RESEARCH REPORT
KNOWLEDGE WORKERS IN THE CITY

TIJMEN DIJK
4303458

Architecture and Dwelling
Dutch Housing
Makerrs District Rotterdam

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INTRODUCTION

There is an urgent need for affordable housing solutions in the Netherlands before 2030. However, the focus should not only be on producing new dwellings, but rather on creating homes and neighbourhoods that meet the needs of the future population.

In Dutch cities there is a change in the residential culture. There is a large lack of affordable and suitable homes in the Dutch urban region (Randstad). At this momen most of the dutch citizens simply do not have the income to buy a new expensive house or apartment and social housing is only accessible for the citizens with lower incomes.

1 Million Homes

There is a huge housing demand for people with middle incomes and starters, but the production of new dwellings isn't going fast enough. The cities are getting out of space, and densification isn't part of the current Dutch housing culture. This results in a shortage of available homes and a rise of real estate prices in urban regions. On the Dutch housing market there are litlle opportunities for starters and at this moment this is causning big problems.

More people wants to live in the cities these days, but in those cities the amount of one-/(or two) person households is also risng. Combined with a constantly growing population there now is a large shortage.

For this reason the TU Delft started a new research programme called '1Million Homes' where through research and eduction the faculty of architecture is exploring a solution for this housing problem.

In the studio Dutch Housing, part of the chair of Architecture and Dwelling at the TU Delft we have done a research on this subject in the context of our graduation assignment

In this research the focus was on collectivity in residential buildings for a specific usergroup. This research consisted of two different parts.

Collectivity Research

With the whole group of graduation students we did a case study research on collectivity in residential buildings around the world. In this study we looked at 15 case sudy projects. In al those projects two main aspects has been investigated.

1. Dwelling Typology
At fisrt we hade a look at the typology of the dwellings within the residential buildings. How are these dwellings situated in the building, and how are they accessible?

2. Collectivity
We also defined the collective spaces, drawn walking routes trough the buildings and marked all the possible collective activities in the buildings.

User Group Research

On the other hand we did a user group research in which we defined the user groups for our own design projects. This study also contains out of two parts.

1. In a literature study the usergroup is defined and investigated. The preferences they have for a house are set out, and form the base of the design project.

2. This literature study is substantiated with another case study research. On the basis of relevant case studies of comparable buildings in the same region the wishes, prefrerences and expectations of the choosen user group are defined.

This research is the base for the conceptual design of the building block.

these two parts of the research (one was more architectural, the other more theoretical) were supplemented with two other courses in which we obtained more background information.

Research Courses

With the research seminar we are practiced in getting the right information out of the book building and dwelling by Richard Sennet. This was also a good base for an architectural research, and the 5 open forms helped me to define the first conceptual design proposal.

On the other hand we have done a research tutorial in which we learned to adopt techniques from anthropology to conduct research into the relationship between humans and their buildings. During this course the design is brougth to another level with the help of Virtual Reality. This new techic makes it possible to walk around your conceptual design and see the problems with scale, height and daylight. This research was strengthened by the book 'Experiencing Architecture' by Steen Eiler Rasmussen.

All these research parts together have lead to a first conceptual design. A complete summary of this total research and the following conceptual design has been put together in this report.

The images on the title pages will give you an impression of the current state of this area.

GROUP RESEARCH
COLLECTIVITY IN RESIDENTIAL BUILDINGS

Introduction

These are the three main current issues in Dutch housing:

1. There is a growing housing shortage in the Netherlands. Between 2019 and 2030 around one million new residences will need to be built. (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2019) So a lot of housing has to be built in a short time span. Partly because of the housing shortage housing prices are rising quickly which can lead to the exclusion of less well-of groups of people.
2. Additionally, there is ample space to build upon. With the continuing urbanization of Dutch society, most residences will have to be built in and around existing cities. These cities are now densifying their existing urban fabric with new housing developments, but will still have great difficulty building enough on the available plots of land.
3. Then there is possibly the biggest issue of all: climate change. Building has had a huge impact on our environment and will continue to do so. Solutions have to be found to strongly reduce our emitting of greenhouse gases, our shrinking of biodiversity and our depletion of (natural) resources.

Enter communal housing.
By sharing certain facilities among a group of inhabitants, less space is needed for each of the inhabitants' needs. Say eight apartments each have their own washing machine, that means that eight square meters of the building houses washing machines. But not all these machines are used all the time. If per eight apartments two machines are available for all eight residents, only two square meters of the building needs to be reserved for everyone's needs. If enough floor space is 'saved' through sharing facilities, additional rooms or even additional apartments can be built for the same amount of money in the same amount of time.

And this can be part of the solution to the first problem; the housing shortage. Being able to build more apartments within the same time span is obviously beneficial to reaching the goals set for 2030. The sooner the housing shortage can be solved, the quicker housing prices will stabilize (or even drop). The less fortunate people in our society would stand a better chance finding suitable housing at an affordable price. They might not have to move to more peripheral areas of the city because they can no longer afford the rents in the city centre.

As stated, the second current issue in Dutch housing is the availability of space. Delft for instance has no big empty plots left to build upon apart from the currently planned developments. (Gemeente Delft, 2016) And even the planned developments may not even be sufficient. If major real estate developments have shared facilities in them, a lot of additional apartments can be built on the same plot.

Communal housing also addresses climate change and our impact on this world. "The building and construction sector accounted for (…) 39% of energy and process-related carbon dioxide emissions in 2018 (…)" (United Nations Environment Programme, 2019, p. 9) The process of building itself as well as the production of building materials are the biggest contributors to these emissions. Now, this is a far greater issue than can be solved through the means of a type of housing, but it can again be partly be solved through it. Simply put less individual facilities leads to less real estate needed which leads to less materials needed per capita. Per capita, because the housing shortage demands us to fill up superfluous real estate with more dwellings. If less materials are needed per capita, less energy is consumed in making the necessary materials for an equal amount of dwellings. Less energy will have to be put into the transportation and placement of materials as well. Less materials needed per capita also means that each person has a smaller impact on the depletion of natural resources. Scarcity of virgin materials is growing, and all materials we extract from this planet are finite resources.

Communal housing comes in many different shapes, some more suited for a specific situation than others. As the Dutch saying goes "zoveel mensen, zoveel wensen". Although it can prove itself valuable for solving the previously mentioned problems, it is by no means the single solution to the issues at hand. The desired degree of collectivity always depends on the specificities of the project. Through the analyses of case studies we can learn what types of living and which types of communities are suitable for what situations, and draw lessons from them for our own design practices.

Methodology

In this research a number of 15 residential buildings have been analysed, elaborating on a wide variety of housing typologies. Main issues as the type of housing, functions in the building, accessibility, the relation between public and private and movement in the building have been studied. The latter has resulted in a representative route of a resident through the building with possible collective encounters. Spatial aspects which influence these encounters have been pointed out to emphasize the relation between architecture and collectivity. A brief overview of all research is included in this report and will discuss the earlier mentioned topics in the coming section. Finally a conclusion will be drawn on the topic of collectivity.

Sources:

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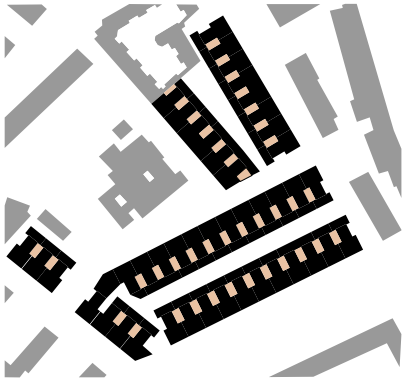
Pullens Estate

Pullens Yard, From: http://kenning-tonrunoff.com/pullens-yards/



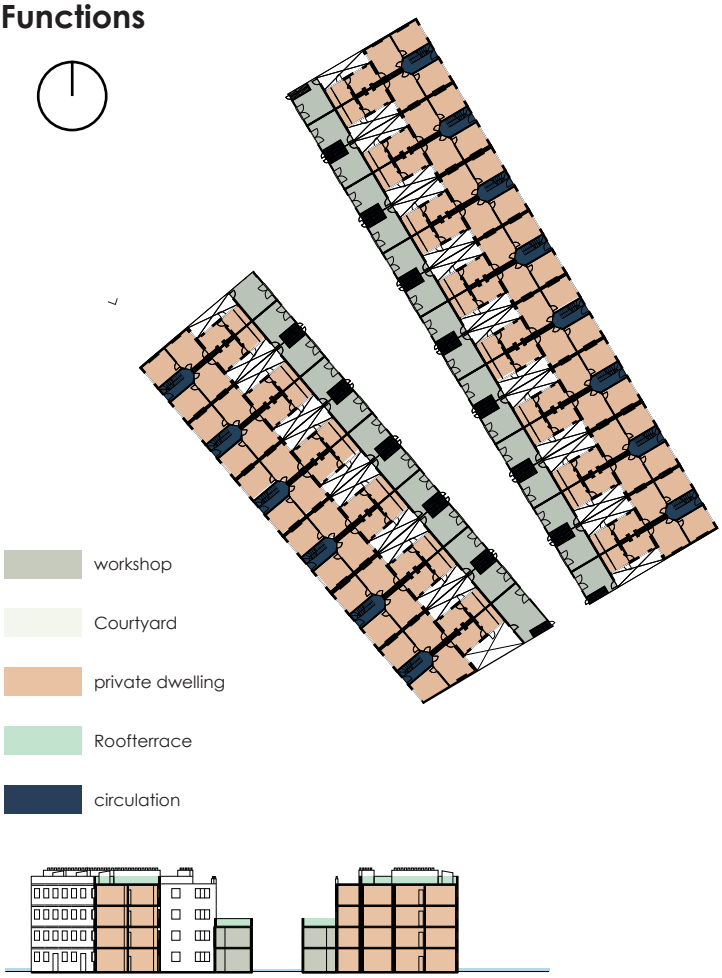
year: 1901
architects: James Pullen
city: London, England
type: Porch Appartments
amount: 351 units
plot size: 9354 m²
total floor area: 17.529 m²
FSI = 1,87

The Pullen Estate is a building complex combining living and working in London, England. The dwelling units face the outer streets while the workshops are facing inwards.

The appartments were built to provide relatively cheap but decent housing for poorer families. Each unit is 4 floors high and consists of 8 appartmets and 4 workshops.

Originally 684 appartments were built. However, today only 351 remain. The remaining complex is protected by conservation area status.

Functions



Functions

The Pullens buildings are more or less split in two when speaking about functions. Appartments are situated facing the street, while workshops on the first two levels are facing the smaller so called yards.

The appartments are accessed via porches accessing two appartments per floor. The workshops ont he ground floor are accessed directly via the yard, while the workshops on the first floor are accessed via a private staircase.

The appartments on the ground- and first floor are directly connected to workshops. However in reality they were often sold seperately.

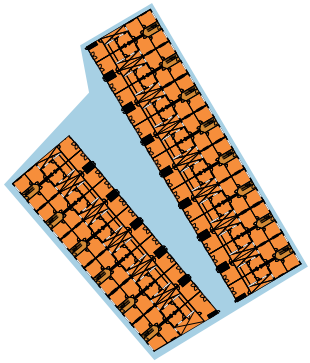
private-public

within the building private spaces are dominant. Only the staircases are shared with 7 other households. Streets surrounding the buildings are all public. However, the inner yards have a more communal character, all tansport is mixed and slow and the pavement can serve as extra space for the workshops to be used.

Most of the communal spaces are found on the rooftops. The third floor has a communal roofterrace stretching all accross the building facing the inner yard. The fourth floor has communal roofterraces that are shared with eight housholds.

Even though the roof terraces on the third floor stretch across the building and could be used as a upper street connecting various appartments, the terrace was inmediately divided into private terraces.

private-public



Groundfloor

Top view

public
communal (for all residents)
communal (for group of residents)
private

Pullens buildings as seen from the street

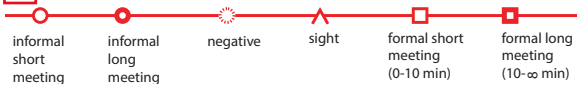
Collectivity

Encounters - ground floor

1
-greetings to someone on the street. Small passage of words. 3 meters distance.
-small chat in the porch with neigbour. 1-2 meters distance.
2
-Visual contact while being in the small courtyard. 4 meters distance.
-Work related conversation or chat with neigbouring makers in own shop. 2 meters distance.
-Less proffesional conversation with neigbouring makers, supposingly more people at once. 1-4 meters distance.
3
-Work related conversation or chat with neigbouring makers in their shop. 2 meters distance.
4
-as the street gets smaller, encounters become more likely. The street works as a funnel.
-The gate can be a meeting point for all makers. 1-2 meters distance.

Encounters - third floor

1
-Visual encounter with neigbour from ground floor or quick look at other appartments.
-small chat in the porch with neigbour. 1-2 meters distance.
2
-Visual contact with courtyard while being on the roof of workshops. Possible brief chat.
-Contact with people from different appartment that are simultaneasly using the roofterrace. Fence prevents sharing. 2 -4 meters distance.
-Visual contact with inner (worker)street. More than 5 meters.



