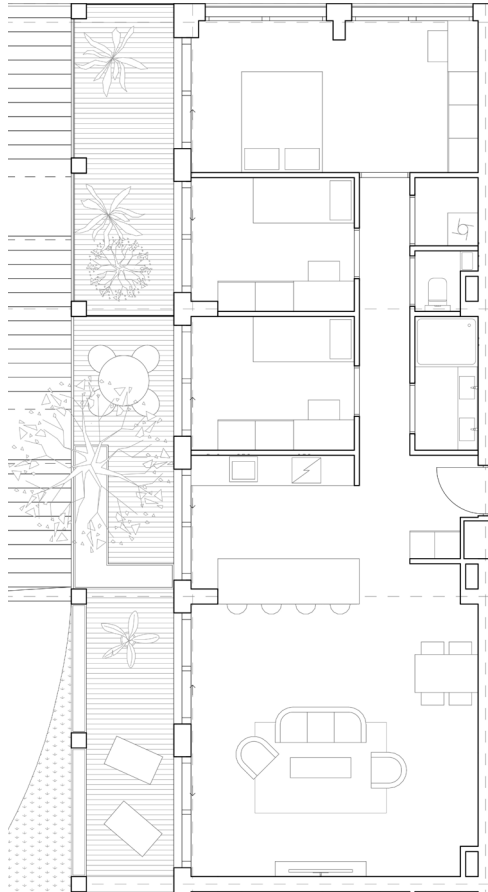
Type 07
94.3 m²
3 bedrooms

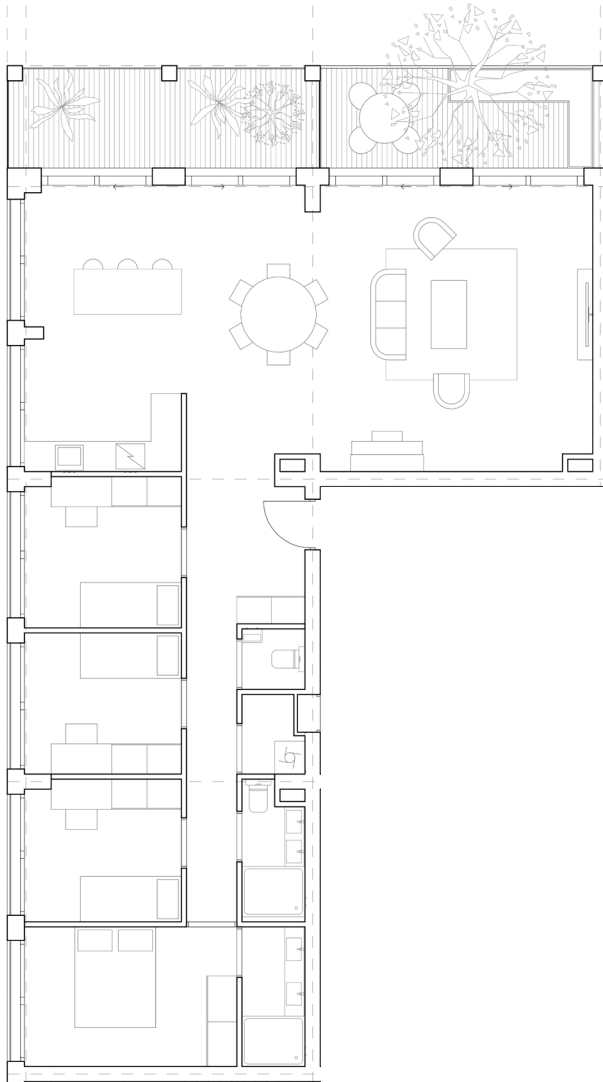
corridor access
12 dwellings





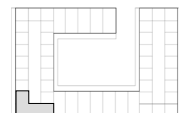
Type 08
95.0 m²
3 bedrooms
corridor access
2 dwellings





Type 09
128.4 m²
4 bedrooms

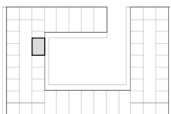
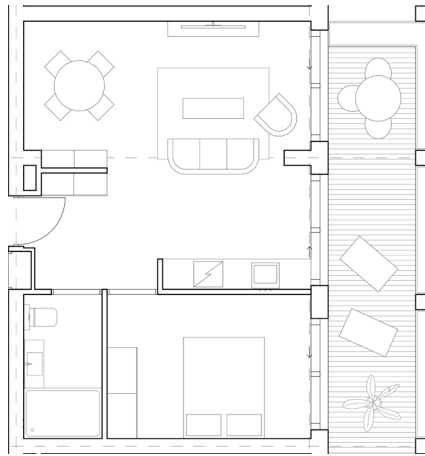
corridor access
6 dwellings

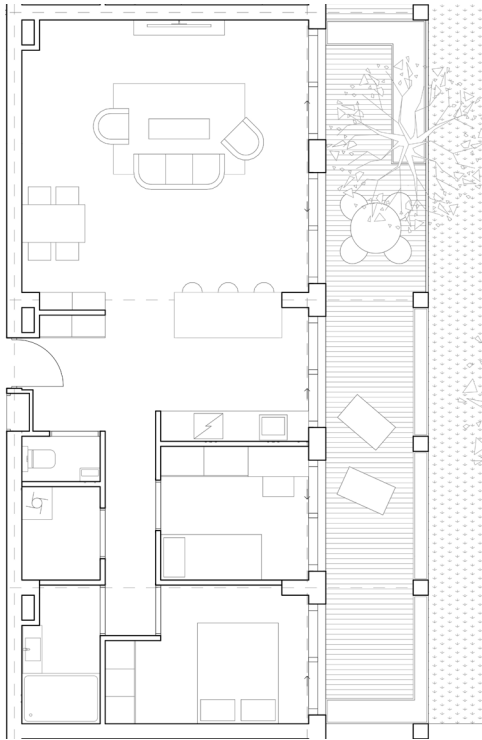




Type 10
46.3 m²
1 bedroom

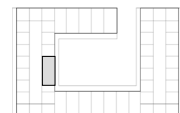
corridor access
10 dwellings





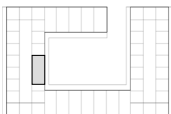
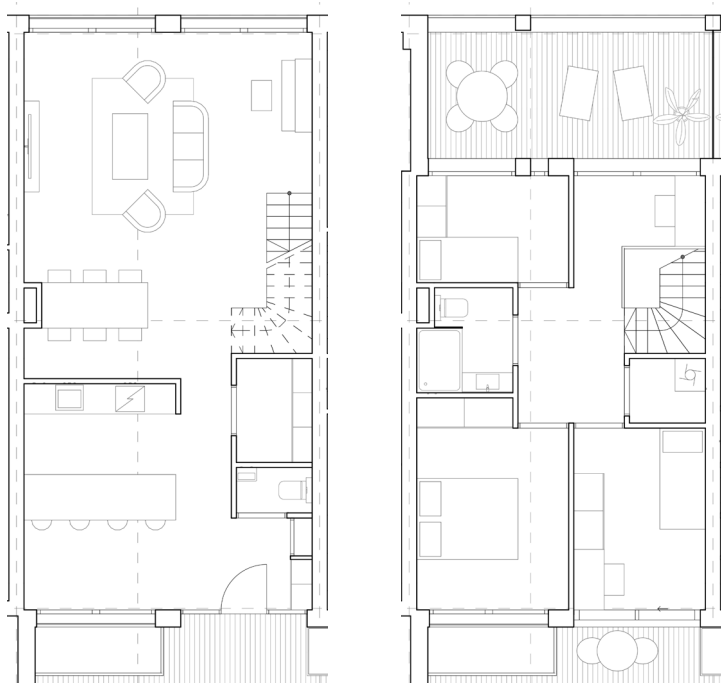
Type 11
78.1 m²
2 bedrooms

corridor access
2 dwellings





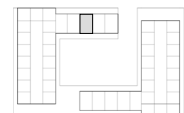
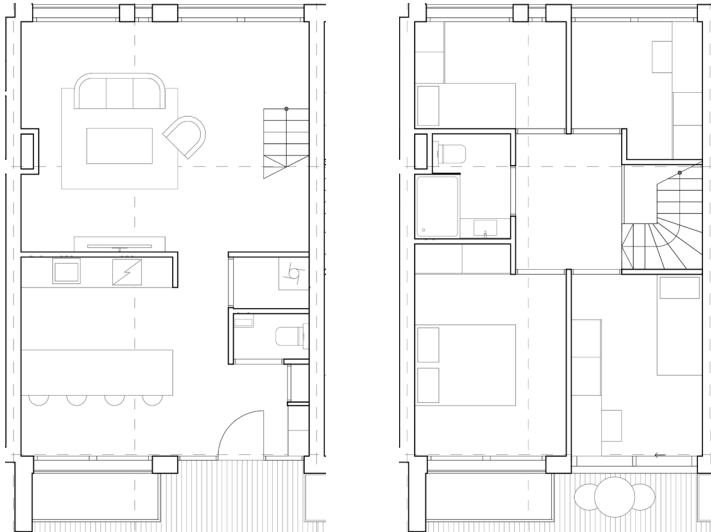
Type 12
110.3 m²
3 bedrooms
gallery access
6 dwellings





Type 13
94.1 m²
4 bedrooms

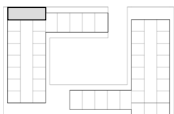
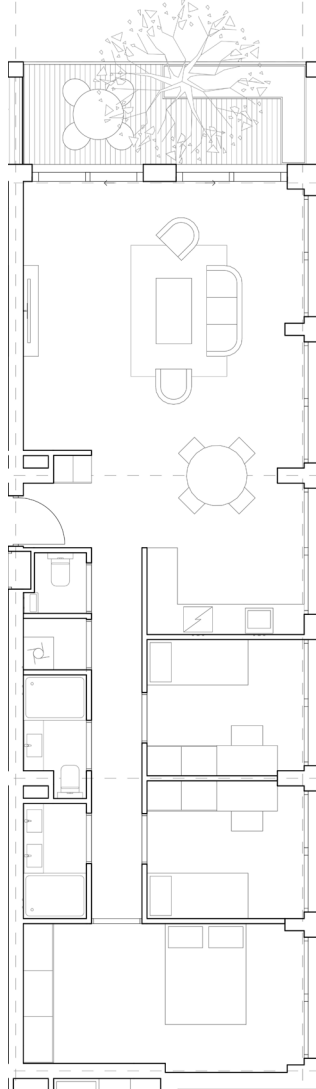
gallery access
6 dwellings

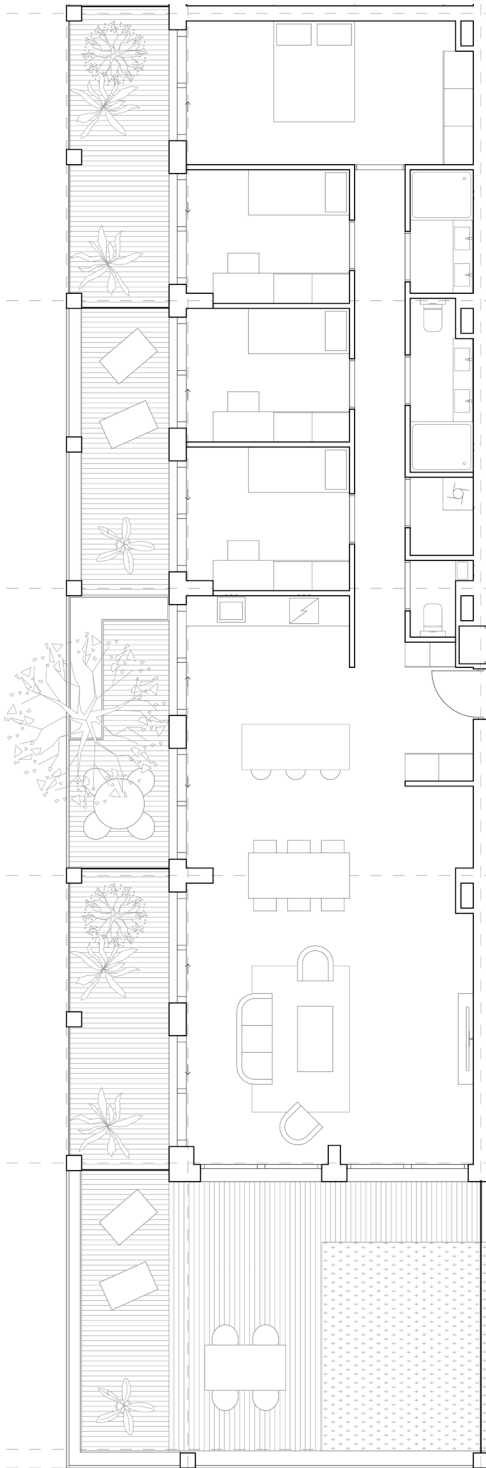




Type 14
97.1 m²
3 bedrooms

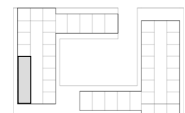
corridor access
4 dwellings





Type 15
126.8 m²
4 bedrooms

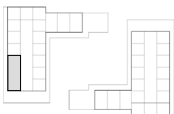
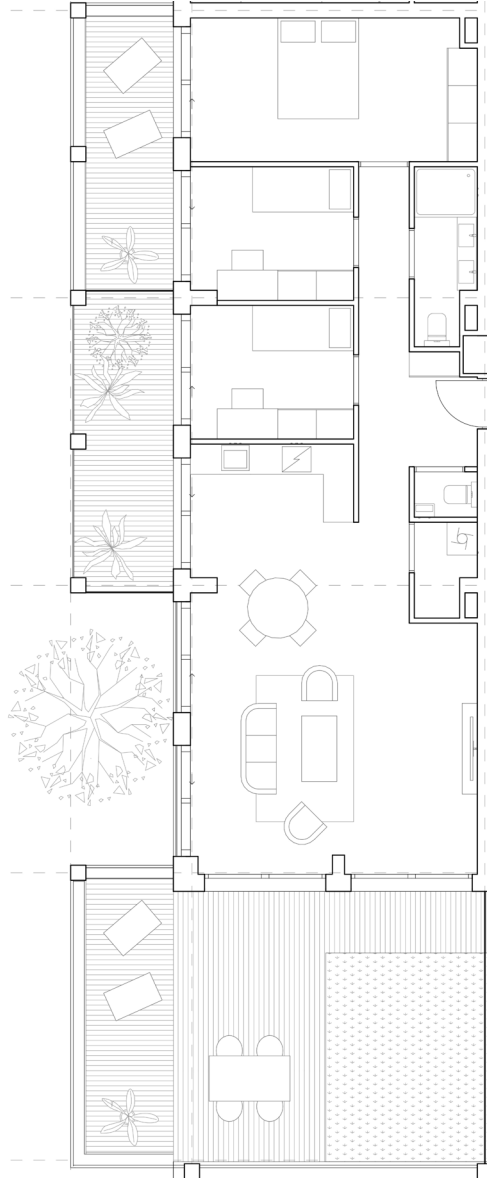
corridor access
6 dwellings