Conclusion

Pullens Estate has some very interesting features considering collectivity. The inner yards welcome a lot of local activity. There is a lot of interaction between the facade and the inner yard.
The roof terraces on the third floor seemed to have missed their purpose. Possibly the lack of clearly expressed function has misguided the inhabitants in their usage of the space.

Architecture and sociability

Peacock Yard

From: http://www.urban75.org/blog/pullens-yards-winter-open-studios-elephant-and-castle-london-se17/

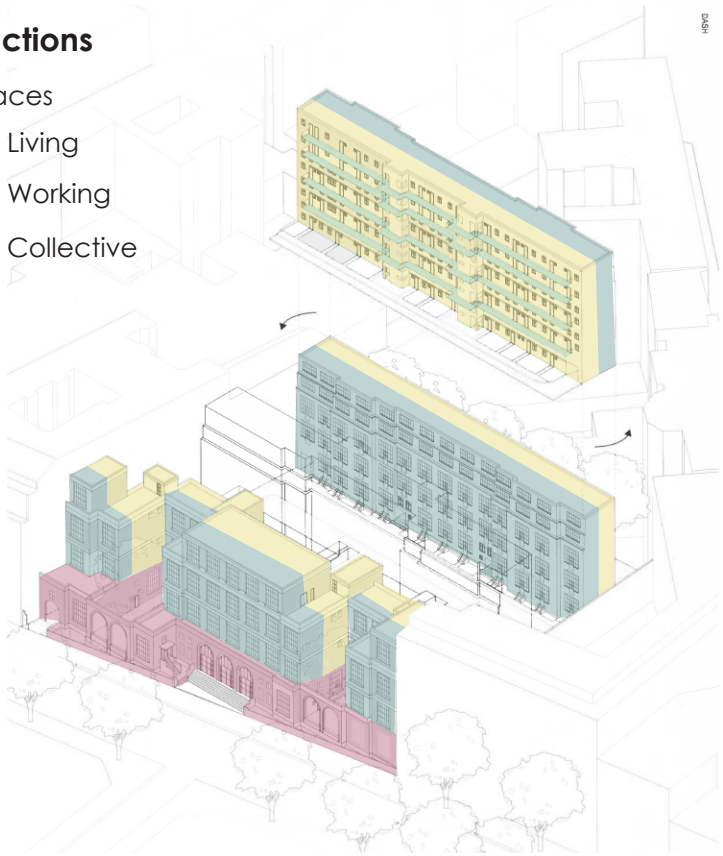
Rooftop

From: https://www.spareroom.co.uk/flatshare/london/elephant_and_castle/4722758

Functions

Spaces

- Living
- Working
- Collective



Year 1930 -1932
Architects Henry Résal & Adoiphe Thiers
Location Paris, 189, rue Ordener
Type work homes - Atelier housing for artists
Amount 165

Acces

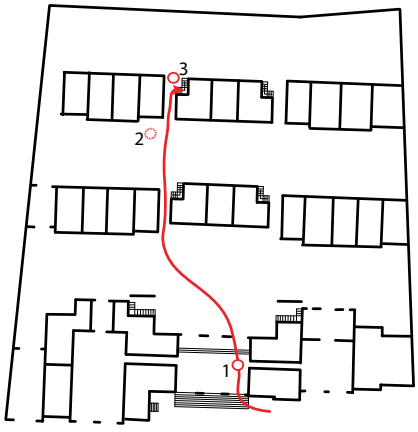
The first block consists out of collective spaces on the ground floor level. The two entrances: the main entrance in the middle and the car entrance at the left side, are located here.
Cité Montmartre has three different acces typologies: the galerie, the ground bound and the porch typology (only in the first building).

Living & working

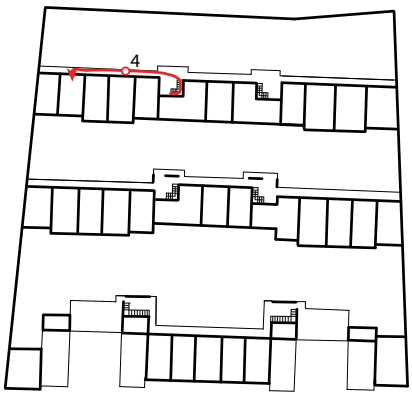
The blocks have two different sides. a side that could be interpreted as the living side: the side where the galleries and front doors are placed. And the side that could be interpreted as the working side: the side with the high ceiling windows for apartments, and where the ground bound dwellings have an extra door connected towards the collective area with stairs.

Routing in plan

scale 1:1500



Ground floor



Level 1

Routes & moments of collectivtiy

The route that one takes starting from the public street to come home leads to a few points of possible collective moments. The route can be quite long which increases the chance of running into another neighbour.
The points are in most cases located on the routes from the private door through the collective area towards the public streets. Especially places where one is able to stay for a longer time. For example the private stairs facing the collective area, one is able to sit there and thus interact more with passing by neighbours.

Conclusion

Cité Montmartre facilitates different kinds of collectivity. The main entrance and the collective areas in between create a lot of different opportunities for small interactions between passing by neighbours through the area. This relates to the length of the route one takes through this area and the created opportunity of sitting outside.

Collective spaces

Main entrance

The atelier facade

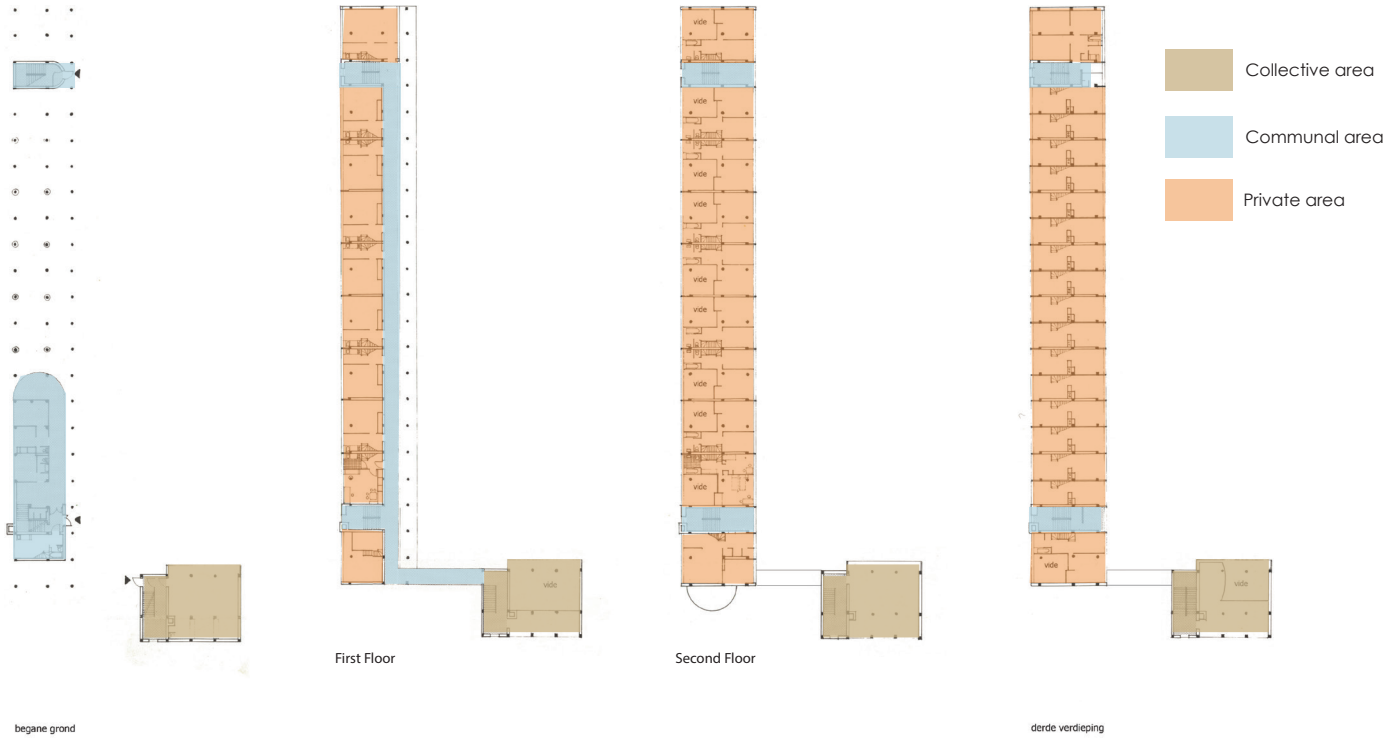
The gallery

Narkomfin

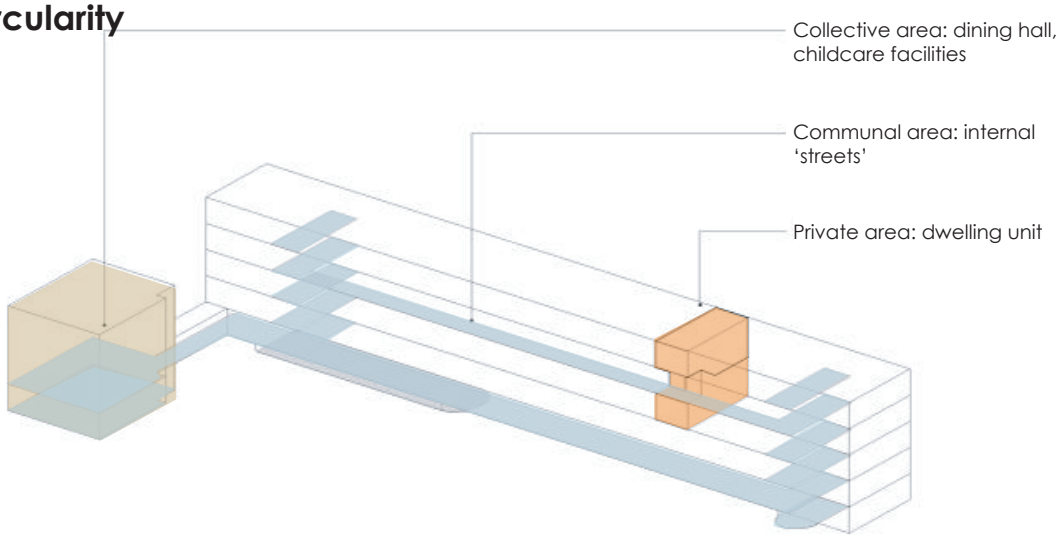
Year: 1930
Architects: Moisei Ginzburg, Ignaty Milinis
City: Moscow, Russia
Type: transitional type of experimental house
Amount: 54 units

Ginzburg had a clear vision about how architecture could play an active role in embracing the communal life. Therefore the living unit in the Narkomfin building must be redirected outwards towards society at large. This was achieved by moving many daily functions into communal areas, such as lounging, excercising, eating, child-care.