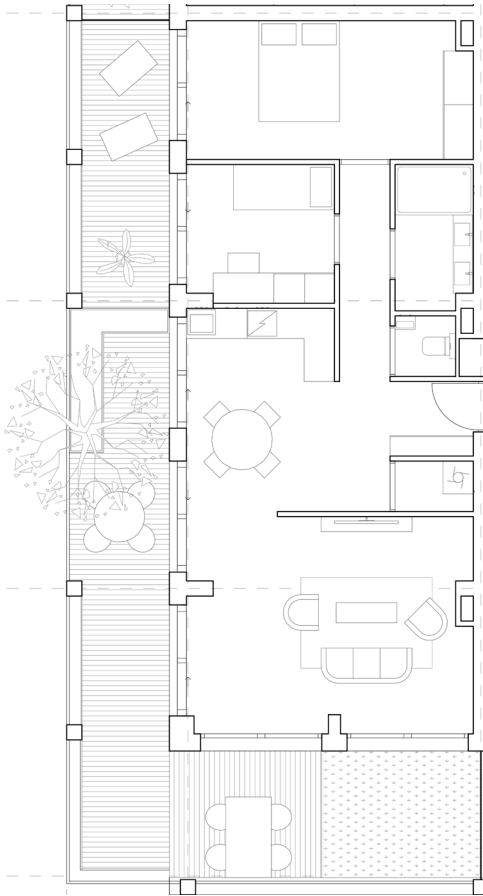




Type 16
95.1 m²
3 bedrooms

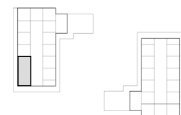
corridor access
10 dwellings





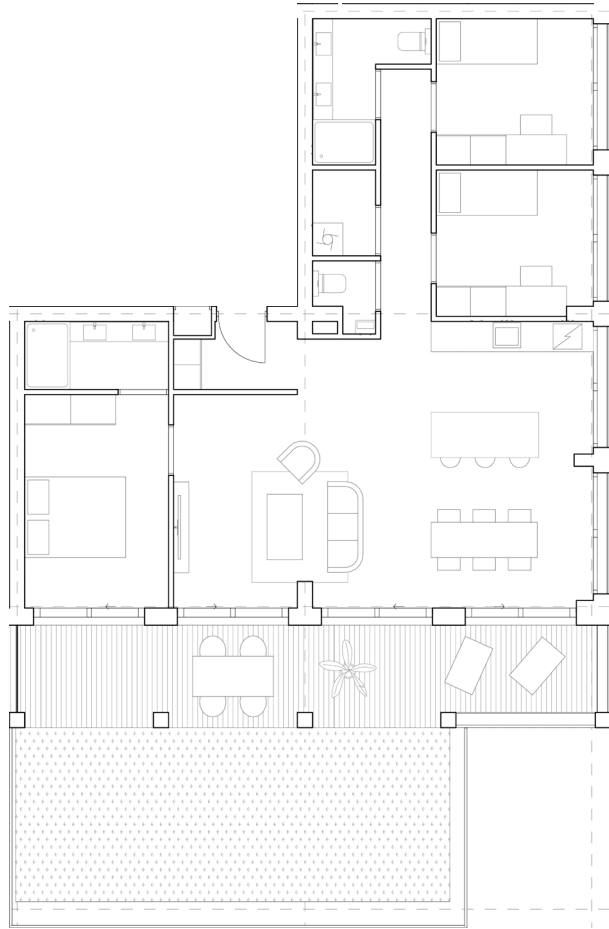
Type 17
79.0 m²
2 bedrooms

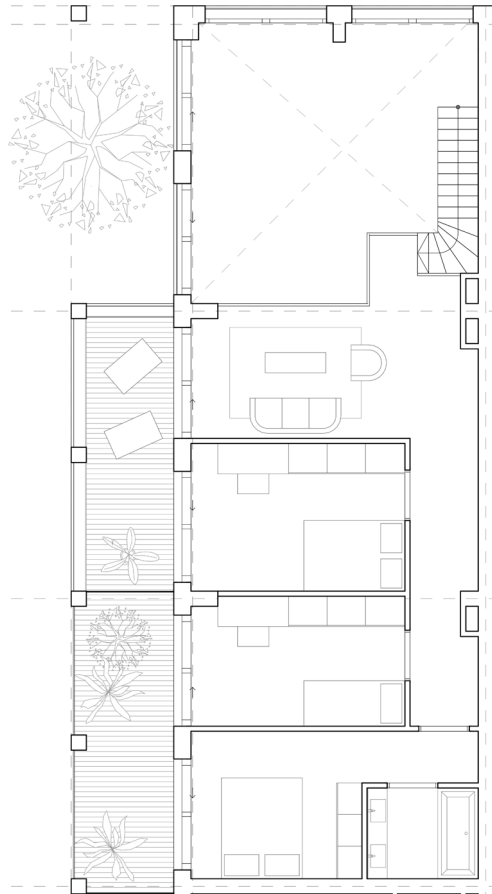
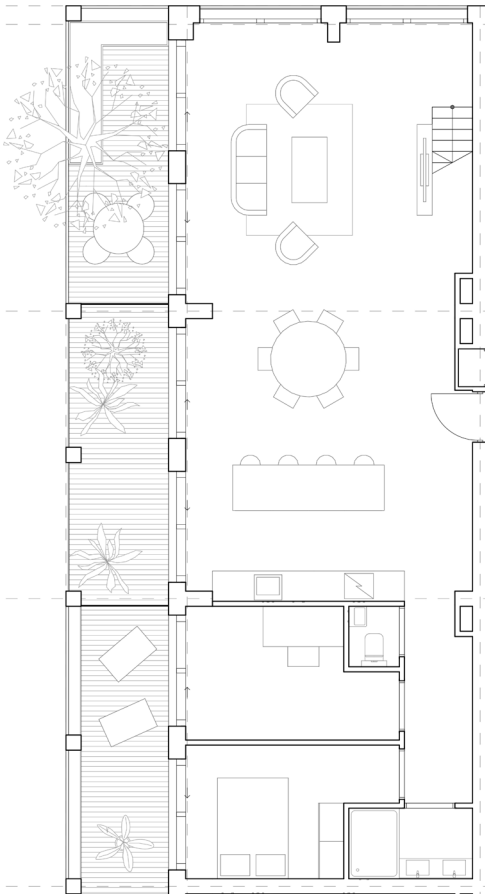
corridor access
4 dwellings





Type 18
96.4 m²
3 bedrooms
corridor access
2 dwellings

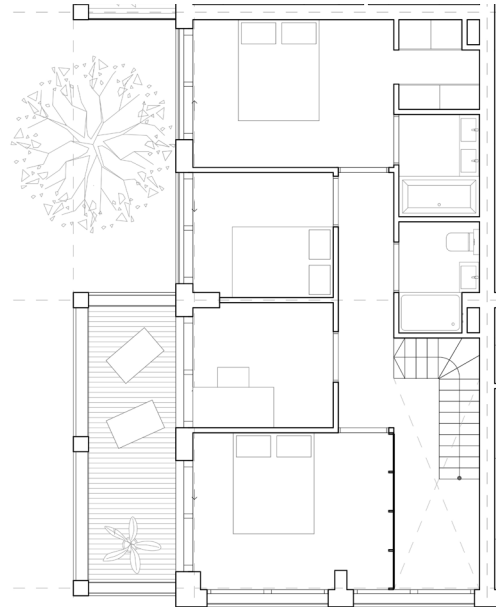
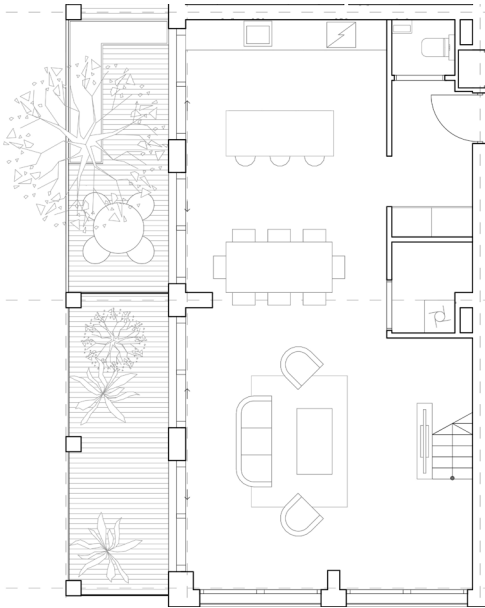




Type 19
162.6 m²
5 bedrooms

corridor access
10 dwellings

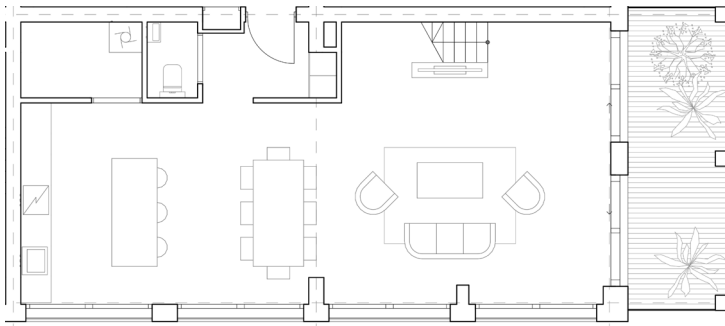




Type 20
119.0 m²
4 bedrooms

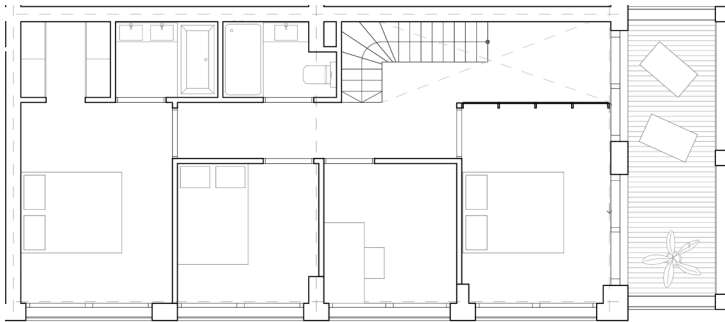
corridor access
3 dwellings





Type 21
121.4 m²
5 bedrooms

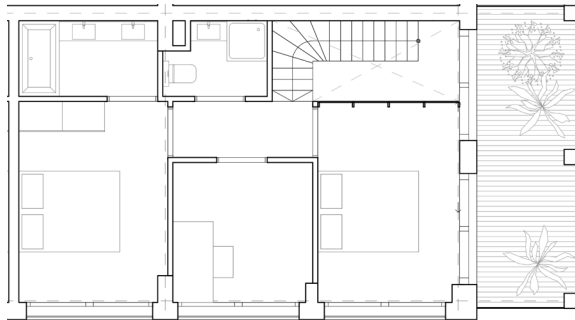
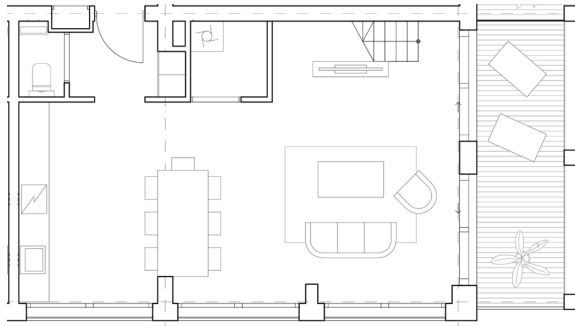
corridor access
6 dwellings





Type 22
91.2 m²
3 bedrooms

corridor access
8 dwellings







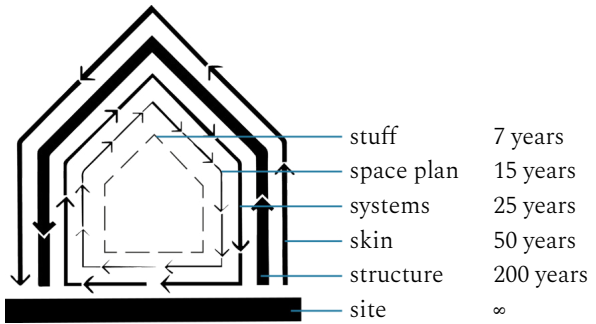
Flexibility

When it comes to the structure of the building in general, the goal was to provide diversity and flexibility in dwellings. Therefore the whole structure of the project is based on the concept of open building that John Habraken introduced in the 60's. This way people can be involved in the building process and have a real influence on the space they will inhabit.

So following this strategy, my building has a ground floor structure made of concrete. On top of it comes the CLT structure of the rest of the building. The core remains concrete for a better stability. Façade has an independent construction assembled directly to the main building structure. CLT structure is based on wall slabs and beams on top of which comes the floor slab. In terms of the flexibility, building with massive timber is a challenge when it comes to accommodating installation pipes. That's why on top of the CLT floor slab, there is a mass layer of gravel that accommodates the piping and allows to access the installations when necessary.

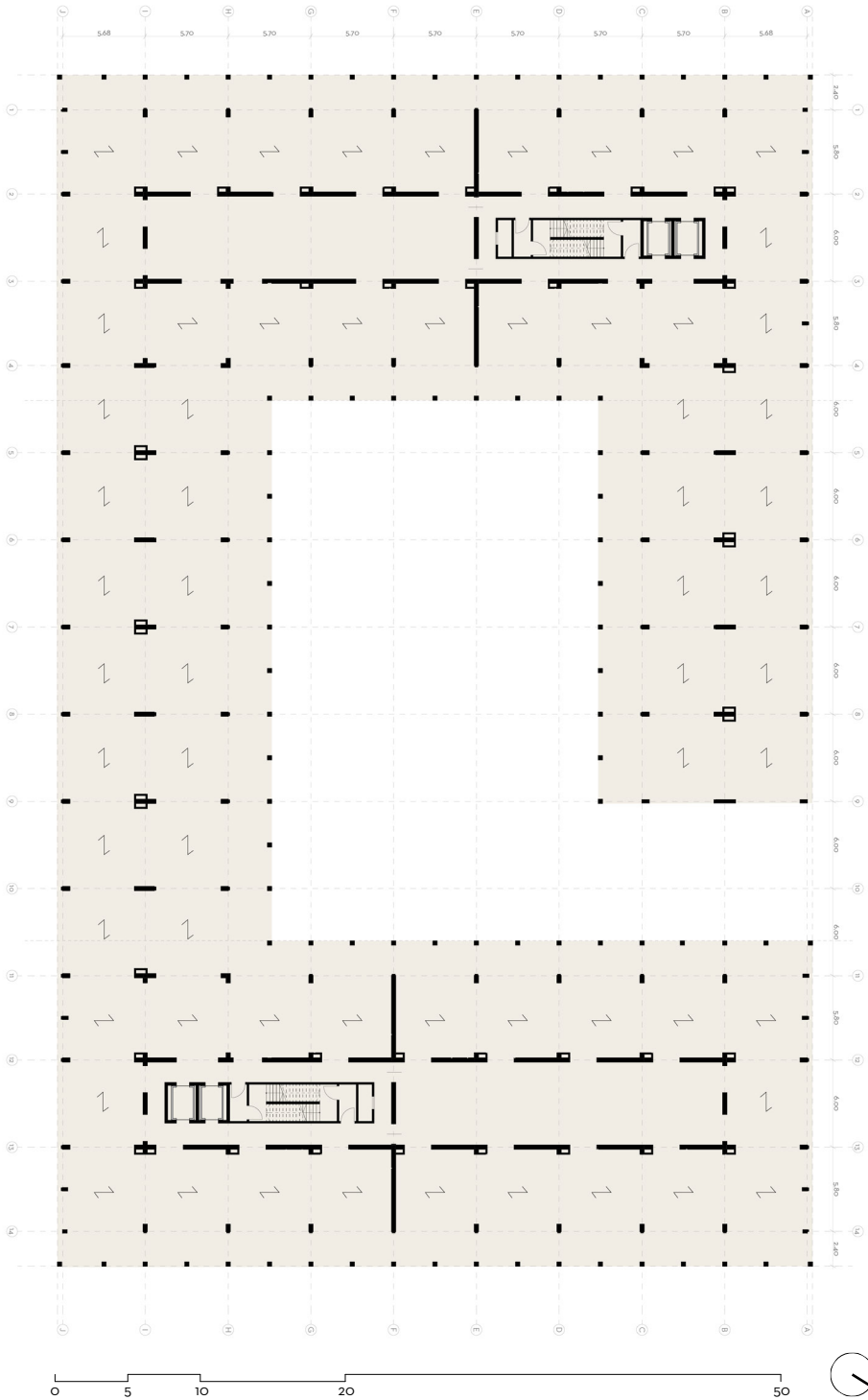
The façade is non-loadbearing. It is attached to the main structure and can be reassembled overtime. The layers of the façade are prefab, delivered on the construction site as modules. One module contains a façade CLT wall, windows, and an insulation and its frame. Façade timber siding, together with the wooden battens behind it, need to be assembled in situ in order to have a better control of the appearance of the façade. After the façade module is placed on the structure, the balconies can be assembled. The beam structure of the balcony is mounted to the building's CLT floor with steel brackets. The same way the beams connect with the balcony columns, which give them additional stability. The beams that are visible from the outside are mounted on top of the columns. And on top of them comes the modular planting pot. After fixing the structure of the balcony, the floor layers can be put in place. Also the façade siding can be assembled, together with the last element, which is the balustrade. The whole construction of the balcony allows it to be demounted without influencing the main building's structure, which contributes to the circularity of the building.

The construction of the building allows multiple arrangements of the dwellings. To achieve this, there are incisions not only in the structure of the walls between the dwellings, but also the corridor, to enable putting more doors in case of enlarging or reduction of the dwelling size. One more important thing is providing the right number of shafts that would facilitate installations for any dwelling size. Thanks to this flexible structure, the building offers a large-variety of dwellings and freedom of their personal customization.

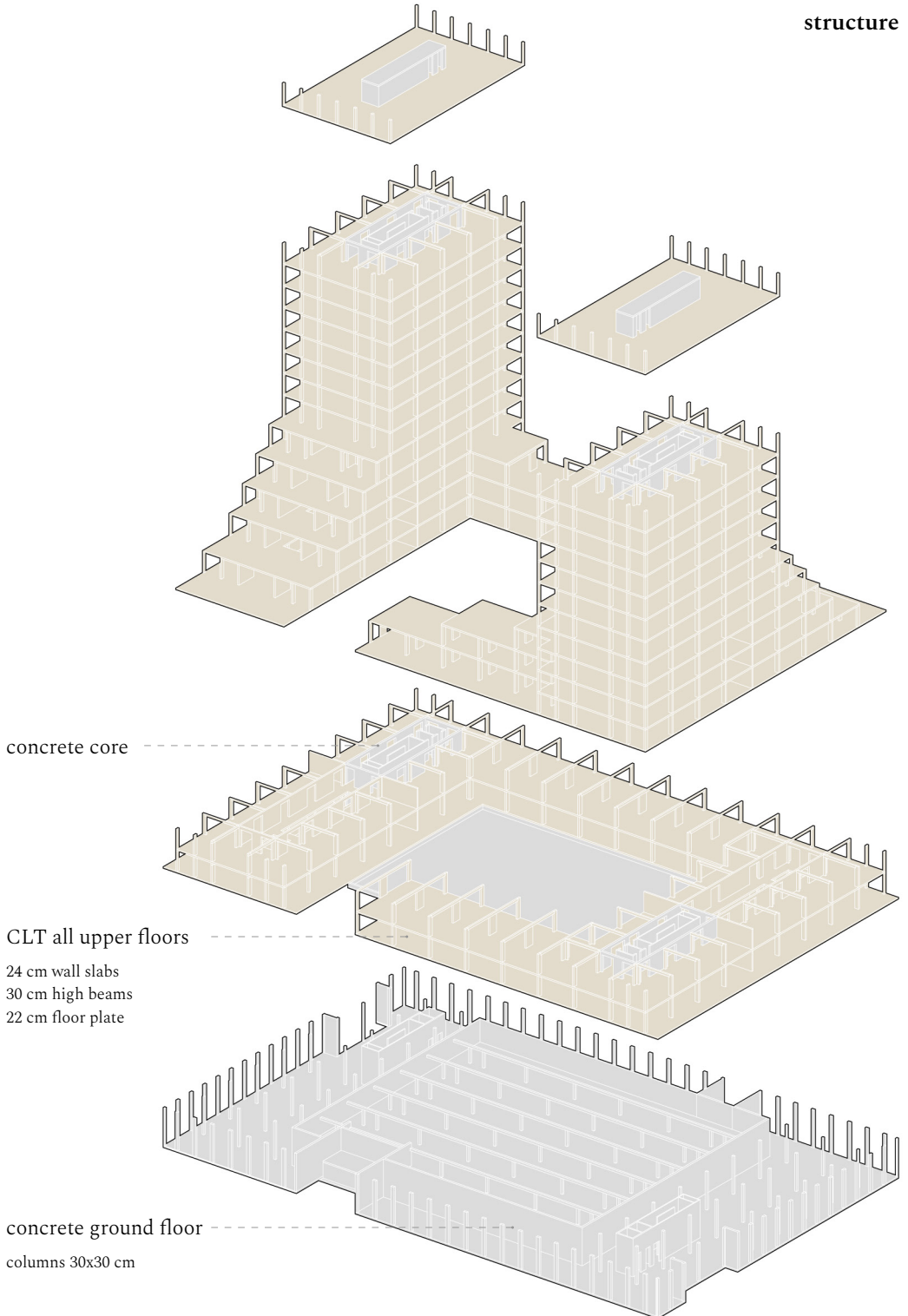


After: Brandt

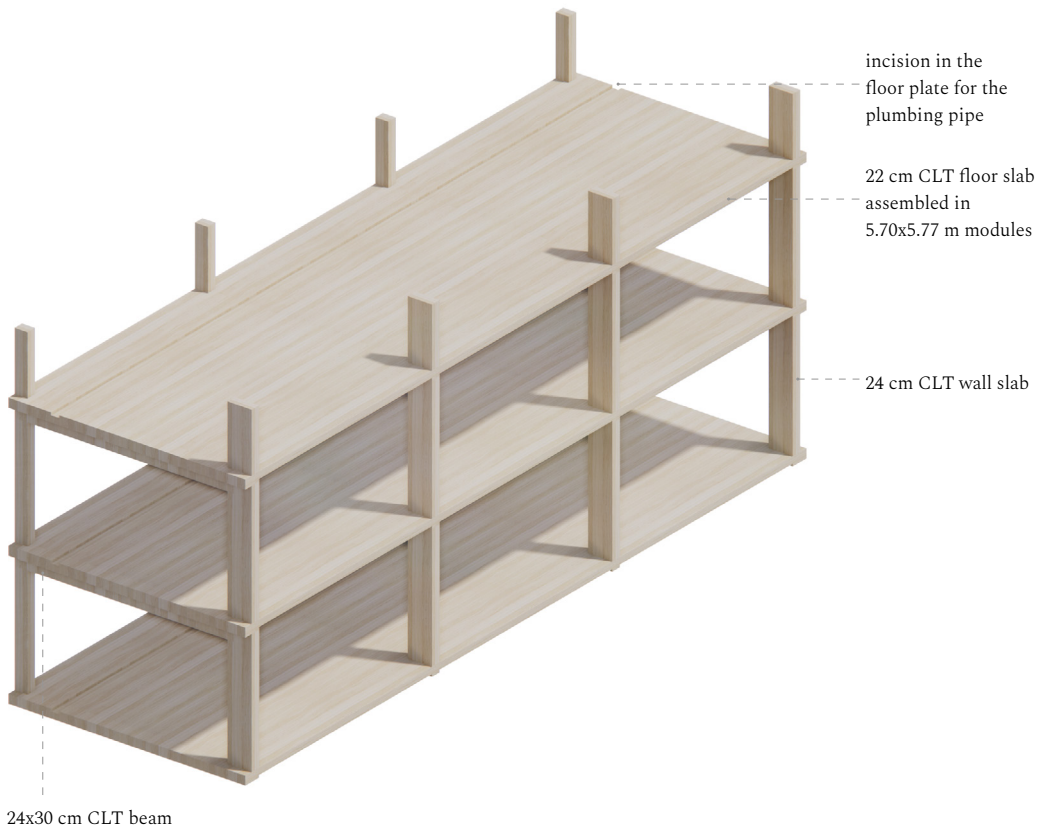
2nd floor construction scheme



structure

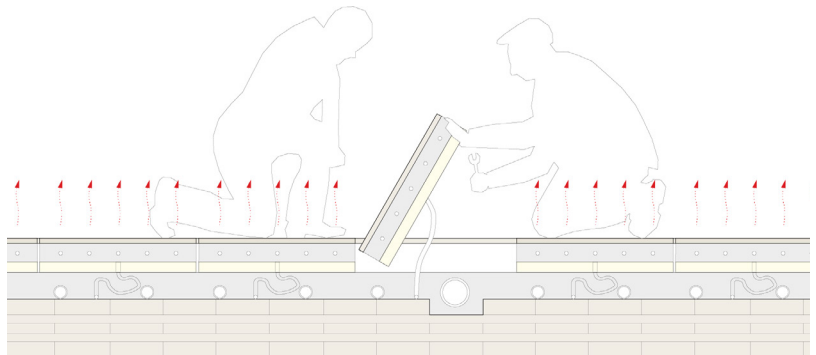


structure



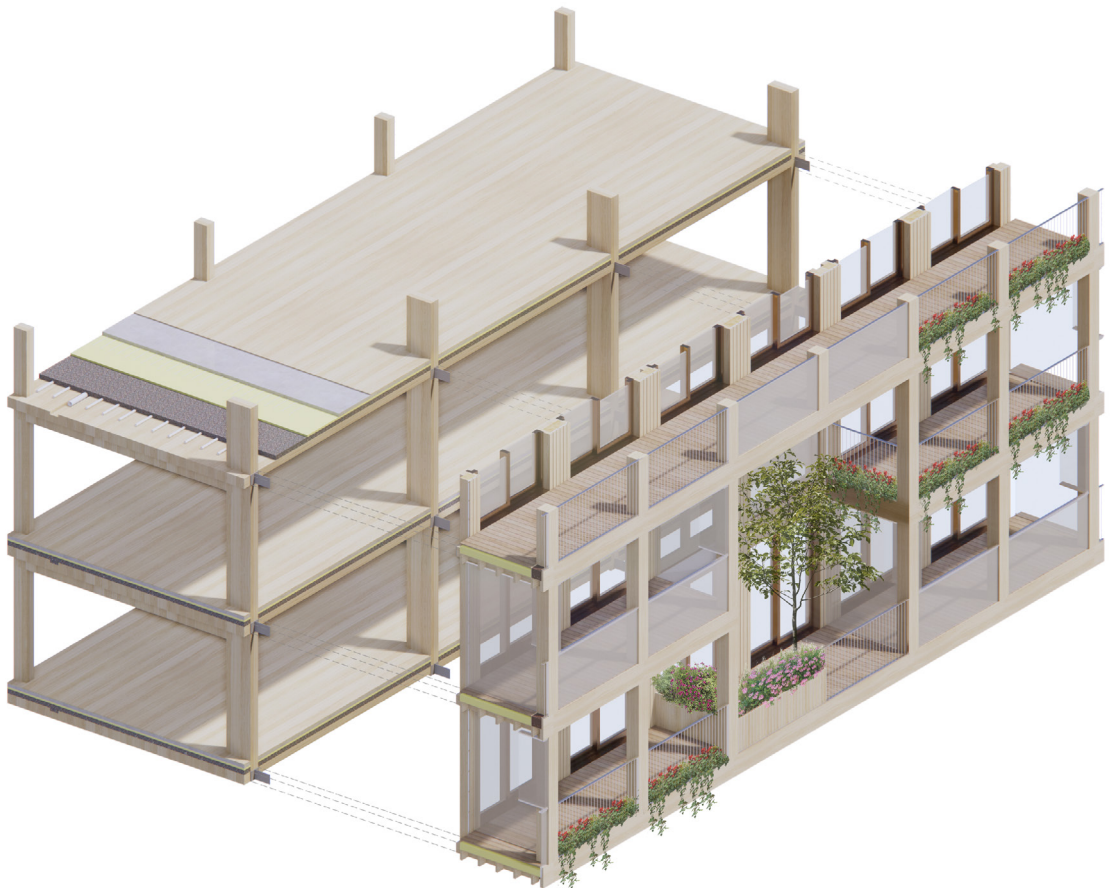
systems

floor heating accessible thanks to modular underfloor tiles
gravel layer allows to access plumbing pipes