Floorplans



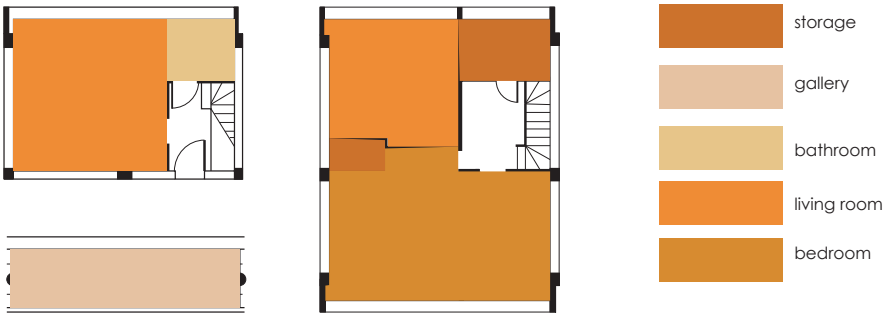
Circularity



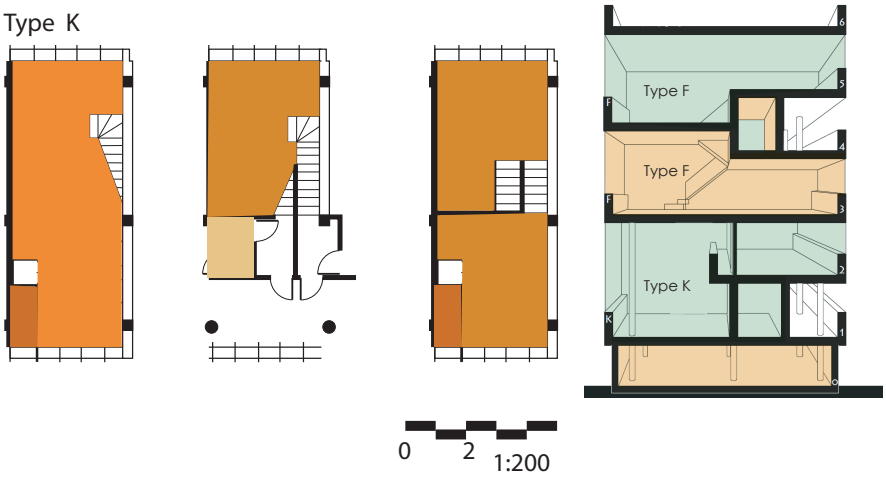
Narkomfin

Dwelling units

Type F

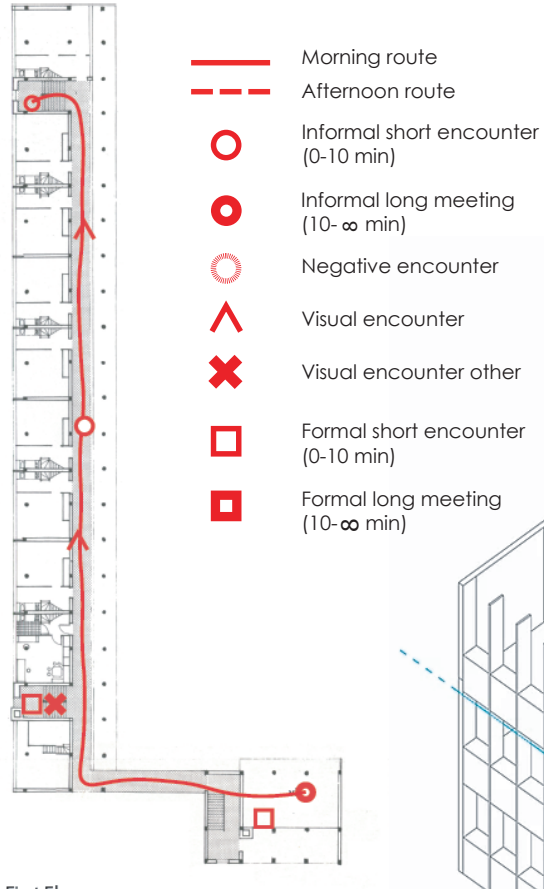


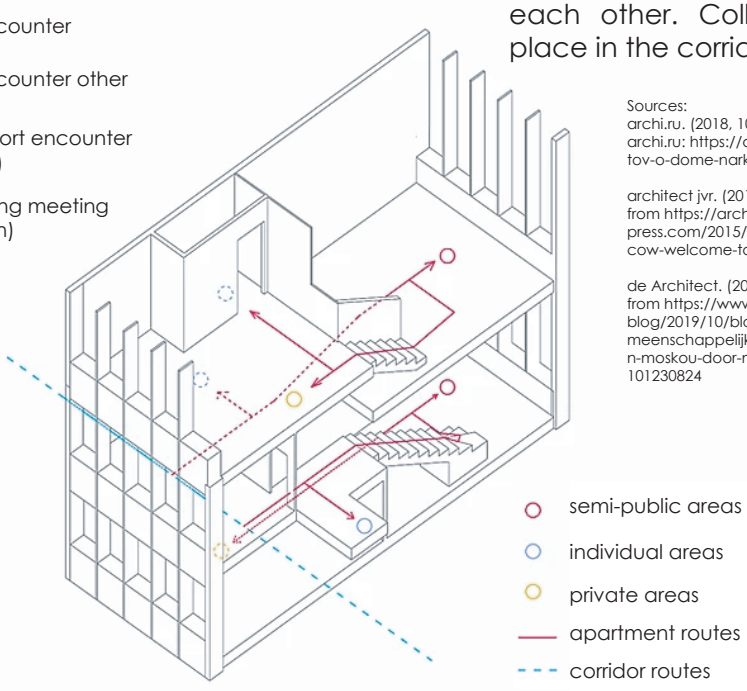
Type K



The interior features two level apartments, spacious entry halls and corridors, and a community terrace on the roof. The building stands on pilotis, and features ribbon windows, a plain facade and a roof that can be used for additional facilities. In communal apartment buildings, people would be free from individual household work and spend most of their leisure time in public. Narkomfin has five inhabited floor levels, but only two corridors, on the second and fourth level. The Narkomfin has two types units: F-type and K-type, both having the innovation of a split level. In section, each apartment forms the shape of an L, and interlock so that the central void becomes the access corridor. The F type units are minimal dwelling units – containing only a single room divided into a living and sleeping area as well as a bathroom. In each unit a small and removable kitchenette is included. Most of the units belong to the K-type (with a double height living room) and F-type connecting to an outdoor gallery.

Collective encounters





Conclusion

Collectivity was very important in this design. The building has separated private areas from public areas and therefore separating living from working. By placing the communal spaces in a collective annex-building, the habitants are forced to interact with each other. Collectivity also takes place in the corridors and gallery.

Sources:
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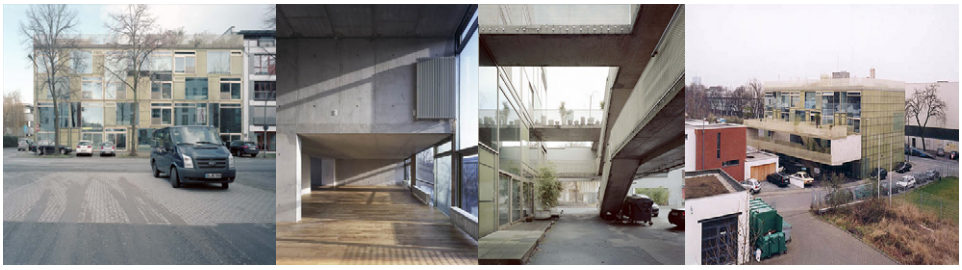
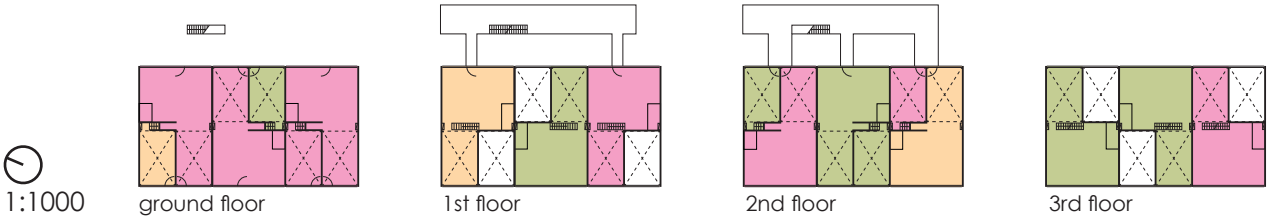


Kölner Brett

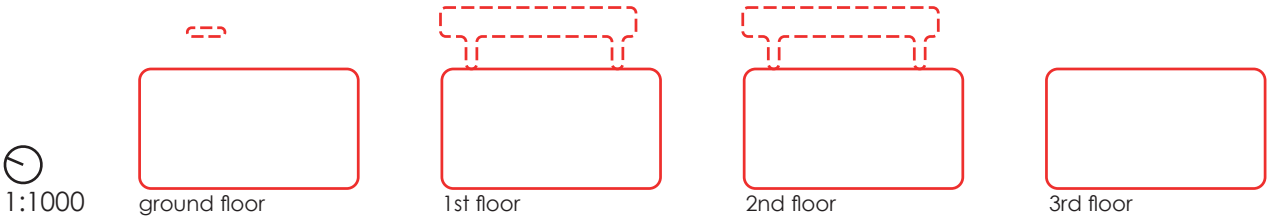
year: 2000
architect: b&k + brandlhuber&knies GbR
location: Cologne, Germany
type: live-work building
amount: 12 units

Kölner Brett is a response to the need to for live-work units in Köln by desgining possibility. The building is made up of 12 large units, each consisting of a horizontal and a vertical space. The units are entirely empty apart from pipes and electricity, so that the future inhabitant can completely design their own space. These units can then again be merged to create larger dwellings and offices. They are accessed through a large stair-case-gallery that sits extened from the block on the east side.



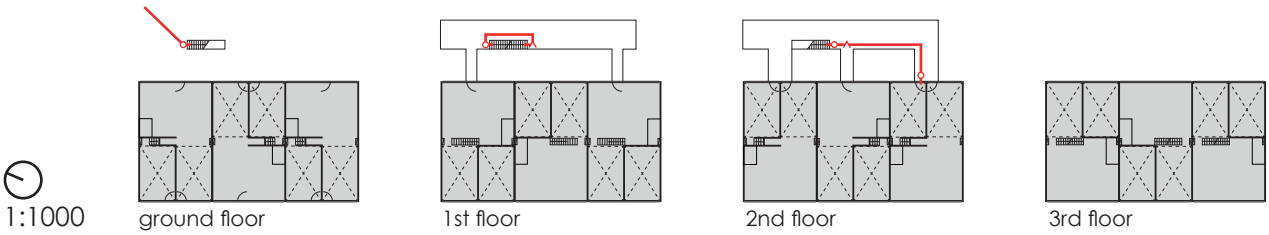
functions

The building is made up of 12 units that can either be entirely directed towards living, working or at a mix between the two functions. Nor of the sources, nor the architect, could give a clear indication of what the exact distribution was for living and working, so this is an estimation based on pictures. (Green: Live, Pink: Work, Yellow: Live-work)



public-private

Kölner Brett consists of private homes and an extended gallery at a distance from the homes, with the gallery being collective, but publicly accessible. It forms the transitional zone between the privacy of the live-work unit and the openness of the street.



route, moments of collectivity

The route that one takes from the dwelling to the exterior throughout the day sees a few potential moments of collectivity. These are mainly at points where the route intersects other routes, at doors and at stairs, and a greeting can be exchanged. There are no collective facilities that can provide for moments of collectivity.

in conclusion

Kölner Brett is not designed for collectivity, instead it puts a great focus on individuality. The owner can shape their unit or units to their own desire and make it completely unique. The only natural moments of collectivity consist of meeting one another on the gallery when exiting or entering the dwelling.

De Hoge Heren
Wiel Arets Architects

year: 2001
architect: Wiel Arets Architects
location: Rotterdam, the Netherlands
type: Housing
amount: 285 apartment divided over two towers

Two residential high-rise towers are situated on a 6-story plinth. This plinth contains public and resident parking, a public gym and the main entry hall. A void in the centre of the buidling enables natural light to spill into the interior. The towers stand within a green terrace on the roof of the plinth, onto which the lobbies open, so that ample outdoor space is offered to residents, in additional to that of their private terraces. On the same floor, a collective fitness- and sauna room, a swimming pool, guest rooms and work spaces are situated.

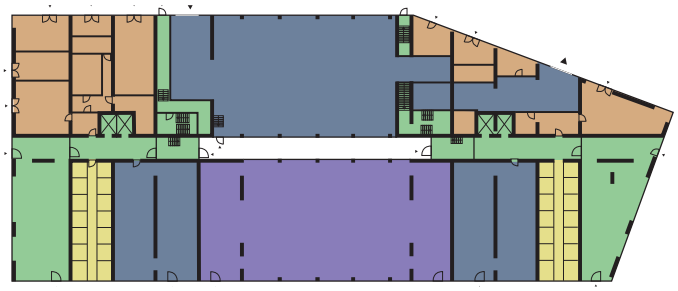
Functions

- entrance
The ground floor contains the entrance of the building, the first part of the parking garage, bike parking, privatly owned storage rooms, garbage rooms, technical services and a public gym.

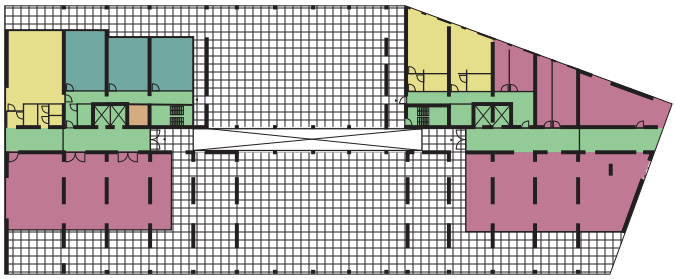
- parking
Parking space is situated on the four floors between the ground floor and the lobby on the sixth floor. The car-parking garage is accesible through an entrance on the ground floor at the north side of the building. The bike sheds are located on the south side of the ground floor.

- housing
Royal sized apparments are housed in the two towers. Each floor contains 10 appartments, sizes vary from 122-143 square meters. The Hoge Heren houses a total of 285 apartments (160 rental, 50 furnished rental and 75 free-market). No other functions are housed in these towers.

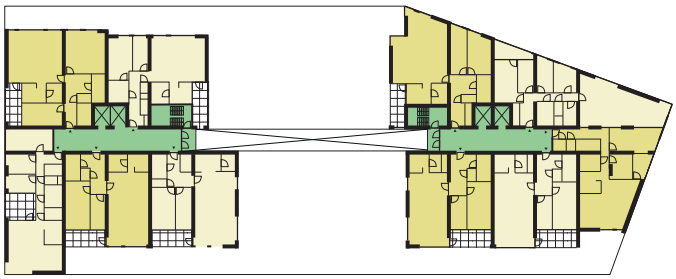
ground floor .
entrance
public gym .

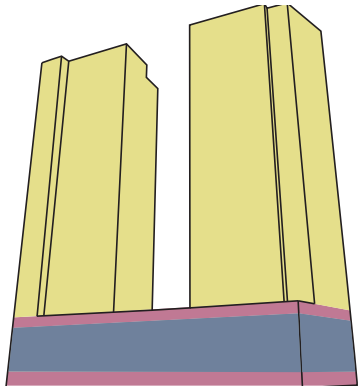


6th floor .
lobby
roof terrace



7th - 34th floor .
appartments

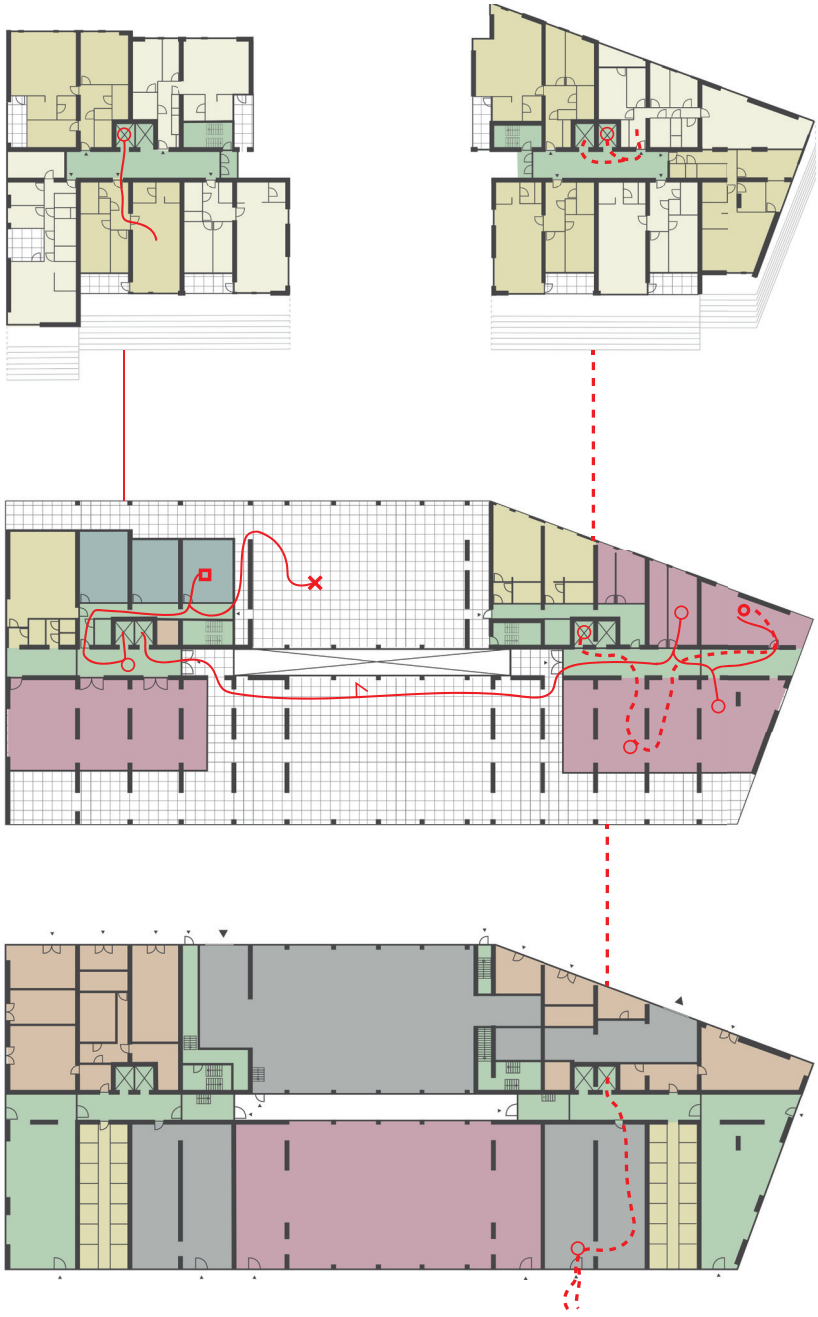




Public - Semi-public - Private

The lobby and roof terrace on the sixth floor contains various semi-private funcitons such as a swimming pool and sauna, a fitness room, workspaces, and guest apartments. This floor creates the border between partly public ground floor and parking garage and the privatly owned apartments in the tower.

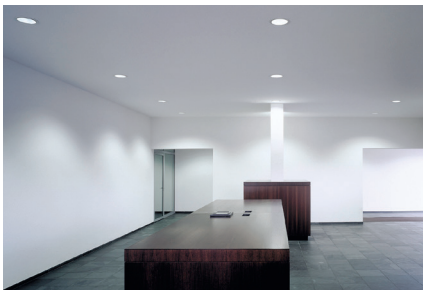
De Hoge Heren
Wiel Arets Architects



Route resident A
Route resident B
Informal short encouner (0-10 min)
Informal long meeting (10-∞ min)
Negative encounter
Visual encounter
Visual encounter other
Formal short encouner (0-10 min)
Formal long meeting (10-∞ min)

Conclusion

The programme of the Hoge Heren building has a strong distribution between public, semi-private and private area's. A public fitness facility is placed on the ground floor, seperated from the rather functional semi-private spaces like the service rooms and storage sheds. The parking garage on the 2nd to 5th floors separates the ground floor from the semi-private 6th floor where all collective spaces are situated. This is the only floor where residents would meet each other besides the informal encounters in places such as the elevator or the bike sheds. The rest of the floors, in the towers, are completely private oriented. The residents can move through the building in a relatively anonymous way. They can choose to meet other residents themselves by making use of the facilities on the 6th floor.



< The interior of the lobby on the sixth floor is open and clean. The palet of materials like natural stonde and wood results in luxurious character.

< The interiors of the semi-pivate office spaces on the sixth floor are open and flexible.

< The outside area down the central void has a futuristic character through the use of aluminium finishes and green-coloured lightning, and dark tiles.

< The interior of the semi-private swimming pool is open and light. The luxurious atmoshpere, light spots and art make it feel like a pool of an hotel.

Svartlamoen housing

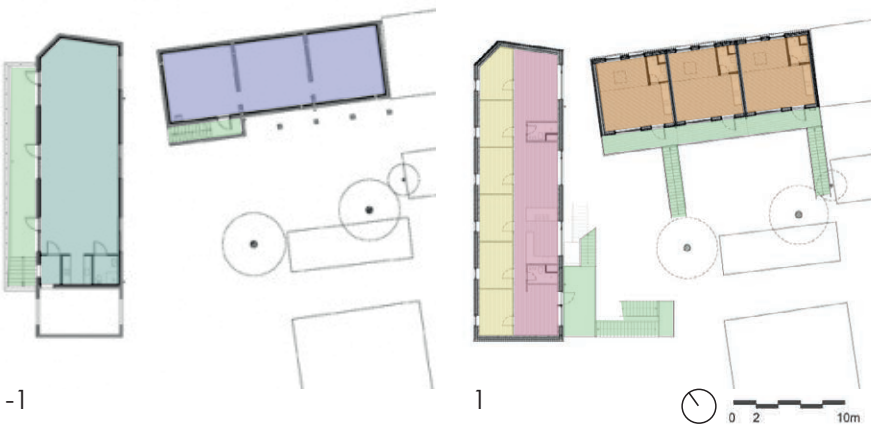
year: 2005
architect: Brendeland & Kristoffersen arkitekter
location: Trondheim, Norway
type: Student dormitory & studios
amount: 22 dormitory units and 6 studios

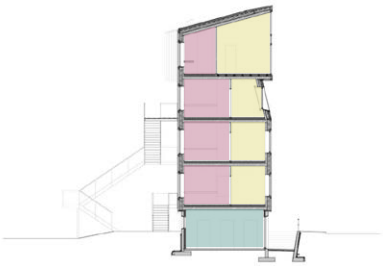
Svartlamoen is a residential complex for young people. When it was realized it was the largest building in the world made of solid wood. It made a statement about Norwegian housing policy, which did not pay enough attention to people of all ages with a low income.

Functions

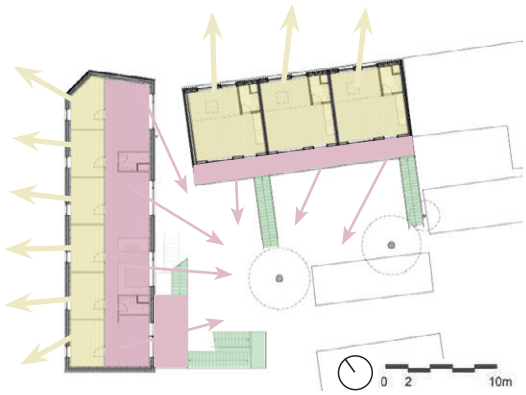
The whole complex contains 28 living units, whereby the main building consists of a half sunken plinth with office spaces and four group homes 0f 110 to 128 m2 for 5 to 6 people. Half of the dwellings are communual spaces: the kitchen, living room, bathrooms and balconies. The average floor area per peson is 22 m2, which is considerably lower than the 50 m2 which is the Norwegian standard.

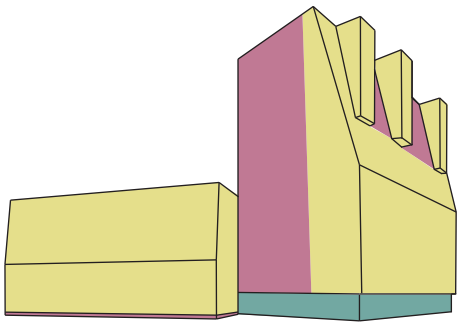
The low two-storey block contains two sets of three studio appartments of 28 m2. This building also has a laundry room and storage space in the basement.





Private-public

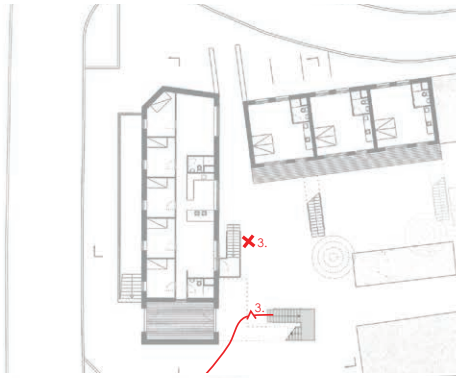




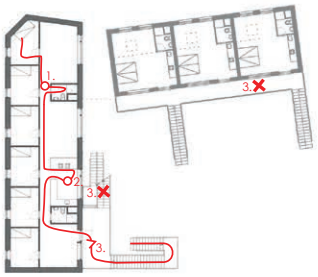
The housing complex is build around a courtyard, which is the collective centre of the site. The two housing buildings facing the court are closely connected to the court, which is therefore easy accesible from out of the dwellings. All the private spaces in the higher building are oriented to the outside of the complex, while all the communual spaces are oriented towards the central courtyard. Both buildings also have their own collective outdoor spaces alongside the courtyard. The high building with the group houses has a large steel stairs which serves as access to the houses and as balcony at the same time. The lower building with the individual houses has a collective porch at both floors.

Collective encounters

Morning:



Ground floor



First floor

Afternoon:

Ground floor

First floor

Svartlamoen housing

- Morning route
- Afternoon route
- Informal short encounter (0-10 min)
- Informal long meeting (10- ∞ min)
- Negative encounter
- Visual encounter
- Visual encounter other
- Formal short encounter (0-10 min)
- Formal long meeting (10-∞ min)

Spatial characteristics

1. The communual livingroom is an open space wich deliberatly was left unfinished by the architects, so that the residents could make it their own by decorating the walls and placing furniture.

3. The central courtyard is an open space, flexible in use. It is used as a place to store bikes, to sit and to relax. A hammock in the middle is one of the items which can be used by all residents.

4. The galleries in front of the buildings function also as the collective balconies. Because of the large dimensions it is possible to relax here in the sun on your own or with your roommates.

6. The communual kitchen is in the same space as the communual living room. From here large windows give a sight into the courtyard, so the inhabitants can always see what is going on there.

Conclusion

Collectiveness was very important in this design. The courtyard is litterly central to the collectiveness of the complex. It is the space where the inhabitants of the entire complex can meet one another, when they store their bike, sit and relax or when they engage in any other activity they planned. The next layer of collectiveness consists of the outdoor spaces of the buildings adjecent to the courtyard. The shared 'balconies' evoke encounters between people who live on the same floor. The last layer consists out of the communual living rooms.
To make sure that the people would actualy make use of these spaces, the designers actively involved them during the design phase and afterwards by delivering an unfinshed product, so the inhabitants could make it their own.

Images from:
Architecture norway (2005) Svartlamoen housing, Trondheim, retrieved from: http://architecturenorway.no/projects/dwelling/svartlamoen-2005/
Fourth door (2010) Svartlamoen, Trondheim – Harbinger to Norway's massive wood phase-change, retrieved from: http://www.fourthdoor.org/annular/?page_id=1269

De Olieberg

Theo Kupers Architecten

The Olieberg is a building in which people with a certain disability can live in a 'companion' home. They live mixed with "normal" people through the building. There is a meeting point where supervisors can provide support 24 hours a day. You can also eat, wash or drink a cup of coffee there. So this is also the place where you could meet someone from the same building.