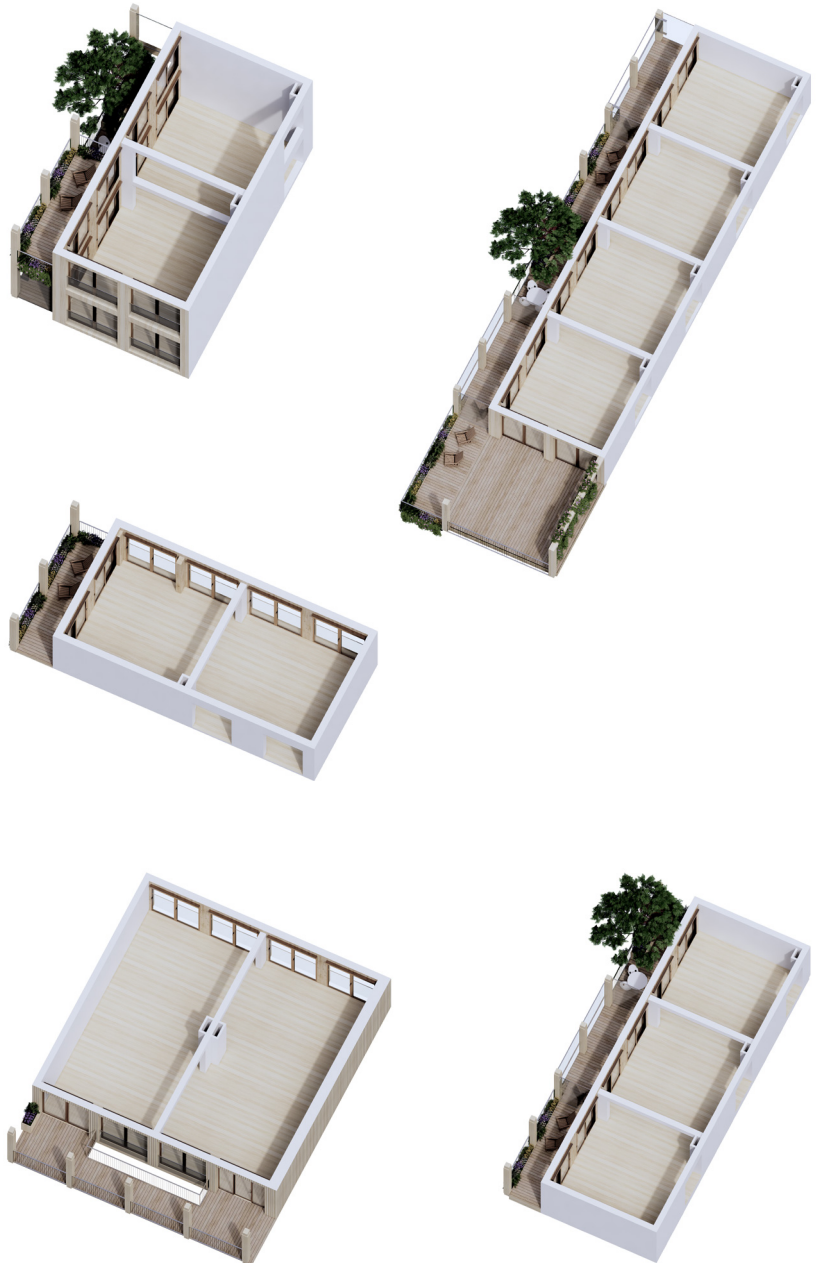
skin

independent facade construction
assembled to the main structure with steel brackets
easily demountable



space plan

flexible and open structure allows for multiple combinations of the units (both horizontally and vertically) and multiple arrangements of a chosen combination



stuff

example 1



possible infill:
132.8 m²
2-bedroom
apartment



possible infill:
2 x 66.0 m²
2-bedroom
apartments

stuff

example 2

left:
structure

right:
possible infill:
126.8 m²
4-bedroom
apartment



left:
possible infill:
94.0 m²
2-bedroom
apartment
+
32 m² studio

right:
possible infill:
2 x 62.0 m²
2-bedroom
apartments



stuff

example 3



structure



left:
possible infill:
119.0 m²
4-bedroom
apartment



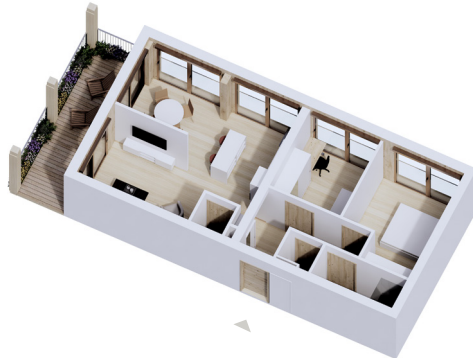
right:
possible infill:
87.0 m²
2-bedroom
apartment
+
32.0 m² studio

stuff

example 4



structure



possible infill:
65.0 m²
2-bedroom
apartment



possible infill:
50.0 m² studio
+
15.0 m²
office space

stuff

example 5



structure



possible infill:
94.3 m²
3-bedroom
apartment



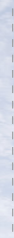
possible infill:
79.0 m²
2-bedroom
apartment
+
15.0 m²
office space



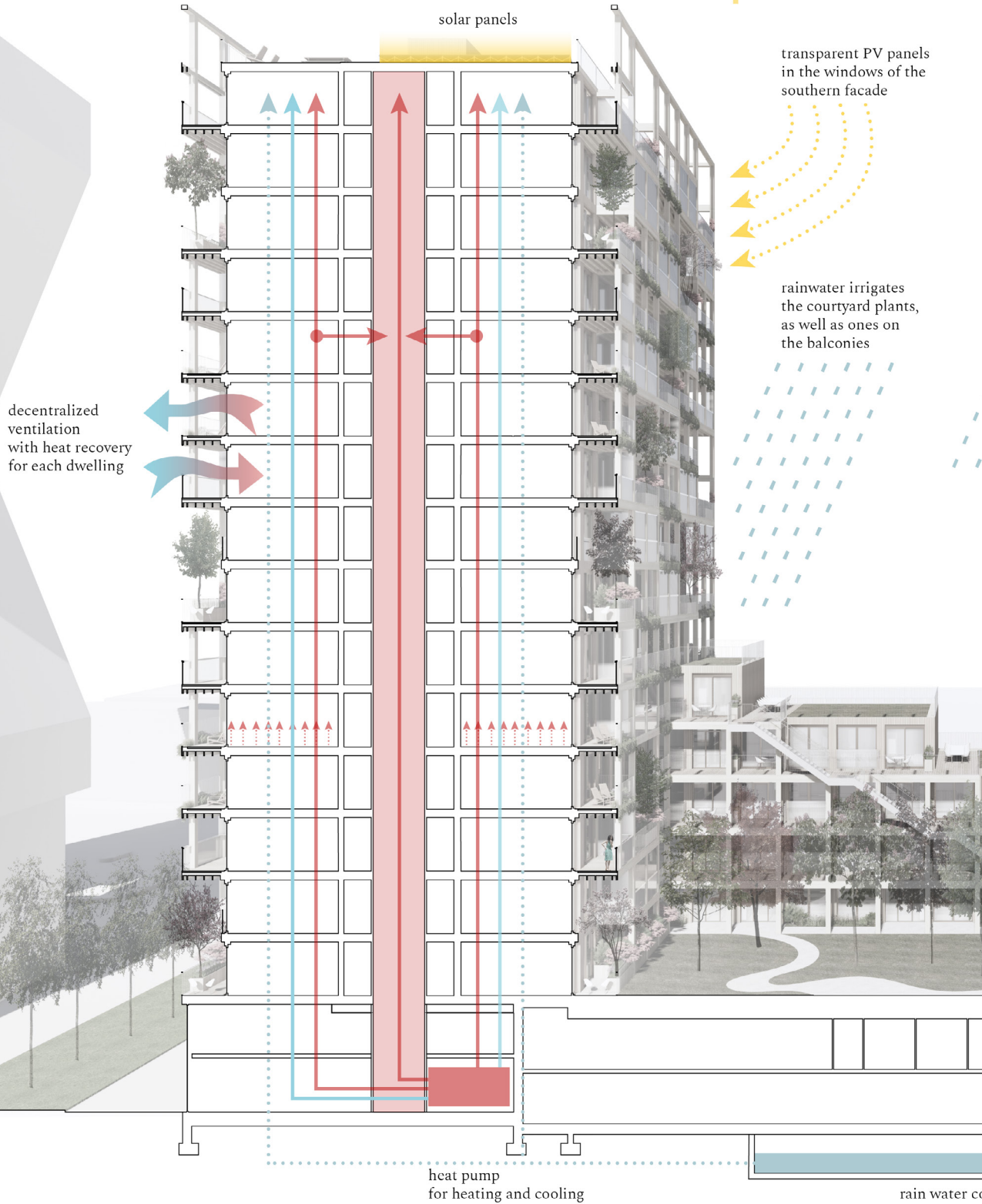
Building technology



Duco Screen Front 150
sun shading system
on N/S facade
type: Serge
color: SC1002







solar panels

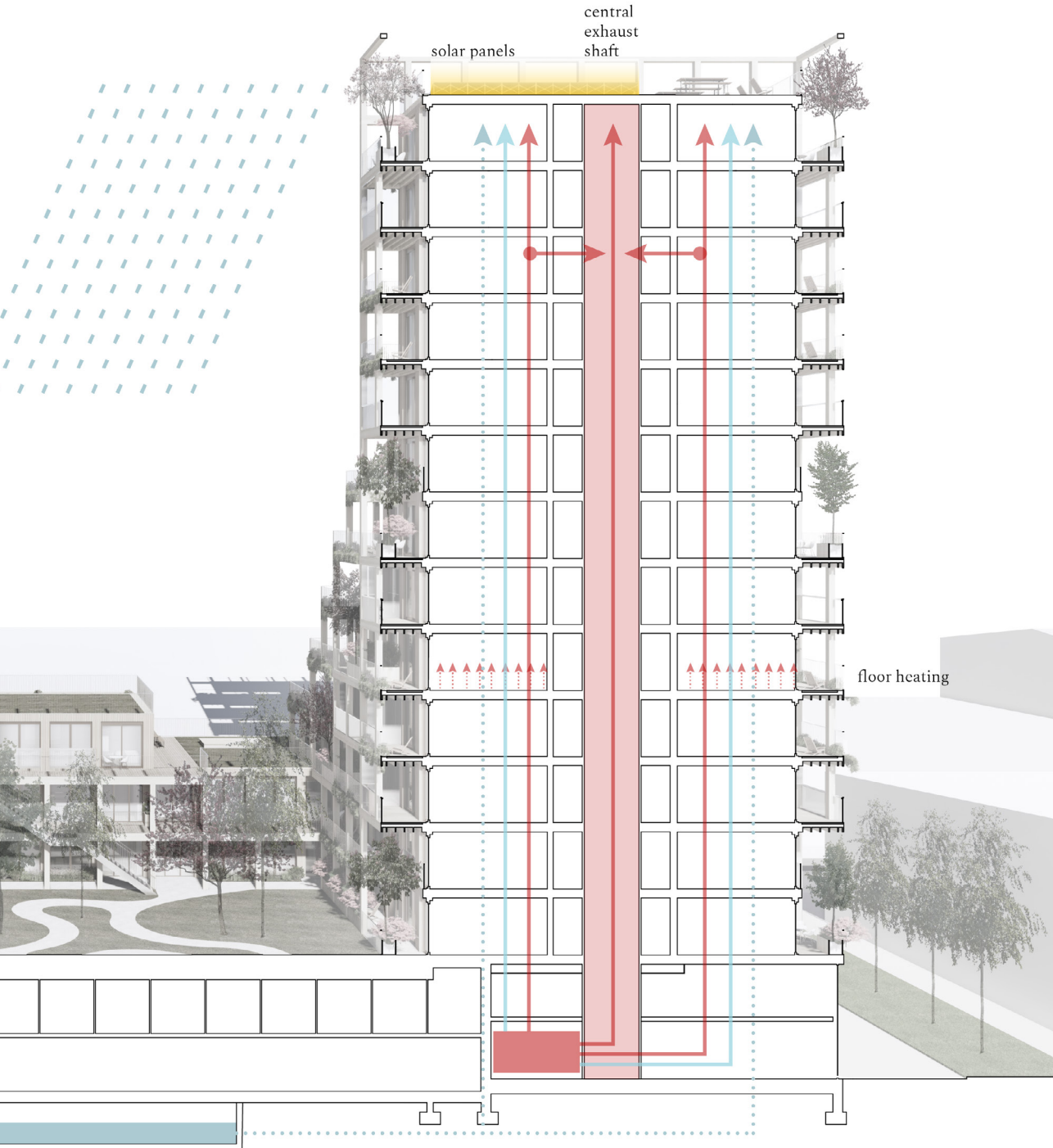
transparent PV panels in the windows of the southern facade