Various interventions have been made in the corridors. Firstly, there are voids so you can look on other floors and there is more light in the corridors. There are also recesses on each floor to both sides so that you have a view of the beach on one side and the city on the other.

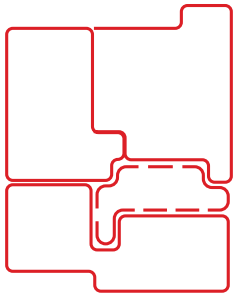
The 'dune-garden' (the courtyard) is a collective for local residents and only accessible from the buildings. This is also the playground of the nursery. There is a fence around this.

Private

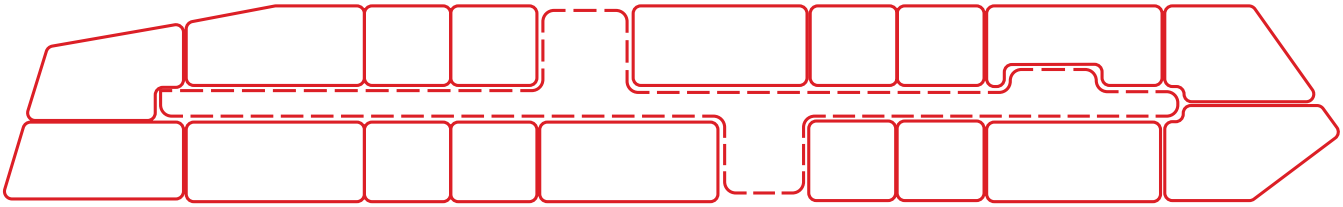
Collective

For specific public

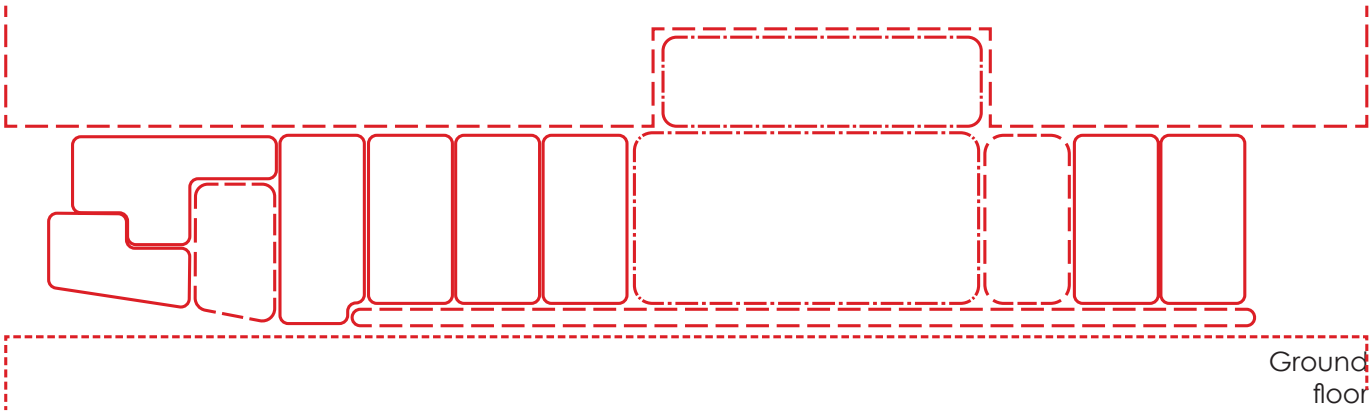
Public



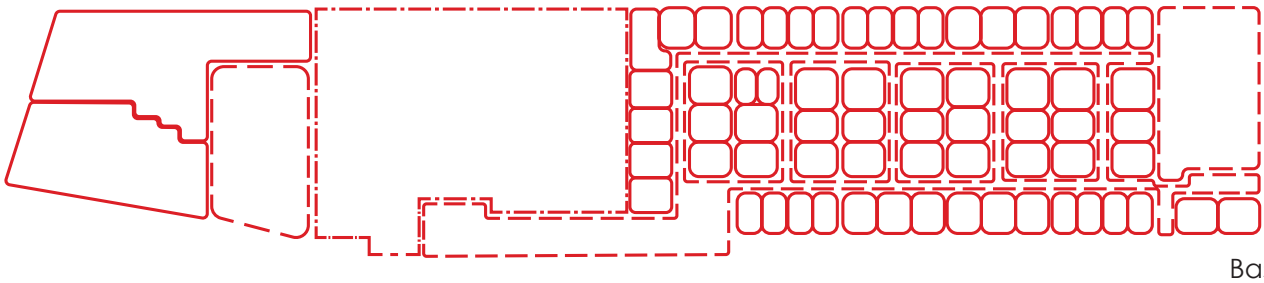
Seventh floor



First floor



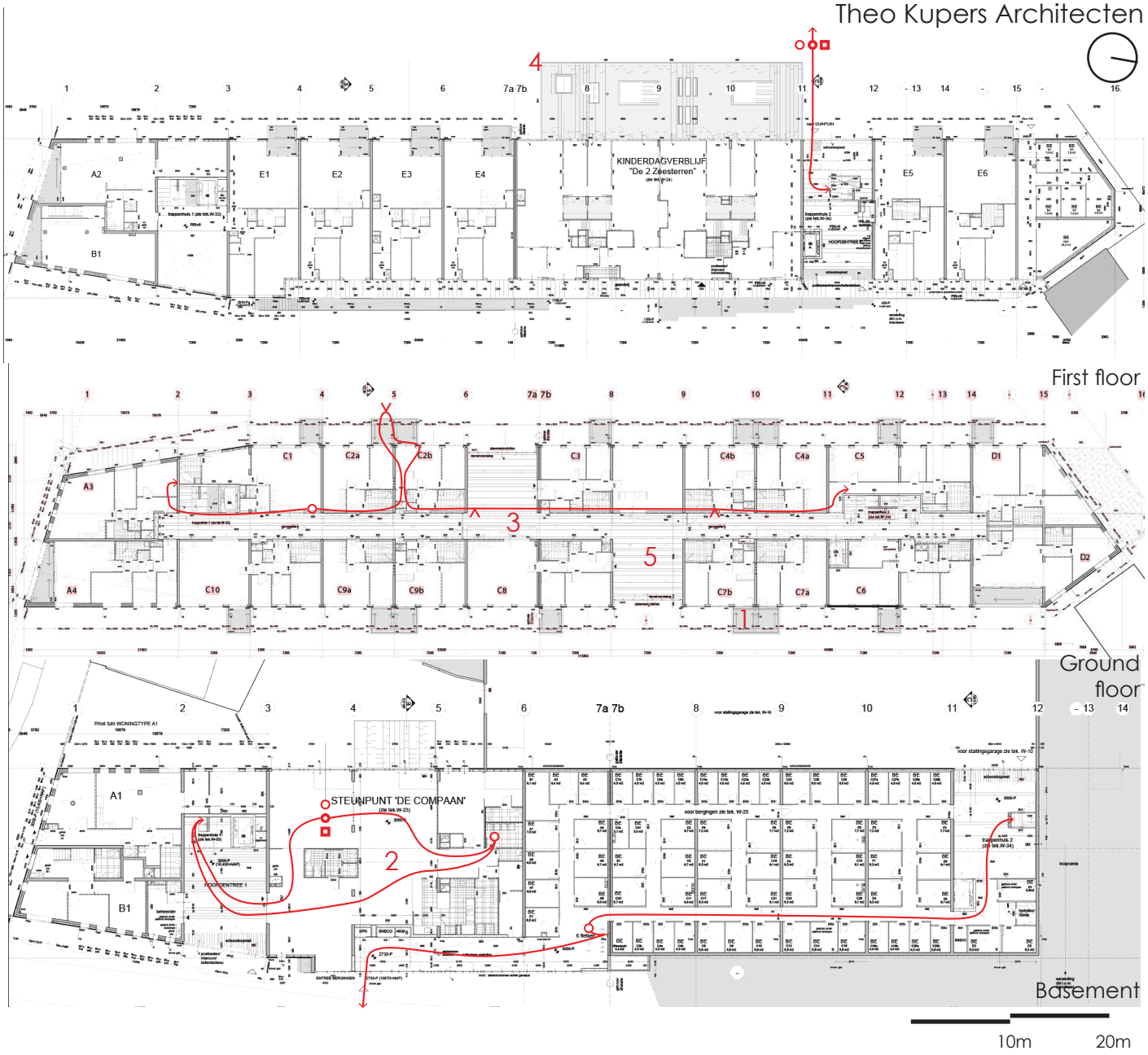
Ground floor



Basement

De Olieberg

Theo Kupers Architecten

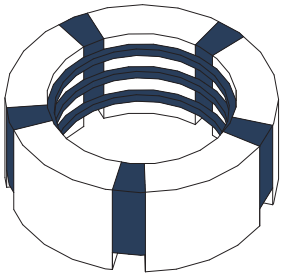


Tietgen Dormitory

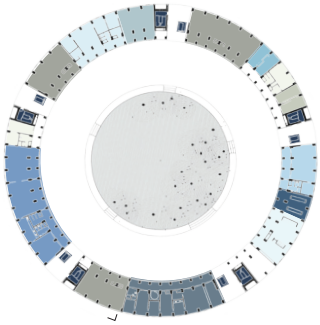
year: 2006
architects: Lundgaard & Tranberg Arkitekter
city: Copenhagen, Denmark
type: student dormitory
amount: 360 units
plot size: 6.082 m²
total floor area: 26.781 m²
FSI = 4,4

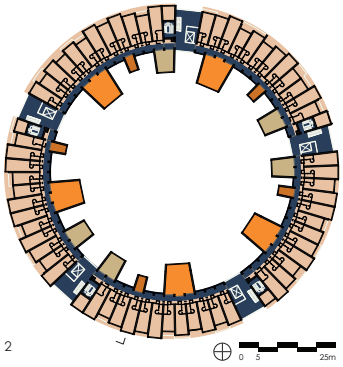
The Tietgen Dormitory (Tietgenkollegiet in Danish) is a circle-shaped dormitory in Copenhagen, Denmark. The circular shape is meant to address all its surroundings equally, and makes private dwellings look outward and shared rooms look inward. The circle surrounds a public courtyard. On the ground floor, the building has many facilities that can be used by all residents such as study rooms, music rooms and a big multifuntional assembly hall where sometimes events take place. The upper six floors are student housing. Every group of twelve dwelling units shares common rooms such as a kitchen and a utility room. These rooms face the courtyard, possibly making the shared experience a communal experience.

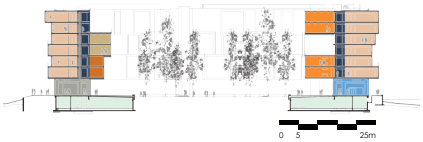
Exterior Tietgen Dormitory (Lindhe, J. M., 2014a)



functions







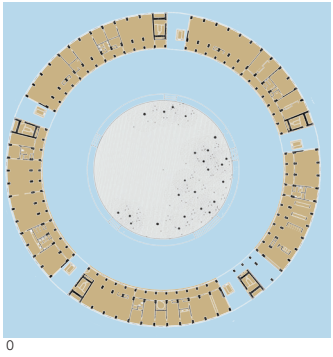
circulation
letterboxes
offices
assembly hall
washing room
room for groupwork
reading room
computerroom
gym
bike storage
workshop
music room
entertainment/study room
private dwelling
kitchen/living room
utility room
garage

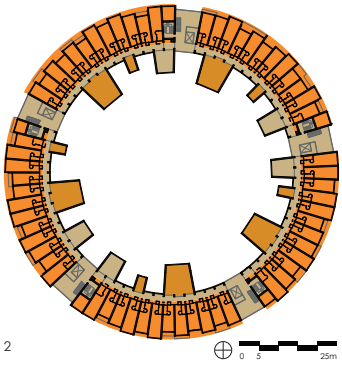
functions

The ground floor of Tietgen houses many shared facilities that are accessible for all residents of the block. There are different kinds of study rooms, a shared washing room, workshops and even a gym.

The floor plan of the second floor is exemplary for all other floors. The hallway which gives access to the individual dwellings outlines the center courtyard. Shared spaces such as kitchens, utility rooms and multifunctional rooms are placed on the other side of the hallway, opposite the individual dwellings. One has to pass through the hallway to go to their kitchen.

private-public





public
communal (for all residents)
communal (for group of residents)
private

private-public

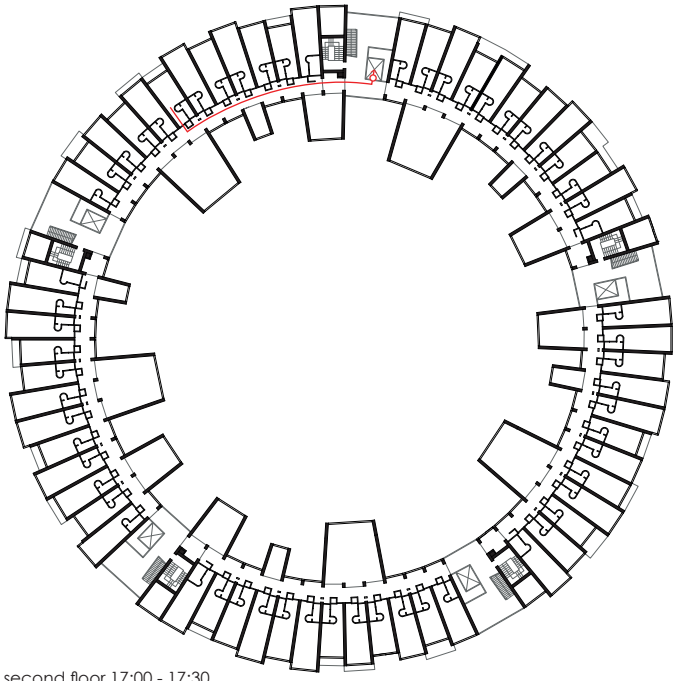
The center courtyard is publicly accessible, but can be closed off by fencing off the five access routes. It is not clear in whether this happens on a regular basis or only in particular cases such as during an event.

The ground floor building parts can be used by any of the residents of Tietgen. The staircases can only be accessed by residents as well. It is unclear whether the elevators can be used by outsiders, but that does seem to be the case.

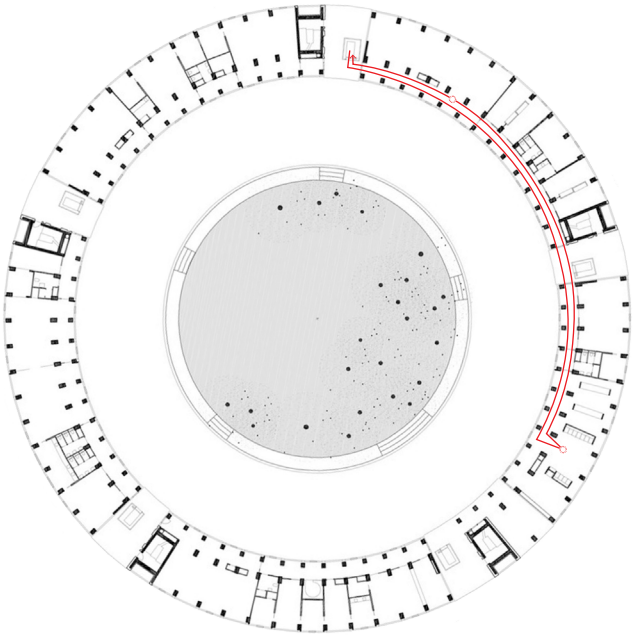
The first through sixth floor are only accesible to residents and their guests. Every hallway section, from one elevator to the next, is closed off with locked doors. Twelve residents per section form a group that shares a kitchen/living room and a utility room for hanging laundry.

The third shared space in a section can have various functions; cinema room, billiard room, study room. They can be used by all residents, although they do need to ring the group's bell.

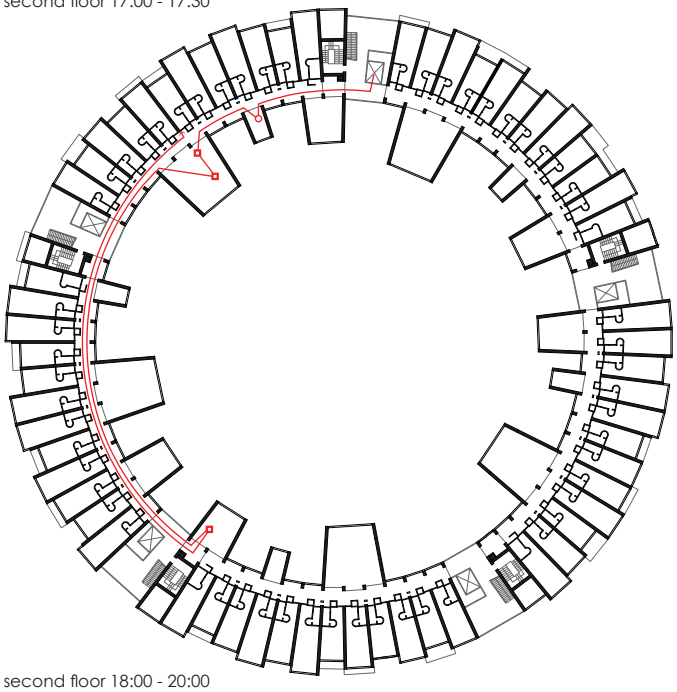
Courtyard Tietgen Dormitory (Lindhe, J. M., 2014a)



second floor 17:00 - 17:30



ground floor 17:30 - 18:00



second floor 18:00 - 20:00

17:00 - 17:30
(picking up laundry from room)
- greet at elevator

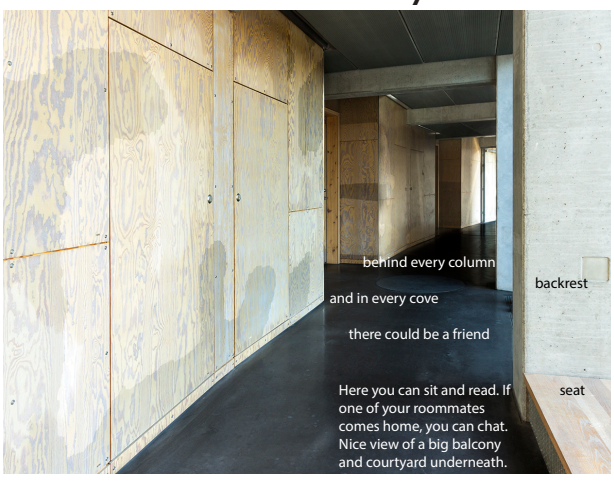
17:30 -18:00
- greet at laundry room
- greet in ground floor hallway

18:00 - 20:00
- chatting in utility room
- cooking with roommates
- dining with roommates
- hanging out in cinemaroom with fellow students and roommates (back to private room)

Conclusion

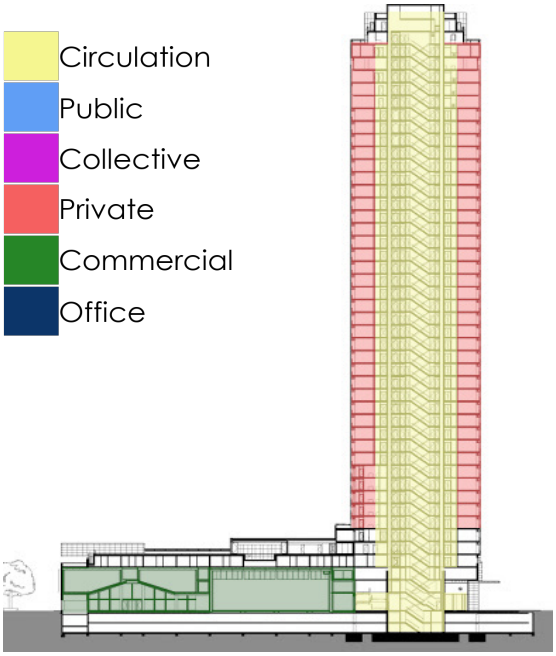
There are three 'rings', from outer to inner they are; private rooms, communal hallways, and communal facilities. Having privacy directed outward and communal practices directed inward (to a courtyard) can be beneficial to a sense of community.

architecture and sociability



Tietgen Hallway 1 (Lundgaard & Tranberg Arkitekter, n.d.)

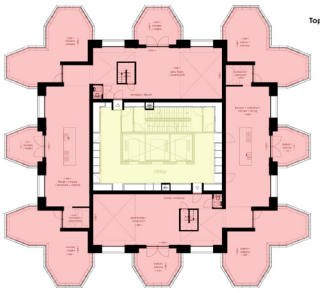
Tietgen Hallway 2 (Vahle A/S, n.d.)



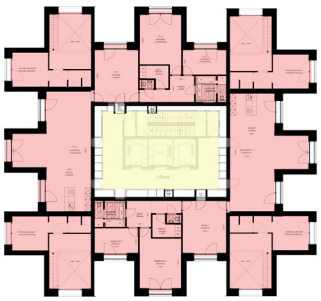
Architect: Alavaro Siza
Built: 2007
Adres: Van der Hoevenplein 9-243
Whilhelminapier (postcode 3072)
Client: Vesteda
Contractor: Besix Branch Nederland
Typology: 234 appartementen

Functions

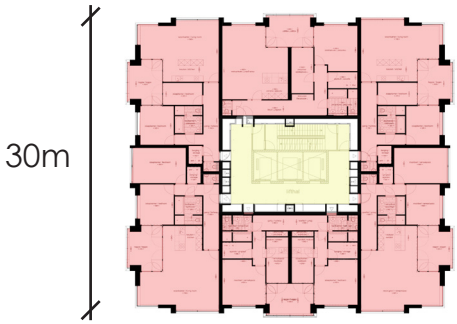
The building has very formal collective spaces in the form of collective functions such as a swimming pool and a commercial-collective function in the form of a cinema.



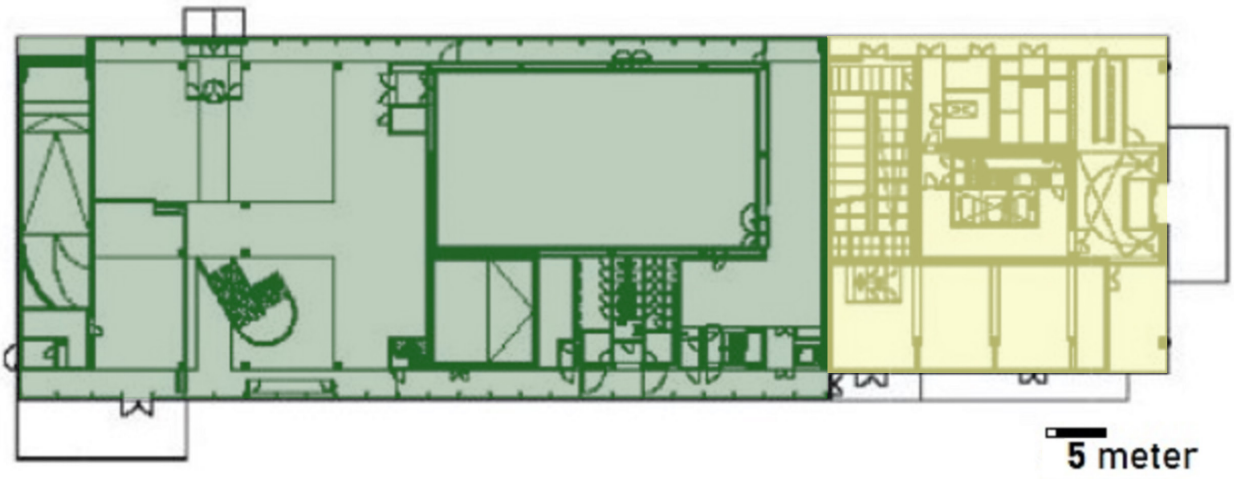
Floor 45



Floor 41



Floor 22



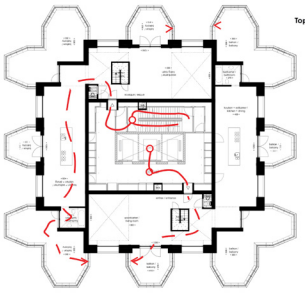
Groud Floor

Informal Short Meeting
Informal Long Meeting
Negative Meeting
Visual Meeting
Formal Short meeting
Formal Long meeting

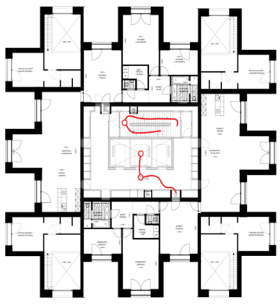
Meeting

The building does not have much in the form of short term formal meeting spaces. Formal meetings can take place in the formal places of activity such as the swimming pool and cinema as mentioned earlier. Informal meetings can take place in the garage and stairwell, or in the elevators and spaces before the entrance of the homes on each level.

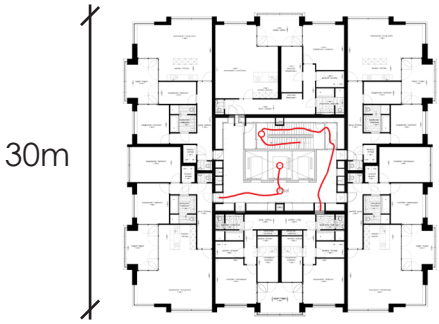
Overall, this building is geared towards spacious and more luxurious homes. On the 45th floor there are a few large homes with many balconies from some of which it is possible to see your neighbor on their balcony, of course given that they are on the exact right balcony of the 4 balconies that these homes have.