rainwater irrigates the courtyard plants, as well as ones on the balconies

decentralized ventilation with heat recovery for each dwelling

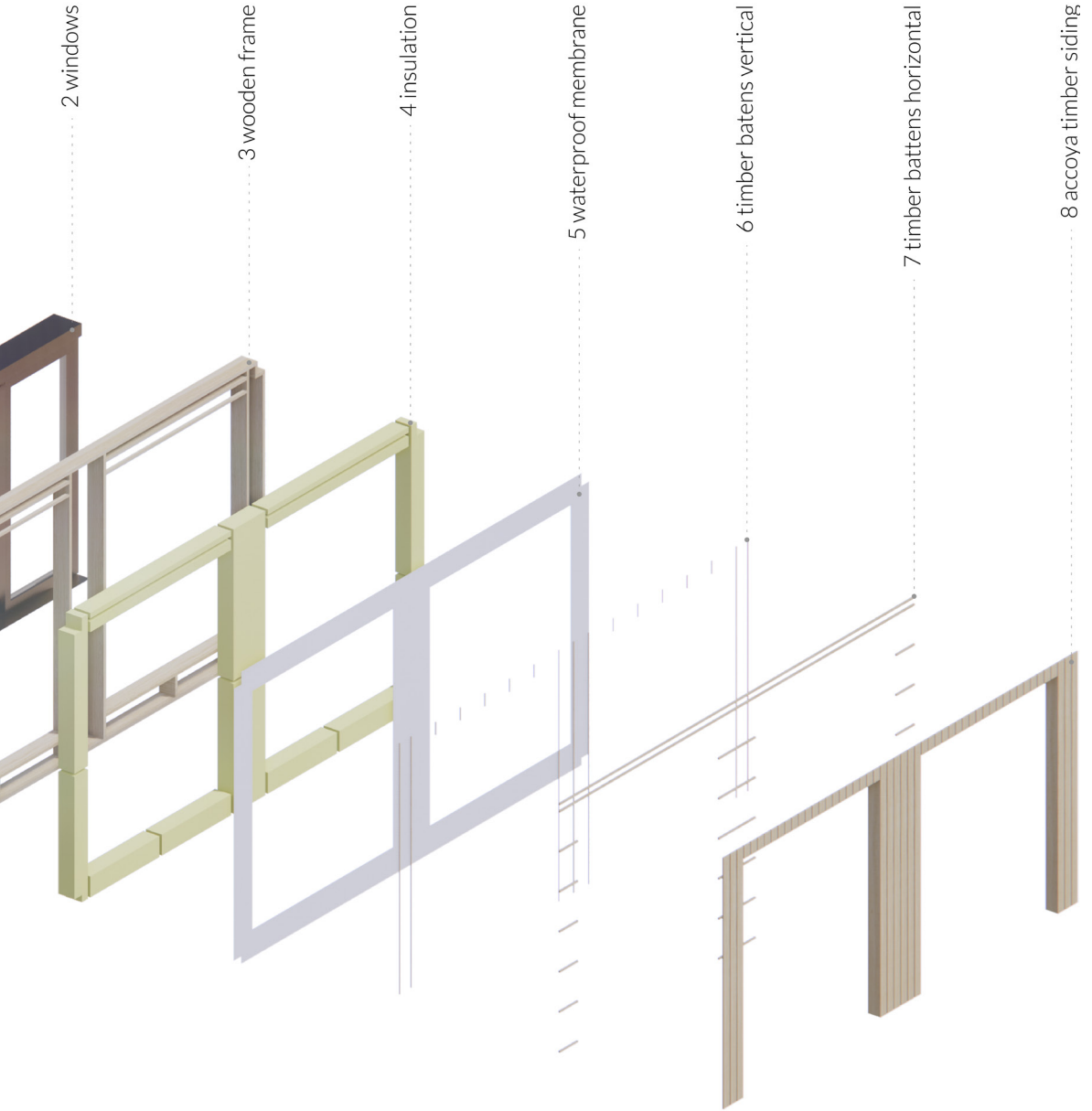
heat pump for heating and cooling

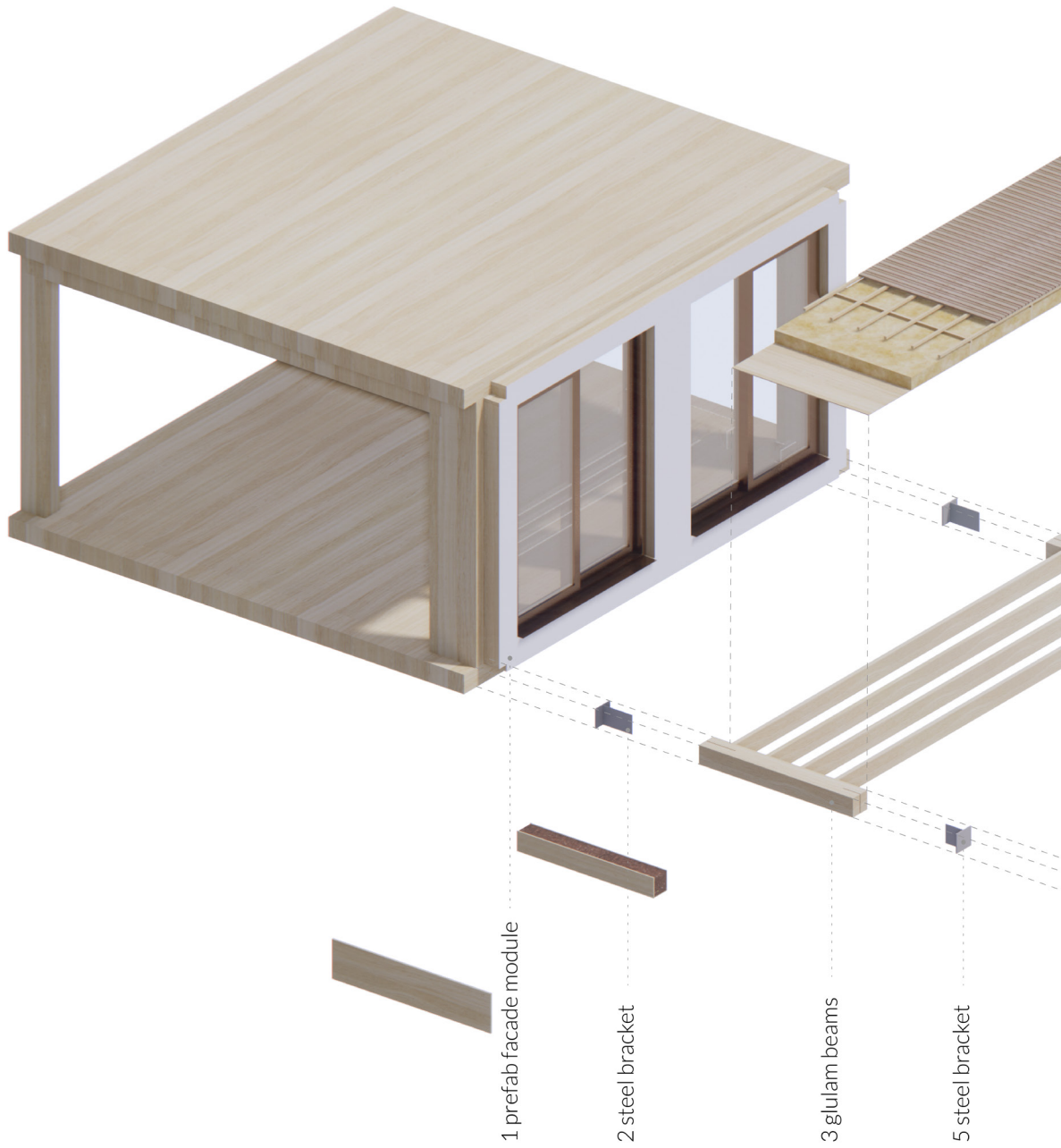
rain water collection

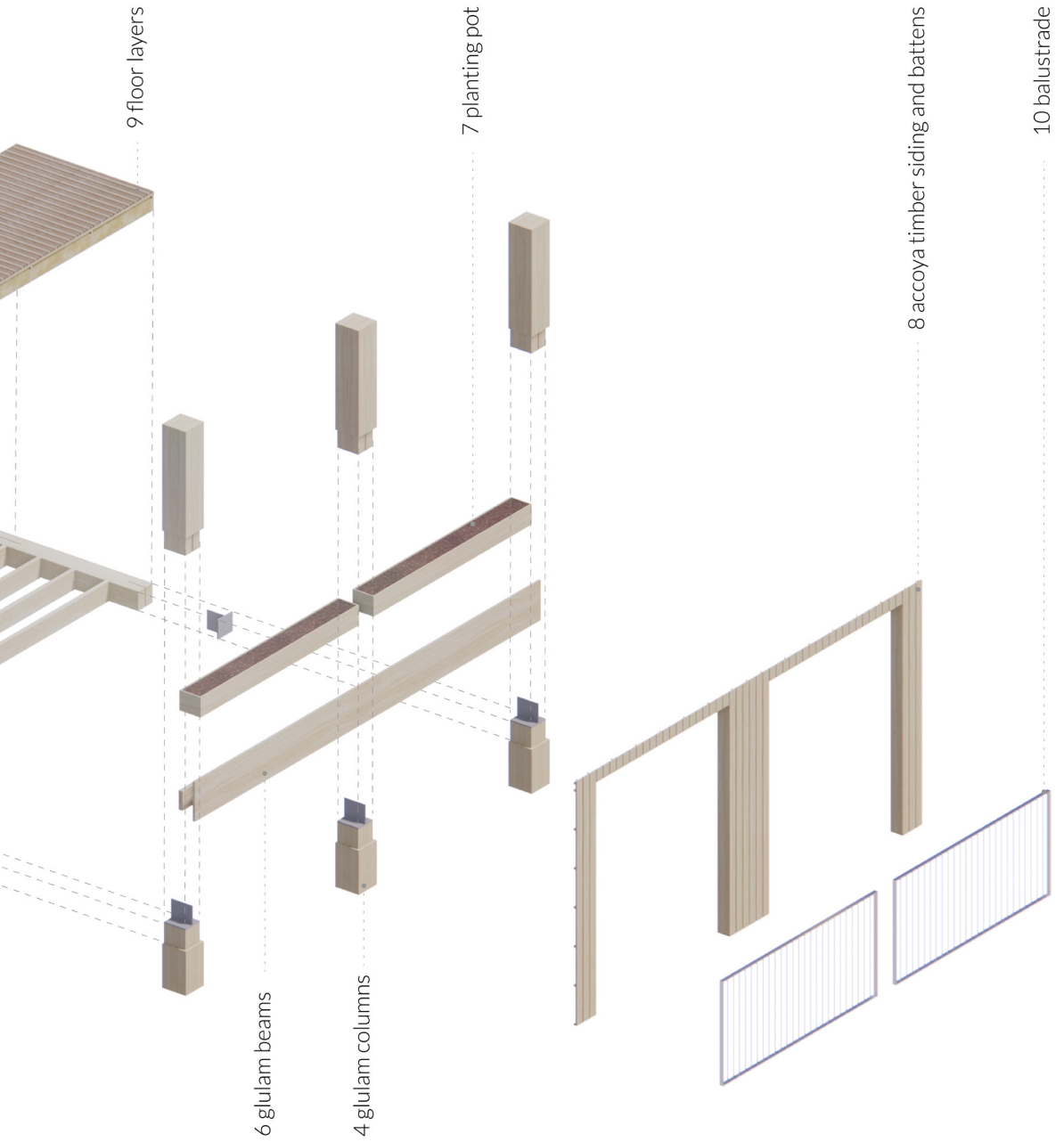




prefab: 1-5
in situ: 6-8



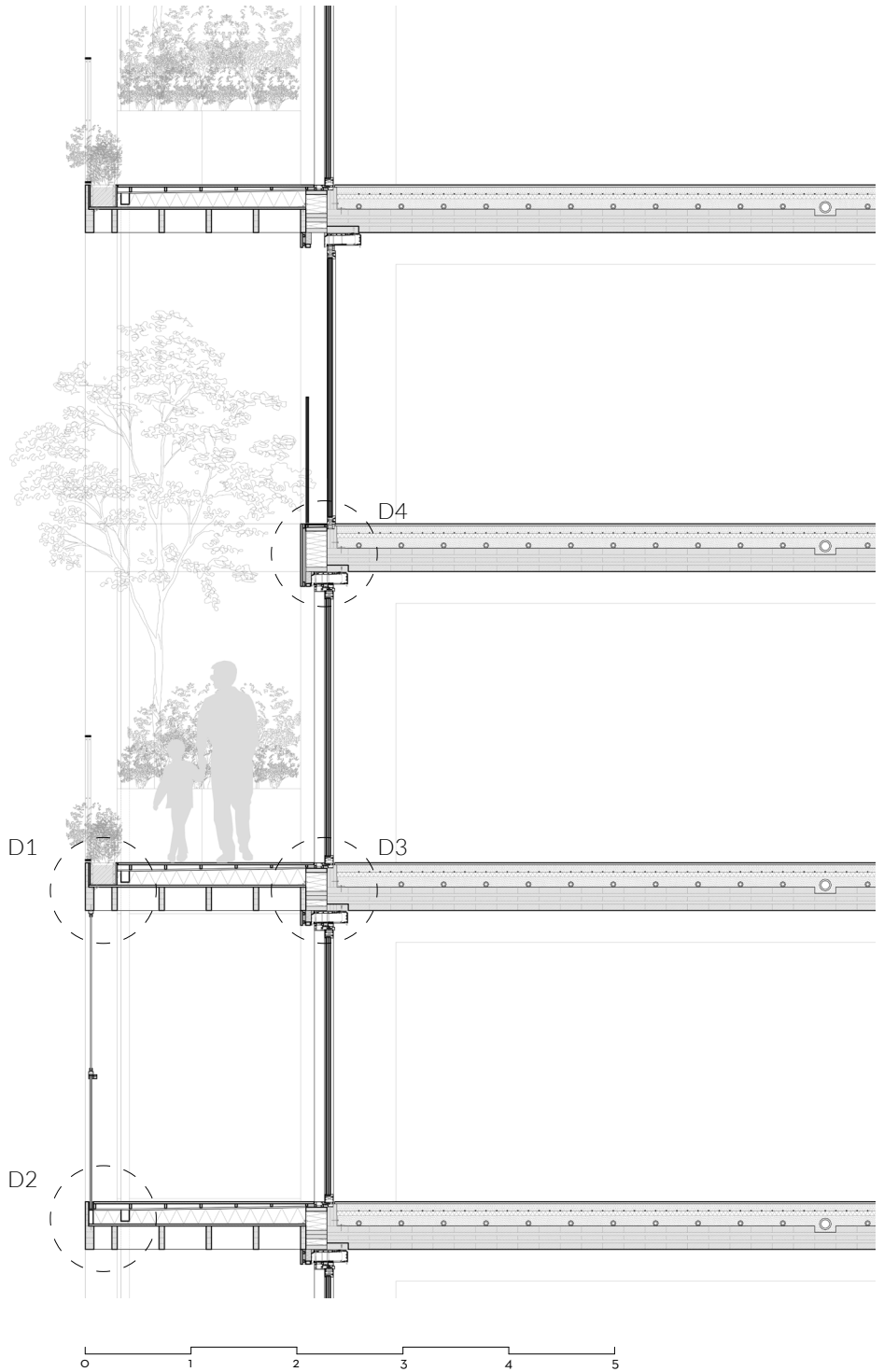




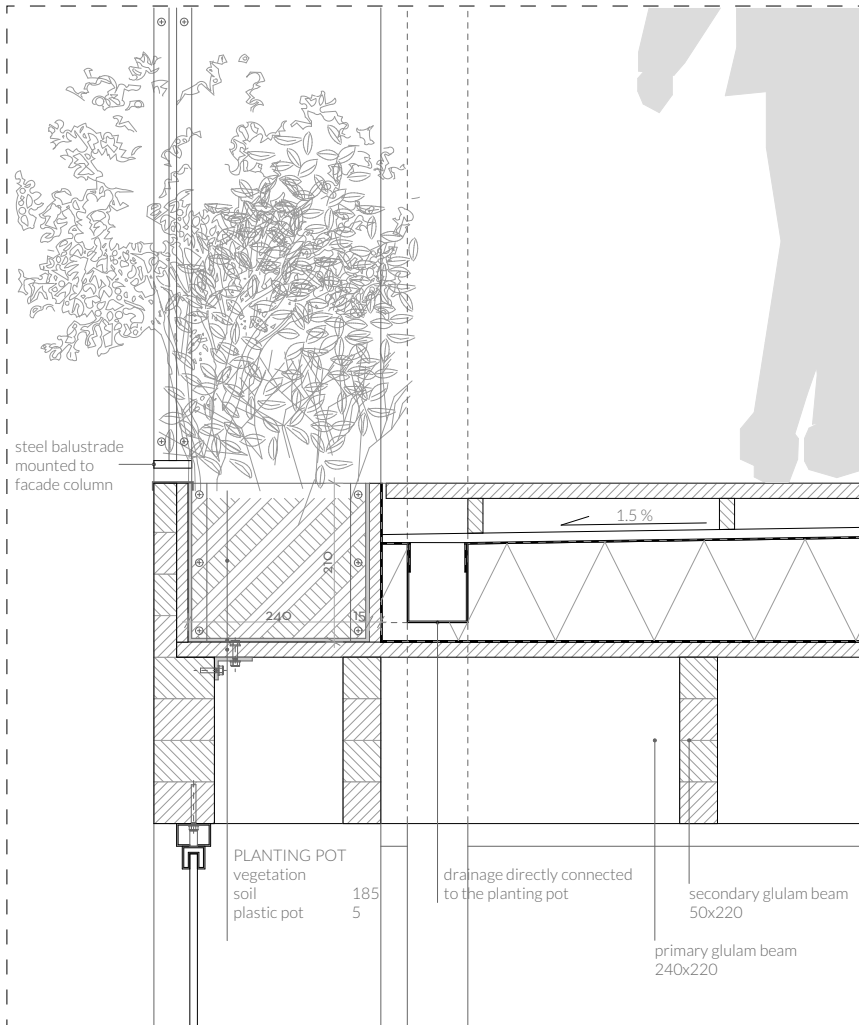
facade fragment 1:67



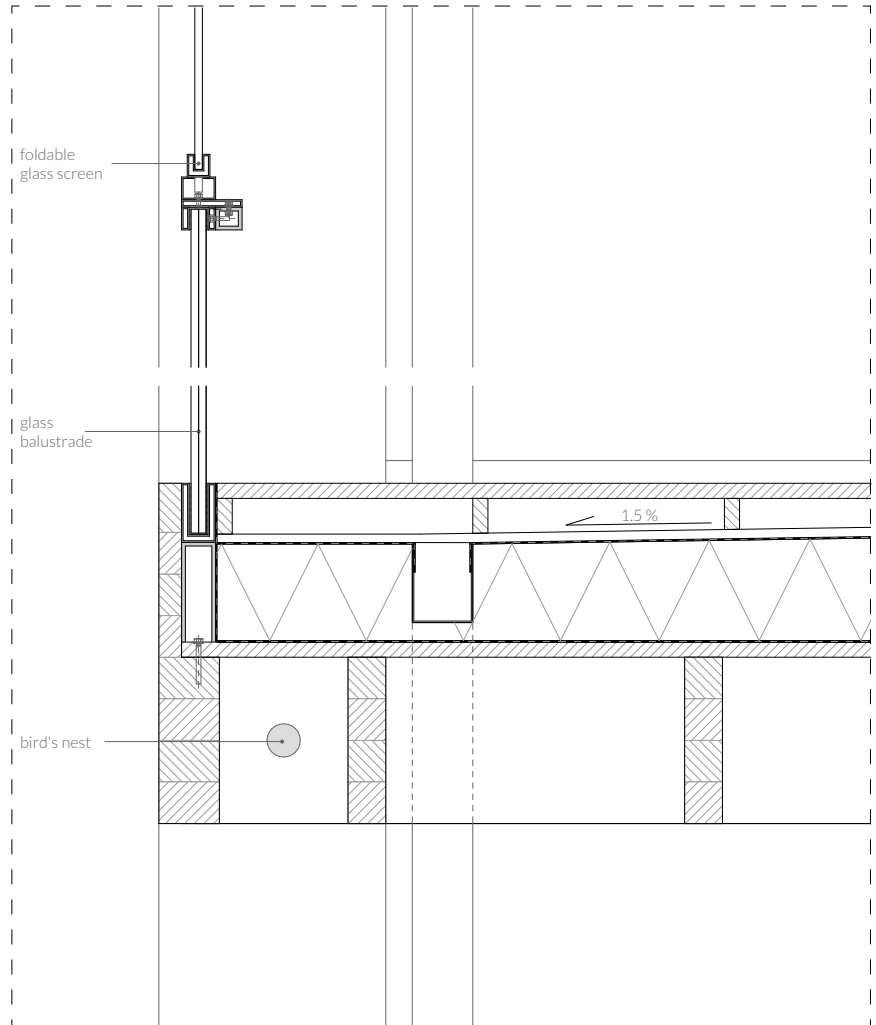
facade section 1:67



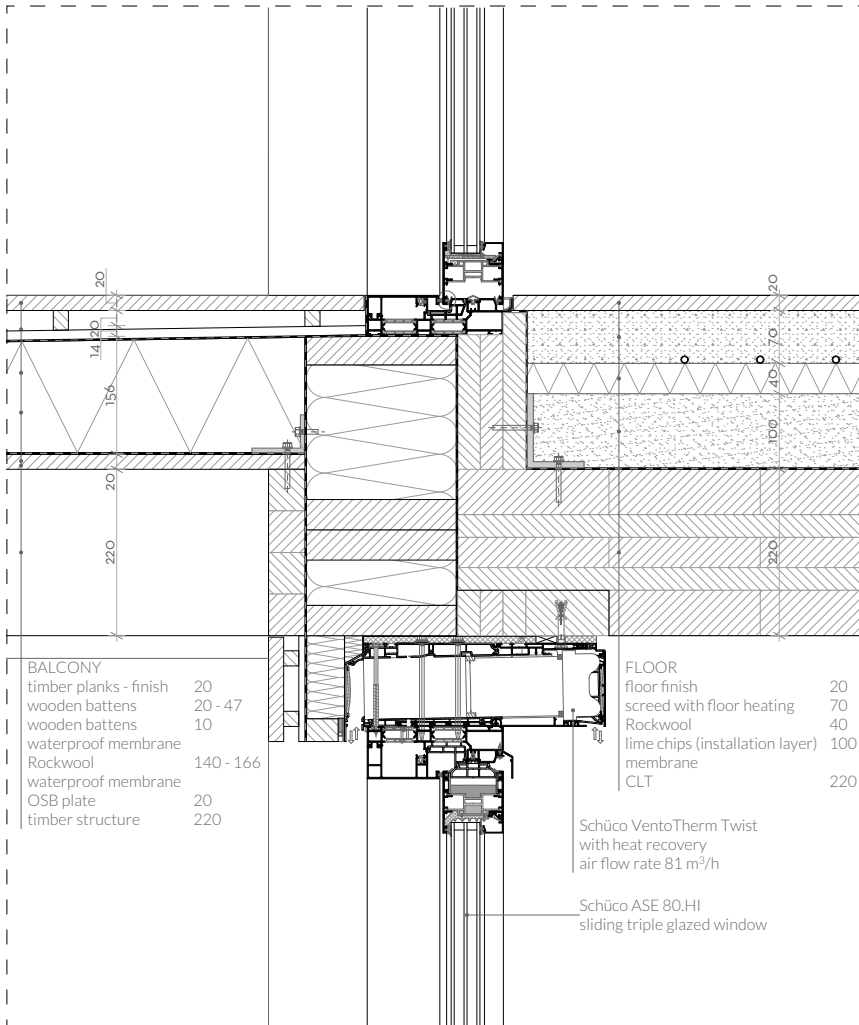
D1 Balcony section 1:10



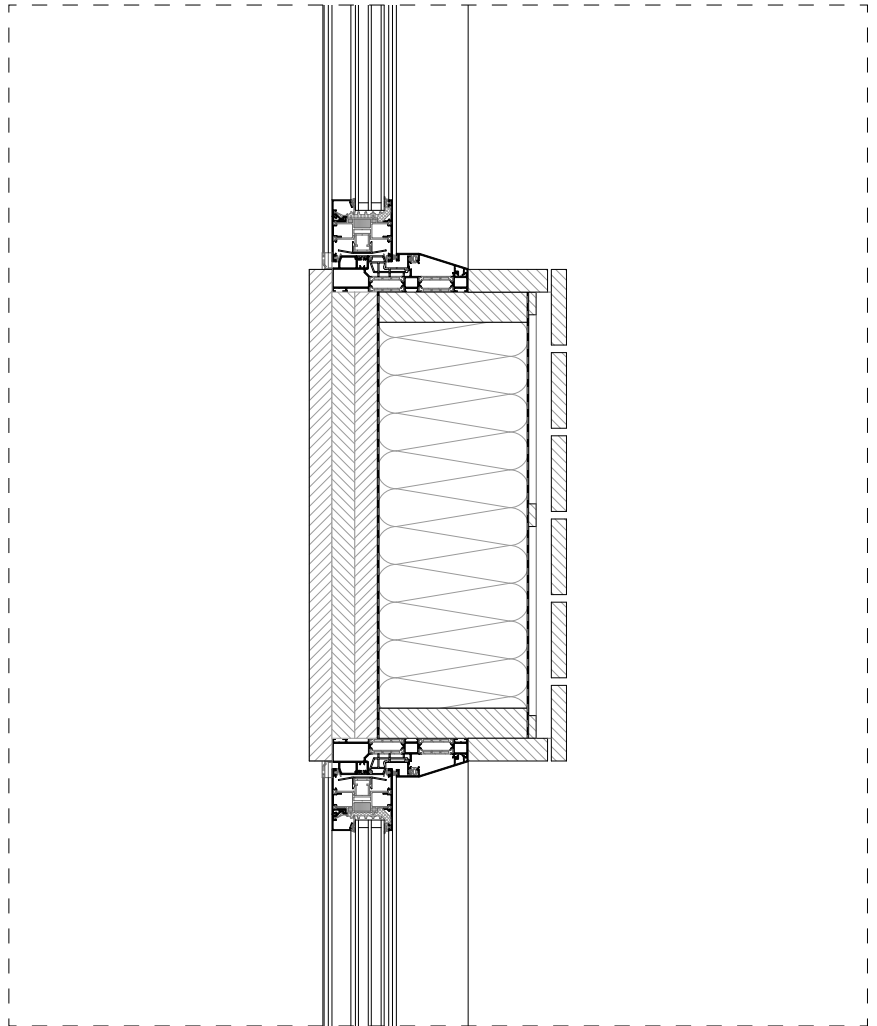
D2 Winter garden section 1:10



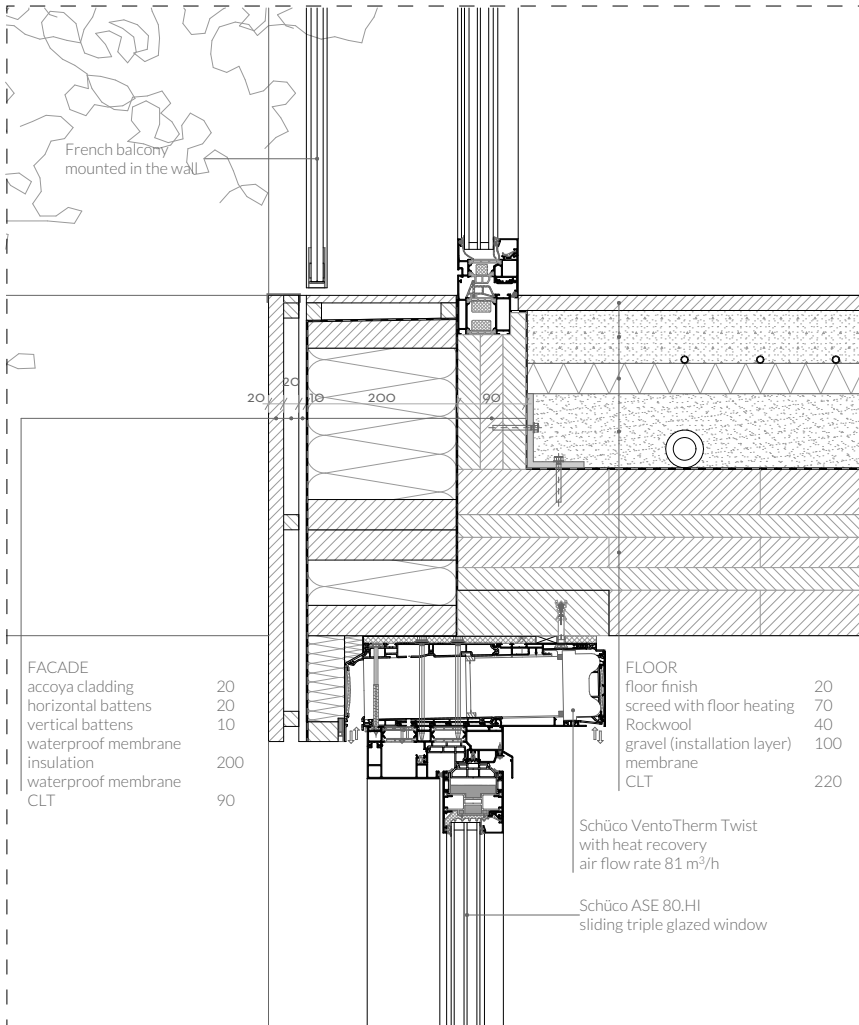
D3a Window near balcony section 1:10



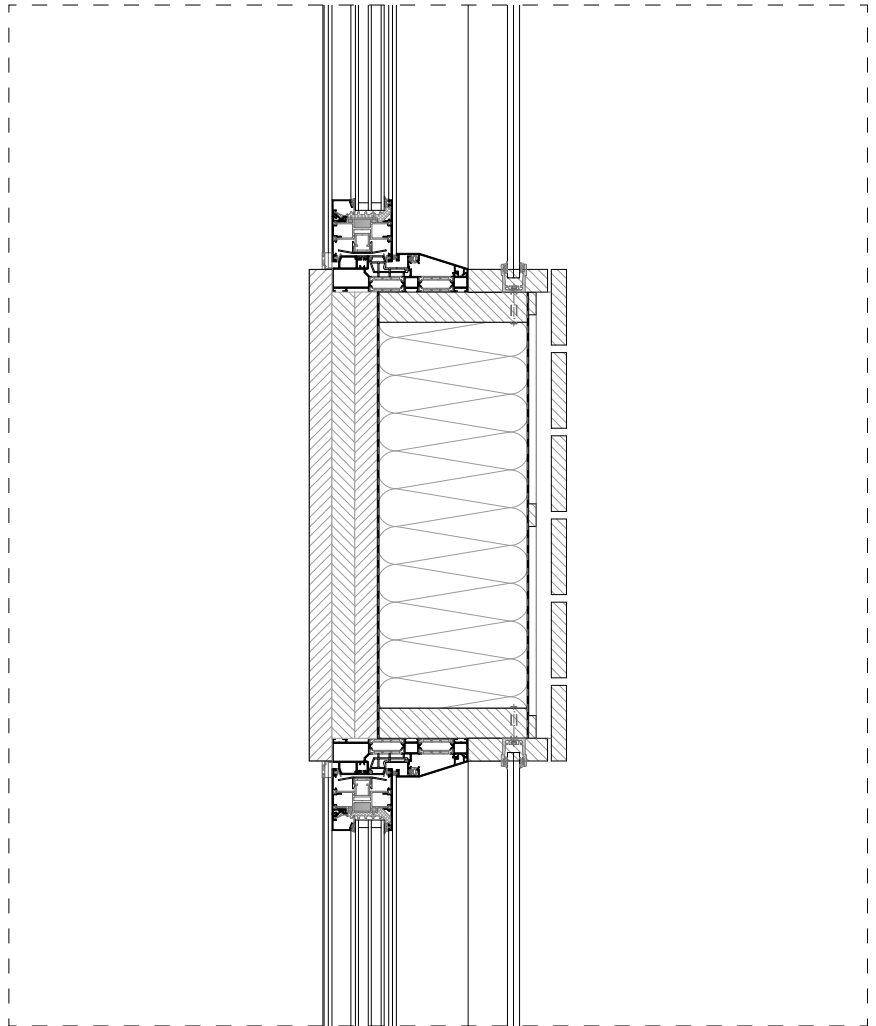
D3b Window near balcony plan 1:10



D4a Window with a French balcony section 1:10



D4b Window with a French balcony plan 1:10



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Introduction

The path of becoming an architect leads through a lot of observation, experimentation and learning by the mistakes of ourselves and others. Looking at world's famous architects, one can say that each of them has a unique mission in their professional approach. Some of them consider their architecture as a statement of their exceptional style, while the others prefer to blend in the surroundings. Some focus on rich commercial clients, while the others build for the lower class. There are plenty of other features that could fill the list of "the purposes of becoming an architect." Having almost finished the master track in architecture at TU Delft, I look back at my academic experience as a journey in strengthening my position as a designer. I consider the knowledge and skills I gained during my whole architectural work as tools for my continuous improvement and increasing my awareness of the surrounding environment and its issues.