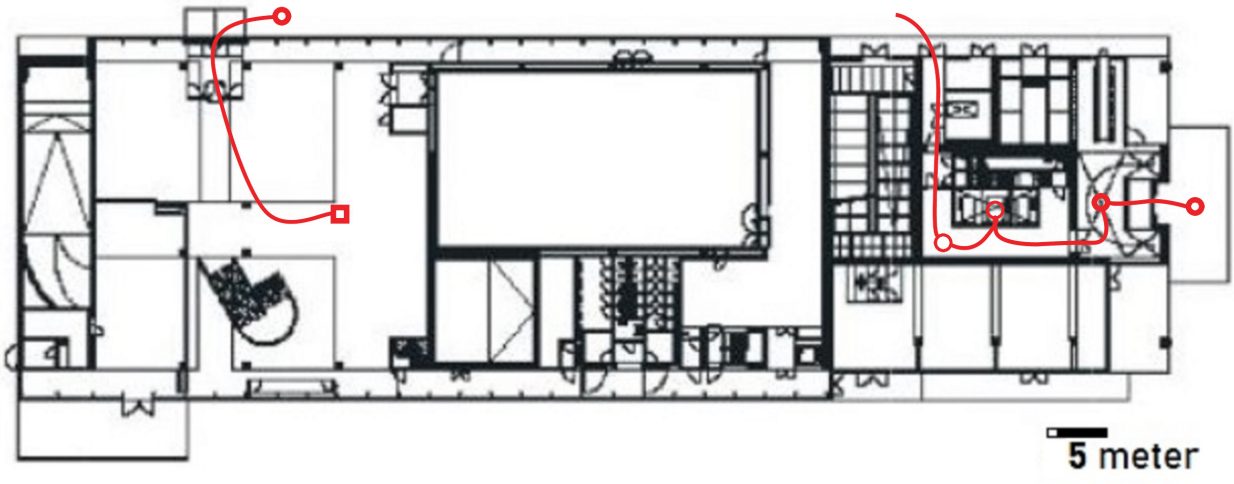
Floor 45



Floor 41

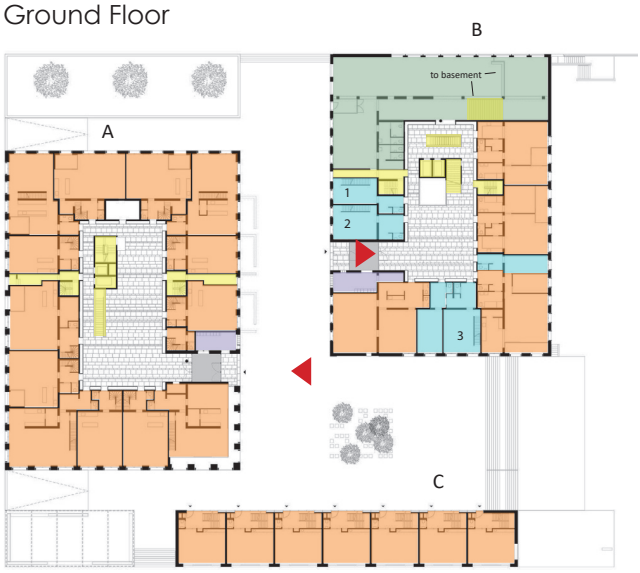


Floor 22

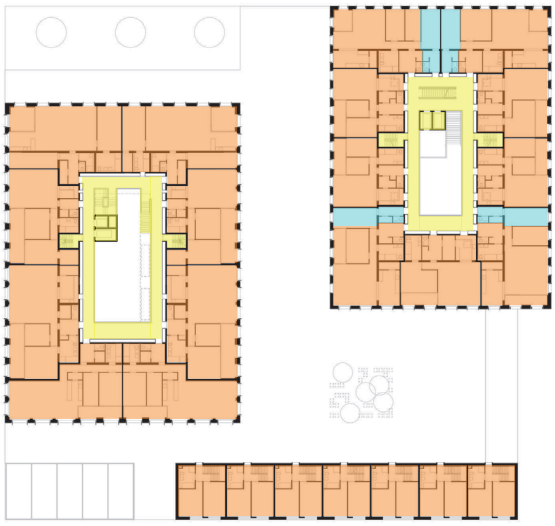


Groud Floor

Ground Floor



Level 2



Living
Working
Circulation
Mailboxes
Commercial

0 2 5m

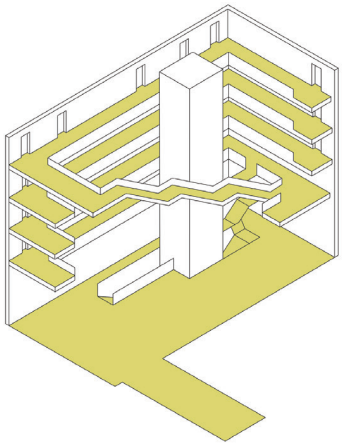
North

year: 2001 - 2007 tender first price
architects: Jo Janssen & Wim van den Bergh
city: Maastricht, The Netherlands
type: dwelling & working
amount: 92 dwellings and workspaces
plot size: 60.000 m2
total floor area: 18.970 m2
FSI = 3,16

Block A	Dwelling
Block B	Dwelling + Working
Block C	7 workhomes designed by Luijten/Verheij architecten

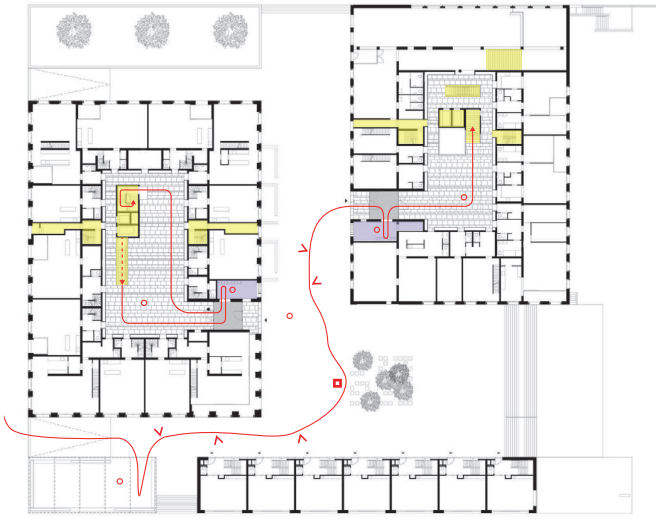
Both blocks have a collective entrance lobby in an atrium. Surrounded around the atrium the dwellings and workplaces are situated. The parking is under an elevated deck in the basement, which is beneath the whole plot, so under the three blocks.

the lifts and stairs are in the middle of the atrium, the piazza's. The circulation of both blocks A and B comes down to the basement. In Block A on the groundfloor are maisonnettes so they don't have an acces on the second floor. The stairs and galleries circulate around the atrium so you have always an overview of what is happening on the other side or on the groundfloor.

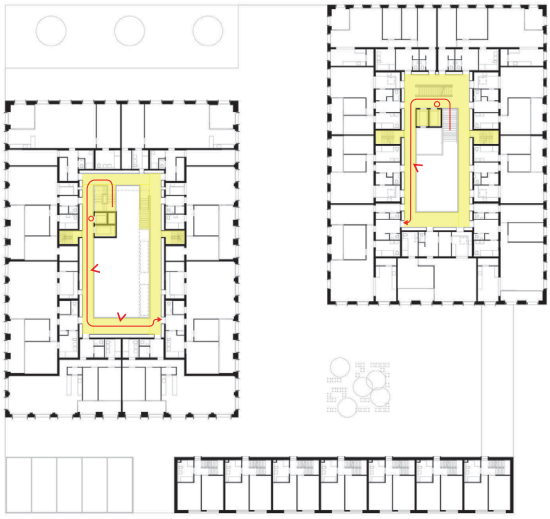


Circulation

Atrium and deck outside. Jo Janssen Architecten. (2007). Piazza Céramique. Retrieved from, https://jojanssenarchitecten.nl/project/92pc

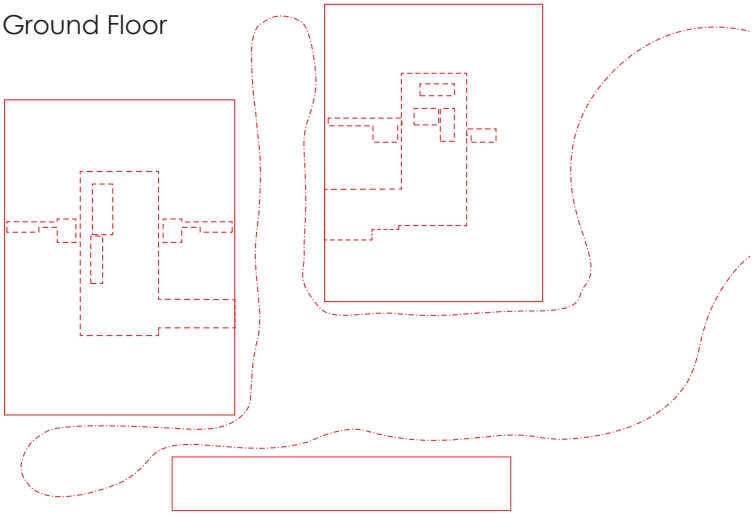


Ground Floor

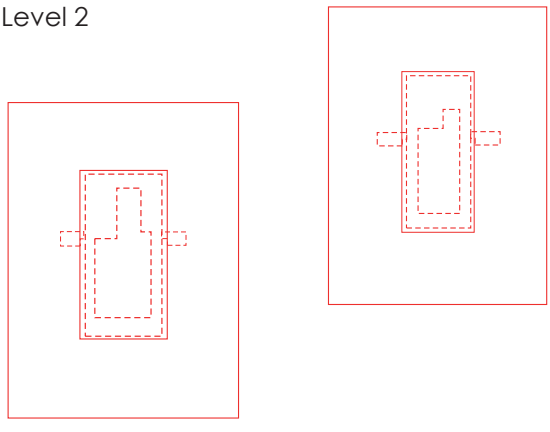


Level 2

Ground Floor



Level 2



Conclusion

The building has a collective atrium with galery acces to the dwellings. The buildings are situated on a public deck and a public garden.

Due to the seperate entrances of the buildings which are outside on the the lifted deck in the inner area between the three buildings people are more forced to meet each other. Instead of on street level at the the street side. On the deck there is a place to sit and meet.

However, thanks to closed walls and doors on the galleries in the atrium, people only accidentally meet each other when someone's steps out of their house or is waiting in front of the lift.
People who come from the parking garage below groundlevel can go up to their floor level invisible with the lift. When taking the stairs and walking to their mailboxes they can meet some people in the lobby in the atrium. Going up the stairs to the higher levels people walk up in the atrium and have a view over the atrium the whole time. So people can see each other even when you are not on the same floorlevel.

General

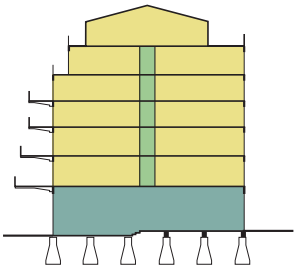
St. Jobsveem exterior (Mei Architects, n.d.)

Year of construction: 1913
Year of transformation: 2007
Architects: Mei architects, Wessel de Jonge
Location: Rotterdam, The Netherlands
Type: Luxury lofts and penthouses
Plot size: 3.250 m^2
Total floor area: 21.000 m^2
FSI: 6.46

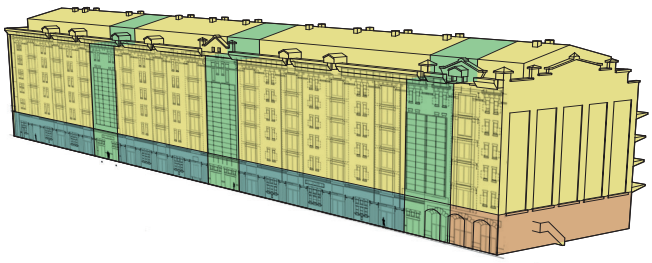
The St. Jobsveem is a listed monument and a former warehouse along the St. Jobshaven in Rotterdam. In 2007 it has been transformed to dwellings. The largest intervention has been the opening of the brick facade, on three locations in the long building. Behind these openings are now the stairs located.

Functions

The largest part of the building has a residential function in which 99 loft apartments and 10 penthouses are located. All dwellings have an open floor plan. All dwellings, except from the penthouses which are a new addition, have a large depth. This has to do with the size of the original warehouse. The only communal space for the residents in the building are the storage boxes on the ground floor. In the plinth of the building are office spaces located, for external companies. They barely have a connection with the rest of the building as both working and living have a seperate entrance.