My personal motivation for choosing architecture is somewhat reflected in the choice of the Master Graduation Studio of Advanced Housing Design. I knew that as a summary of my master track I do not only want to design architecture, but to design architecture *for* people. Since we spend most of our time either at home or at work, these spaces must be designed carefully with an aim for user's comfort and dynamic lifestyle. The topic of the studio *In Search of a Humane Metropolis* suggests two important aspects that interest me as a designer the most: focus on the growth and sustainability of the urban environments and designing for the needs of the society. Hence, the final product of my graduation year is an expression of my personal interests, as well as a comprehensive elaboration on research and design assignments, which are summarized in the following paragraphs.

Architecture and research: how and why?

As a discipline, architecture often struggles with the idea of research, leading to the question: What is research in architecture? The answer is not singular, of course, but as multifaceted as the discipline of architecture itself. (Lucas, 2016, p. 7)

Even though throughout my previous academic work I conducted research multiple times, I was not fully aware of its relationship with the design itself. Research accompanies architecture in every step of the creative process, allowing to draw conclusions which then affect the design choices and decisions making. However, I started to pay attention to that during and after conducting research for my graduation project.

At the beginning of the graduation year, I had a generic idea of what I wanted to achieve with my thesis project. Before moving to the Netherlands, I have lived in several places in Poland and Germany and experienced different housing conditions. It all drew my attention to the way people dwell and what needs they have not only in terms of architectural aspects, but mostly sociological ones. During the first weeks of the graduation studio, after first assignments of ethnographic research, I knew that I wanted to continue exploring the ways people dwell together and the collective aspect of urban living. As an assignment from my research mentor, I read Herman Hertzberger's *Lessons for Students in Architecture* and became more inspired by the idea of collectivity in housing. At the time I had to make first decisions on how to proceed with my research aims and why to do so. In other words: what do I want my design to be and how do I want it to happen.

As the above-mentioned citation from Ray Lucas fairly states, there is no uniform answer to what research in architecture is. There is also no singular pattern for conducting research. I believe that research should reflect personal interests and goals of the designer. Its methods and approaches need to be adjusted to the unique topic chosen by the researcher in order to produce a coherent outcome. In the case of my graduation project in Advanced Housing Design studio, I had a freedom to choose the topic and approach of my own, whereas the guidelines to the process of researching were defined by the curriculum of the studio.

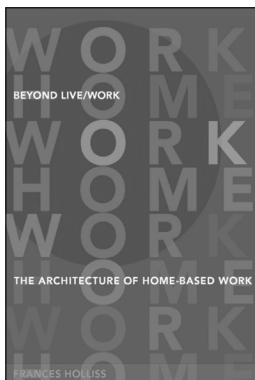
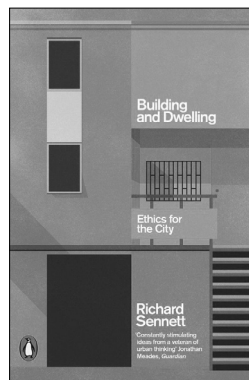


Fig. 7.1. Some of the research materials studied for the purposes of the graduation research

Typology transfer

During the very first studio meeting, the context of the project's site was introduced by a lecture of Jeroen de Bok – urban planner from the municipality of Rotterdam. He presented municipality's intentions for M4H in terms of future proofness, innovation, district's character and its general program. Shortly after that we were divided into four groups that continued working together for the next weeks in order to create a new masterplan for Keilekwartier in M4H.

The method applied was a typology transfer, meaning that each of the assigned precedents was literally copied into the borders of Keilekwartier. The aim of this task was to investigate the context of the research and predetermine substantial aspects of the urban and later – architectural guidelines for the site.

Allowing the context to take the lead in your research process is one way of establishing the primary importance of the physical, social or historical setting. This can be used to determine a typical context, which then provides an example of conditions found elsewhere. Examining a context as a case study of a type – particularly with reference to other circumstances following the same rules – allows a typology to be established: a repeating pattern. (Lucas, 2016, p. 11-12)

Each of the precedents that were transferred into Keilekwartier had one thing in common – they were all (post) harbor areas that underwent transformations into vibrant live-work districts addressing more human friendly environments while maintaining their unique industrial qualities. Studying and researching these districts allowed me to get acquainted with “an example of conditions found elsewhere,” as described by R. Lucas. Taking example from Binckhorst, which was the district analyzed by my group, gave me a reference of urban intervention that could be translated on the urban plan of Keilekwartier. Studying these two districts parallel created an overview of the aspects that needed further analysis and elaboration and their hierarchy of importance.

Although the method of typological transfer seemed logical in defining the character of Keilekwartier, it was not well received by the municipality. After the presentation of the new masterplan for Keilekwartier during P1, the feedback from Jeroen de Bok was clear: a literal transfer of an existing urban plan is not what the municipality imagines for M4H. Their idea for the district focuses on its one and only unique character and relying on new, innovative

solutions that are not yet found anywhere else. Despite the negative critique, showing the progress to the municipality representatives contributed to my better understanding of the architectural tasks that constituted the next steps of the graduation period.

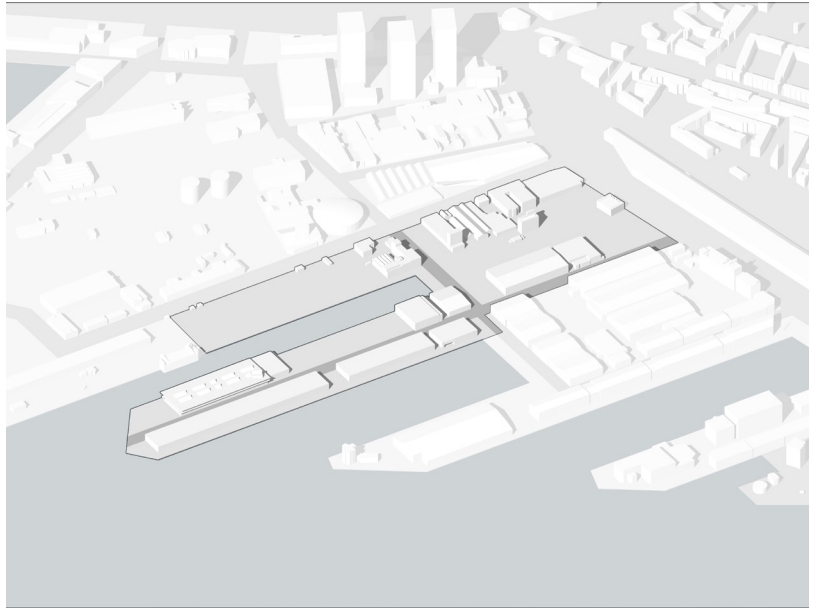


Fig. 7.2.
M4H Keilekwartier currently

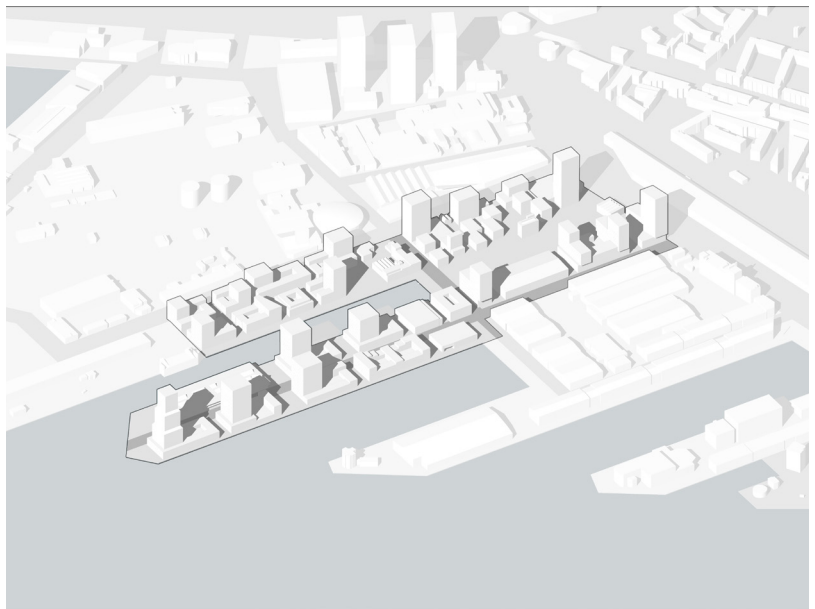


Fig. 7.3.
Final master-plan for M4H as a result of the cooperation of all the students in a studio

The choice of the target group

Around six weeks from the start of the graduation studio, a very important task was assigned, which contributed to the trajectory of my whole thesis project: choosing a target audience for my design. At the beginning I was sceptic about the idea of designing a building for just one specific group of people and I tried to formulate the topic of my research in a way that it would reflect my view on current issues in the urban environments, as well as the needs of people that live within them. As I mentioned before, last few years I have spent moving from place to place and observing the developments of the cities in terms of heading towards more international character. I truly believe that the transformations into more diverse societies that we observe now are just the beginnings of the natural results of globalization that will continue growing in the future. For this reason, I knew that analyzing urban populations with a focus on a mix of local and international inhabitants is a topic that will continue influencing the patterns of modern households.

Being an expat on my own, I can relate to the issues and challenges that await newcomers. It was clear to me that I wanted to continue investigating the topic of diversity and social exclusion often experienced in urban populations of today. I found it especially important in the case of Rotterdam, since the city is becoming more and more attractive for international entrepreneurs and professionals in general. Hence, I formulated the topic of my research as one that relates to the versatility of societies nowadays, as well as the social issues that concern the phenomena of diverse environments.



Fig. 7.4.
Graphic interpretation of the intentions of the research topic: creating a diverse community within M4H

Statistical research

Before the final choice of the research topic, I needed to confirm my initial intuition with statistical data collected by the Centraal Bureau voor de Statistiek for the Netherlands. Analyzing numbers and charts was necessary to learn about Rotterdam's population and housing market. Raw statistical data gives a good overview of the topic of interest, allowing to filter information from the most relevant to the least important ones. It also gives ideas on how to proceed with further steps of the research and which methods should be applied to confront the statistics.

CBS gave me an idea about the migration of people in Rotterdam and a rough concept of the number of expats among them. Thanks to this research method I was able to conclude my initial hypothesis about the diversity of Rotterdam's population. Therefore, I could continue narrowing down my specific research target and finding more and more sources of other statistical and analytical data that allowed me to gather more in-depth information on expats only.

I find this research method very useful at the beginning of the research process, as it only gives raw data and numbers, without showing the full spectrum of the context of analysis. Further methods and approaches need to be applied in order to fairly describe the research topic and hypothesis.

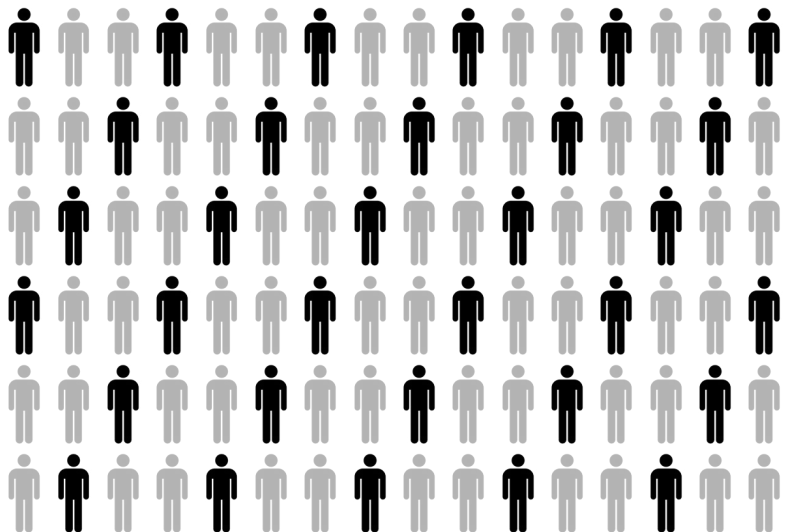


Fig. 7.5.
One of the findings of the statistical research: expats constitute 27% of foreign employees in Rotterdam

Cross - disciplinary research

It is becoming increasingly important to work across disciplines, giving your research access to what these other fields of study have to offer, and making their work relevant to architecture and the built environment. (Lucas, 2016, p. 59)

At the beginning of the academic year, I was first exposed to research through visual ethnography. I analyzed a social housing project Peperklip in Rotterdam. The task was to observe and document “the instances of collectiveness” in the neighborhood using a method chosen individually. My approach was to focus on the sounds in certain places on the site, record them and compare with the amount of people I encountered. I then drew a map of these places and took pictures of the moments of recordings in order to see how collective such a setting was and if the collectivity was visible with my eyes (sound documented things that the eye could not). Practicing this exercise allowed me to focus on details that I would never notice if I would just walk around the site and observe it casually. Ethnographic research was therefore a great tool in analyzing the behaviors of the residents, their daily routines and activities, as well as the inner culture of the neighborhood. This form of research also inspired me to follow the topic of human behavior in relation with architecture. It helped me define several architectural elements/forms that would increase people’s interactions and enhance collectivity of the urban neighborhood.

Since my research topic is very much related to social exclusion and urban segregation, sociology was a discipline that also contributed to my analysis. Collecting and analyzing research done by others created reliable references that contributed to formulating my final research questions, problems and hypothesis. As Lucas mentioned: “Architecture is constructed to serve the needs of people.” (Lucas, 2016, p. 15)

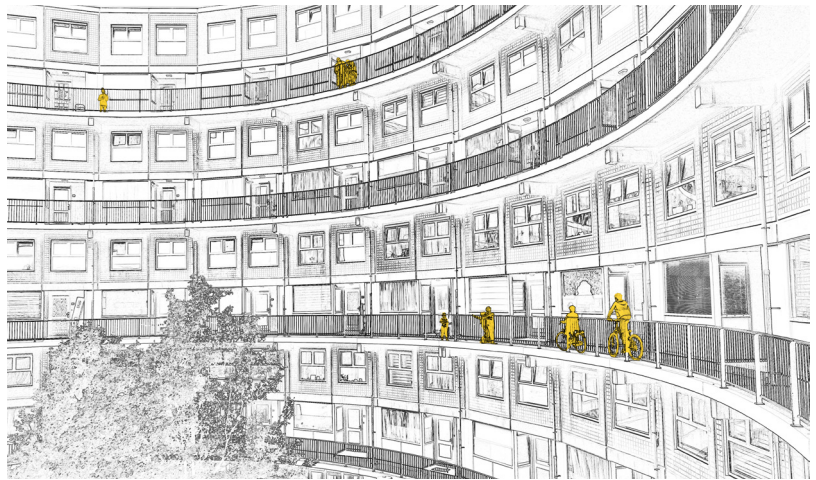


Fig. 7.6.
Chosen results of the ethnographic research. Places of collectivity in the Peperklip from the top:
- loggia
- gallery
- playground.

Interviews and surveys

As I mentioned before, the topic of my research is strongly related to social issues and the analysis of problems that touch a certain group of society. Therefore, despite the literature and sociological research, in-person interviews and online surveys were tools that gave me a personal overview on the features of the chosen target group. Moreover, unlike statistical data or even scientific articles, being able to actually communicate with the person in reality creates another perspective on the subject. Therefore, in the early stages of my research process, I conducted an online survey among expats in Rotterdam. Its purpose was to find the issues that they encounter before and during their experience in the Netherlands, but also determine the levels of their satisfaction in terms of the city and housing conditions. Overall conducting this survey was a great research exercise, as it allowed me to gather, analyze and conclude my own data. It also became a reference that I could compare with the statistical data conducted by other researchers. However, like all types of statistical data, certain features of my survey must be taken into consideration while making conclusions. For example, the fact that most of the respondents were female and only three of them were male. All in all, the results turned out to be similar to the data gathered by other researchers, which gave me more confidence in formulating my design hypothesis.

Interviews were even one step further, as they gave me a chance of a real contact with the interviewee. My favorite form of interview is the semi-structured one, which allows me to ask more spontaneous questions and to me, it also makes the whole conversation less formal. I believe that formality does not contribute to increasing interviewee's trust and therefore affects the quantity of gathered information. In case of my graduation research, interviews were the most powerful method that let me get closer to the audience and collect very individual and specific feedback on their actual needs in terms of living in Rotterdam. Although I only interviewed five expats and one employee of the Rotterdam Expat Center, it allowed me to get information that other sources did not show – an insider view. I believe that in any kind of research that concerns people, interviews and questionnaire are the most valuable source of data, of course assuming that the sample size is sufficient to produce an unbiased result. (Kahneman, the law of small numbers) If this condition is fulfilled, interviews and surveys are very powerful in drawing appropriate conclusions that would lead to future proof decisions.

After P2, while designing the dwellings, I conducted another survey among expats. Its questions were targeted into specifying dwelling layouts. Its aim

was to determine how large should the household e.g. for a single person, a couple or a family be, how many bathrooms and toilets does it need, how many bedrooms, work rooms, etc. More specific questions were about the kitchen/entrance layout, typology (single floor, maisonette, loft etc.). I also interviewed two more expat couples and two Dutch families, since my design goal is to integrate the locals and the newcomers. When it comes to the survey, I only received five responses, which is not much. However, considering the specificity of the questions and the flexibility of my building (ability of creating multiple layout arrangements), it allowed me to design dwellings that would answer the needs of the respondents. Also in case of the interviews, I was able to create an “architect-client” dialogue and design for the request of the specific user.



Gareth (35), UK
single father



Maria (35) and Bartek (38), Poland
couple



Grace (28), USA
expat's spouse



Daniela (22), Russia
expat's spouse



Laura Salm
Rotterdam Expat Center

Fig. 7.7.
Interviewees



Fig. 7.8.
Nationalities of
the people that
took part in the
survey.

Case study research and design inspirations

As I did not want to limit myself with just one household type that my graduation project refers to, I stayed focused on each possible household type: for singles, couples and urban families. I believe that since my research topic concerns population's diversity, it must be also expressed by the versatility of dwellings offered for the users. However, this decision had to be reflected in the case studies chosen for the precedents research. Finding appropriate reference projects was not an easy task in the beginning. Since the early stages of my research, I knew that the target group I chose is closely related to the issues of urban separation and social exclusion. For this reason, I searched for architectural precedents that would emphasize community living and offer collective spaces for the use of inhabitants.

Therefore, the approach I applied to each of my case studies reflected the aim of finding out how private and communal spaces intertwine within the building and how architecture can contribute to better social cohesion, offering places for in-person interactions between the residents. Fenix I by mei architects offers a gallery around a communal courtyard, where the inner life of the urban block takes place. Haus A by Duplex arkitekten is a distinct example of co-living scheme that caters for not only single residents, but also couples and in a few cases small families. Dwelling units are located around a communal core that enhances residents' meetings and contributes to strengthening their community bonds. The Family by ANA arkitekten represents a building dedicated to families. Its main focus lies in the safety of children and providing them with a wide gallery as a space to play. Lastly, Babel by Laurens Boodt is an example of a "street in the air," forming the whole building as one vertical playground for the kids.

Although I chose these four particular buildings as references for my case study research for the period until P2, I continued with the study of precedents during the whole design process between P2 and P3. Examples below represent the precedents that I got inspiration from during the whole design period after P2. As described in my research report, representing equality between residents was one of the goals of my design. Hence, many of the buildings I analyzed have a façade formed into a grid that reflects this idea.

Moreover, during the design process I had to consider certain solutions that would make the building more flexible and future proof. I find a topic of flexibility additionally important when it comes to thinking about housing for expats, since in many cases, the duration of stay comes into account. To me, the



Fig. 7.9. Comparison of all four analyzed case studies with regard to their collective spaces.

concept of creating a building that would be able to transform into something new is a way of reflecting the dynamic and innovation-driven character of the community of expats. During the design period, I got inspired by the heritage of John Habraken and his concept of open building and infill systems. It led me to exploring a variety of projects that are collected by the Open Building Academy – an association of architects and developers formed to work on implementing Habraken’s concept.

Olaf Gipser’s *Stories* is a building that I studied in terms of timber construction, as it was a great reference for me to estimate the size and performance of my structure. Moreover, the building is characterized by a unique approach of catering for not only humans, but also “non-humans.” It gave me an idea of another aspect of my design, which is related to community building, namely: collective responsibility for the environment. That is why I decided that nature inclusiveness will be an inseparable topic of my design, which is widely reflected on the façade of my building. SAWA bei mei architects is another example I studied when it comes to structure and nature inclusiveness. Online lectures and workshops organized by the Open Building Academy were a great way of getting to know the specifics of these projects. Relying on the information gathered from these lectures, as well as researching types of plants suitable for high-rise buildings, I created a list of “non-human” inhabitants of my building.

Research vs design decisions

Certain design decisions in relation to research were straightforward. The others demanded more specific studies and analyses. Next paragraphs describe each research method that I used with a specific design decision that it resulted in.

Statistical research

- estimating the household sizes and the amounts of each type within the whole urban block based on the housing requirements for the city of Rotterdam and precisely for M4H surroundings
- estimating the amount of parking places and bike spots
- estimating the household sizes and the amounts of each type with a focus on the households of expatriates



Tredje Natur in Copenhagen,
AART Architects



Nacka Port in Sweden, Kjellander
Sjöberg Architects



Holenkwartier in Hoorn, MKA
Architects



Who in Berlin, Mad arkitekter



BSH20A Stories in Amsterdam,
Olaf Gipser Architects



SAWA in Rotterdam, mei architects
and planners



Swedish Housing and Market Hall
in Katrineholm, JAJA Architects



Creative City Neu Marx in Vienna,
Patricia Bagienki's Thesis Project

Fig. 7.10.
Some of the
reference projects
taken inspiration
from during the
design process.

Ethnographic research

- the choice of a courtyard typology, studied in the case of Peperklip
- the choice of the circulation type: combining gallery with a corridor with maximized focus on equal residents' access to each part of the building
- formulating the "4 layers of collectiveness" in the building: collective courtyard, terraces, gallery and private balconies
- maximizing the number of outdoor spaces for each individual dwelling in the form of balconies

Sociological research

- providing the building with common spaces to enhance interaction between the residents
- dividing the building into two communities: courtyard community and tower community based on the lifestyle pattern: community-oriented and more individual one

Interviews and questionnaires

- determining the optimal size of the household for the single person, a couple, a family (depending on the amount of children)
- designing specific dwelling layouts for the respondents of the questionnaire and interviews
- defining the functions of the communal spaces, e.g. urban gardening, language studio, children's playroom

Study of precedents

- bay widths, gallery width
- terrace and balcony sizes
- structure, materials and thicknesses of structural elements
- bathroom, toilet, bedroom, kitchen sizes
- types of plants used near the façade and on the terraces

Conclusions

This paper represents my personal reflection on the research I did during my graduation year and the relationship it had with the project design. As a summary of all the aspects discussed in the previous chapters, I will shortly conclude them in the next paragraphs.

The relationship between my graduation (project) topic, the studio topic, my master track of architecture and my master program

As I already mentioned in the introduction, I believe that as an architect I need to have a personal goal in my professional approach. A goal that will lead me through my future work experience and at the same time, give me joy from what I do. To me, a role of an architect carries a huge responsibility for the environment around and the users that architecture addresses. Especially today, in the face of a climate change, this responsibility takes on a whole new meaning. That is why I think that the awareness of the awaiting challenges must be acknowledged not only by me as an architect, but also the people who will live/work in the buildings I create. For this reason, with my graduation project I tried to create an environment, where people take responsibility not only for the community they create, but also the environment they live in. I believe that creating a form of collective responsibility enhances social cohesion and a feeling of belonging. Therefore, I think that my interest in building with a special regard of the user goes in line with the topic of the graduation studio *In Search of a Humane Metropolis*.

Scientific relevance of my graduation work

Research on expats has been conducted by many sociologists around the world, including the ones in Rotterdam. However, there is not much data on the needs of expats in terms of housing. Especially when it comes to combining the complex topic of urban diversity in relation to continuous increase in the number of expatriates in Rotterdam. The trend of inviting foreign professionals is still pretty new in the Netherlands, but I believe that it will continue growing in the next years. This phenomenon will have its consequences on the housing market and in the way urban communities look. For this reason I believe that the topic of my graduation research that addresses increasing diversity in urban populations, will constitute one of the patterns that will represent modern households of the future.

Relationship between the graduation project and the wider social, professional and scientific framework

Sociological issues discussed in my graduation research, such as urban segregation and social exclusion are being paid more and more attention from the architects and urban planners of today. Hence, I believe that the outcomes of this research are valuable assets transferable in real projects. The topics of creating better social cohesion of urban communities are widely discussed among the society of architects and planners in Europe and most remarkably, in the Netherlands. Since nowadays more and more people feel lonely in the cities, it is crucial to consider how living and working spaces could improve the quality of life. An emphasis on collectivity within urban communities has been discussed by designers for decades. Therefore it is important to keep continuity with observing societal changes of current times with a regard of the coming future of new generations. When it comes to my personal case, I will definitely continue my research into these topics in my professional career. I think that this graduation research, although extensively elaborated, is still a drop in the ocean of a broad collection of issues that must continue being investigated.

Ethical issues and dilemmas I encountered during my research and design process

My first dilemma during the research process was finding a balance between sociology and architecture. The methods of my research and the topic I chose are very close to studying human behaviors and their lifestyle patterns. Therefore, I had to find a clear connection of the issues I tackled with a discipline of architecture, which is the main field of my concern. Studying Herman Hertzberger and Richard Sennett turned out to be helpful sources of analyzing and combining both topics: behaviors and architecture. Next to that, after finishing the research report, I was well aware that the topic is not closed and the amount of research I have done is not enough to completely discuss all the important aspects of the subject I chose. I needed to find a compromise with myself in order to narrow down the most important issues that were later transferred into my design. While designing, I also encountered many intriguing subjects that I could have included in my research, but I did not because of the time constraint. However, I believe that when it comes to research, a very important skill is to be aware that it is not all that could have been done. That there is always something more to find, something that will make the project “better,” at least in my point of view. Finding a balance between my ambition and reality is always a big challenge for me. However, I think that during my graduation year I pretty much learned this skill and I am ready to continue with my professional work being able to fairly evaluate the importance of cer-

tain aspects over the others and making appropriate design choices targeted at most relevant issues.

Moreover, one of the challenges of the studio was to create affordable housing conditions. When it comes to expats, they do not usually belong to the middle-income group, but rather above it. For this reason I needed to investigate their housing preferences in terms of money, which is a difficult topic to bring up e.g. during the interview. I could intuitively conclude that despite good salaries, expats seek for affordable housing anyway. I realized that by following expats communities online and reading their public discussions. There, I also realized that despite being new to the cities, many of them still choose to take a Dutch mortgage and buy a home instead of renting it. However, this research method does not seem to be very scientific, and I did not include it in my report. Nevertheless, it gave me a good overview of the community and helped in thinking about my project as one that could be built for the real audience.

Given the time constraint of the duration of the studio, along the way of thinking about the most suitable construction, material and technical solutions, I needed to again, narrow down the most necessary aspects that will be presented in the building. Hence, I chose the collectivity of the residents, flexibility of the dwellings, sustainability of the whole neighborhood as main themes that I paid most of my attention to. In the end, being an architect demands collaborating with other disciplines, which always requires a great amount of compromise and open mind.

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Illustrations

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