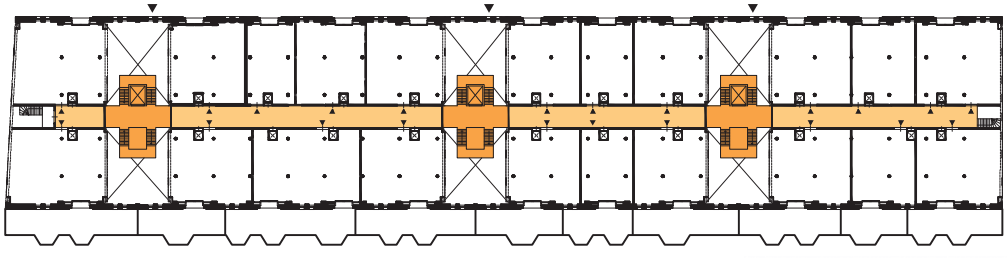
Section
1:1000



Living
Working
Mobility
Storage

Accessibility

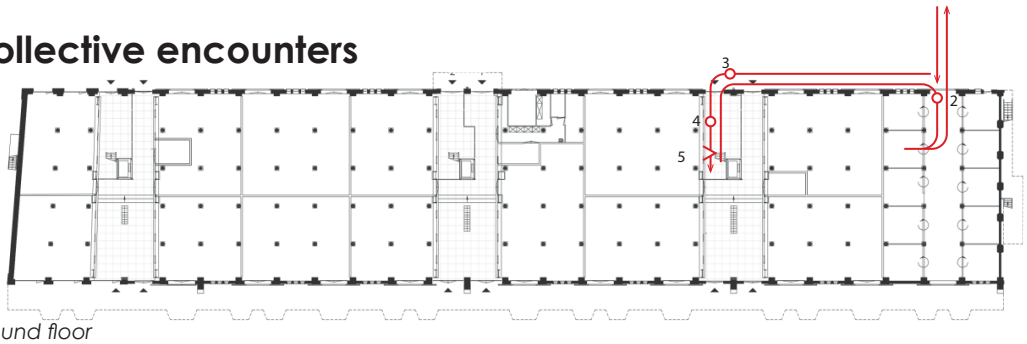
The building is cut by three atriums. These atriums are the entrance points of the building. To make the atriums in the old monumental warehouse, some major adaptions have been made during the transformation in 2007. In the light atriums a staircase and elevator provide access to the floors above. Here a corridor leads to the front door of the dwellings.



First floor
1:1000

Collectivity

Collective encounters



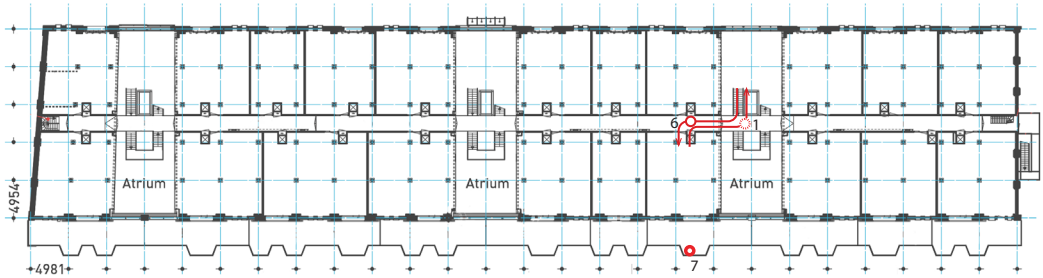
Unforseen short encounter

Unforseen long encounter

Negative encounter

Visual encounter

Ground floor
1:1000



First floor
1:1000

Spatial characteristics

1. The stairs are the meeting place in the building. Residents from all floors come together here. The skylight and the big glass facade make it the lightest space in the building, which make it a comfortable space.

3. The entrances of the residential part and the office part are situated right next to each other. This provides some kind of encounter in from of the building.

4. Mailboxes are located on the ground floor in the atrium. This increases the chances of residents meeting each other in the atrium. It becomes a place where longer conversations could take place. between residents.

5. The dwellings adjecent to the atriums have a glass facade facing the atrium. This is done for extra daylight in the dwellings, but also provides a visual connection with people on the stairs. It can strenghen the sense of community, but also decreases the privacy in the dwelling.

7. Although located inside the dwelling itself, the balconies provide a space where collectivity can take place. The cantilivered balconies with an decreasing depth on the higher levels make it possible to have interaction with the neighbours above or below.

Conclusion

Collective encounters take place in the mobility spaces of the building. The light atriums are the cores of the collective cores for in which residents meet. It might be stated that glass is in multiple ways used to bring in some form of collectivity within this massive, closed monument. The shape of the building, the long corridors and the closed structure of the building do not stimulate collectivity. However, this is not so strange bearing in mind that it was not build as a residential building.

Images from Mei Architects and Wessel de Jonge Architecten

The Building

Year: 2012
Architects: 51N4E
Location: Nevele, Belgium
Type: Elderly Homes
Amount: 54 Apartments
Plot size: 7.460 m² **Programme**: 4.400 m²

OCMW Nevele
51N4E

1:500

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General

OCMW Nevele is an elderly home project in Nevele, Belgium. It houses 54 apartments over 3 levels, with a total programme of 4.400 m². Characterizing is that the building exists of three wings with large hallways. Because of the large windows, a lot of light is infiltrating in the hallways. On the other site, the bedrooms contain smaller windows, creating more intimacy.

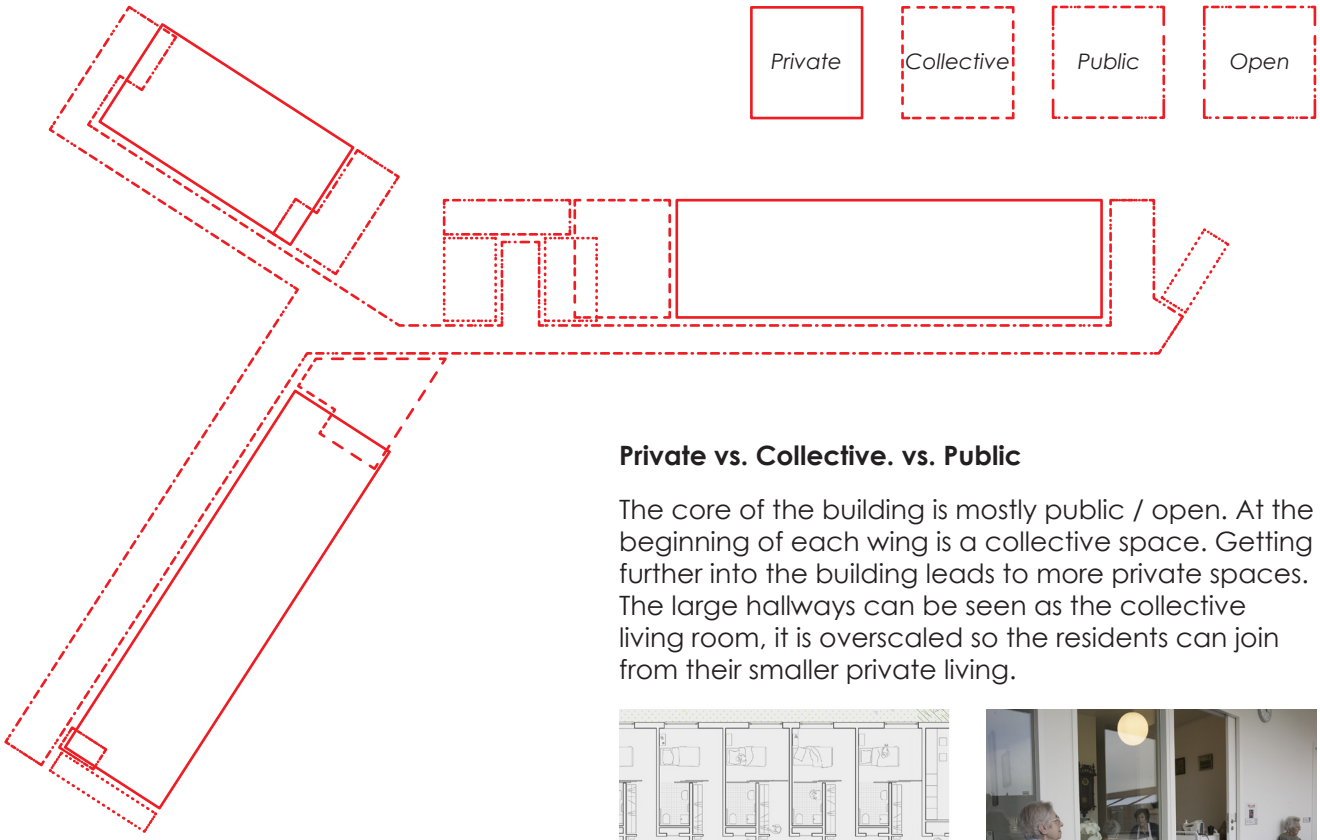
Living-Healthcare

OCMW Nevele is not an example of a working-living environment, but more living and healthcare. The building has three wings with all a collective car-function at the beginning. These functions are centred around the core of the building. All apartments are positioned along the large hallways. Each room in the apartment is doubled, offering a living room and a bedroom. The caregivers work in the building, operating from the core of the wings.

The Collective

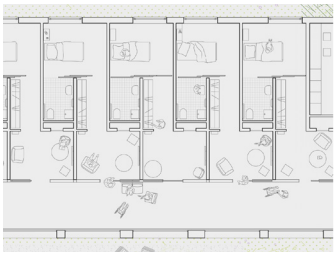
OCMW Nevele
51N4E

1:500



Private vs. Collective. vs. Public

The core of the building is mostly public / open. At the beginning of each wing is a collective space. Getting further into the building leads to more private spaces. The large hallways can be seen as the collective living room, it is overscaled so the residents can join from their smaller private living.



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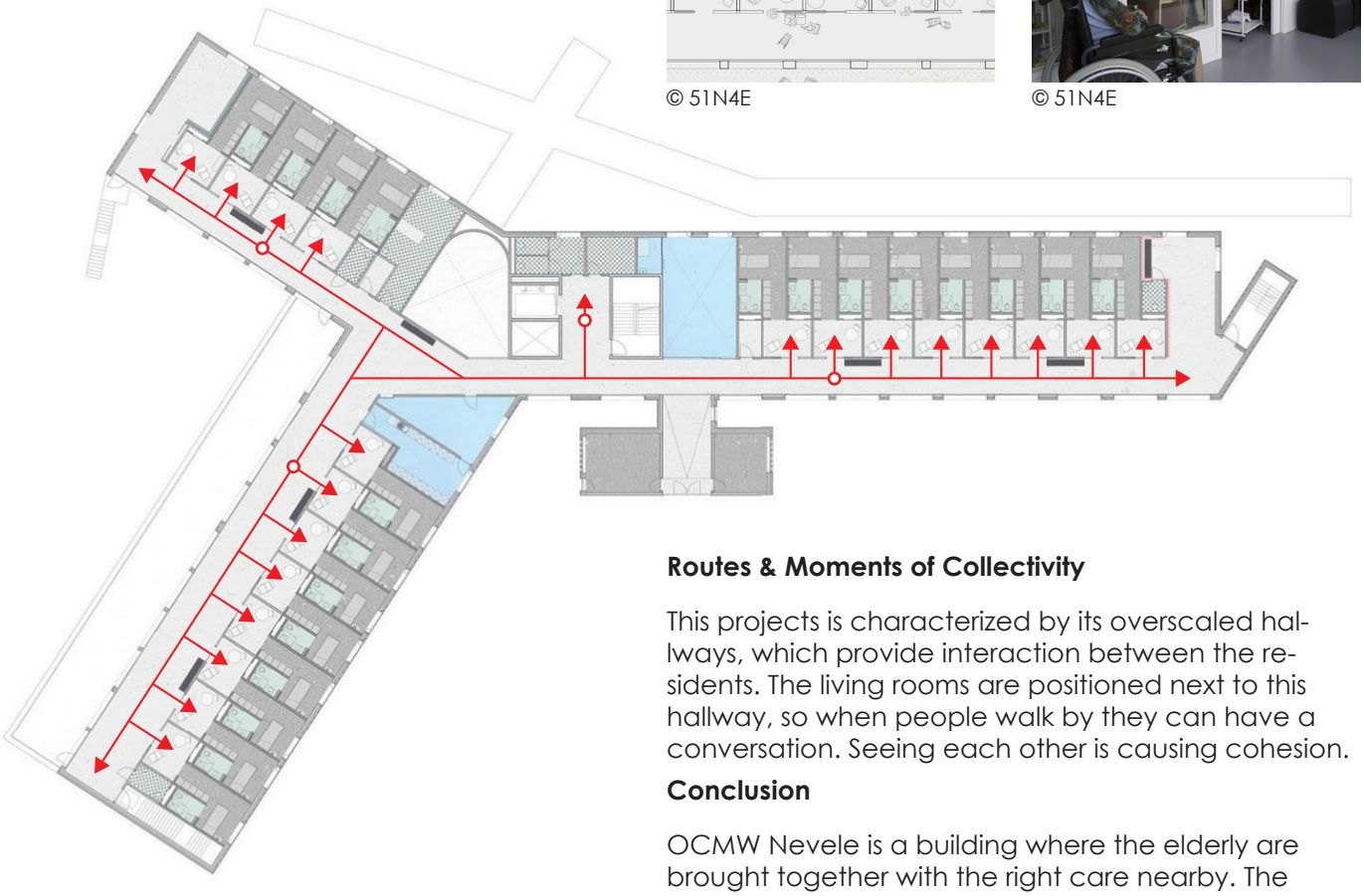


Routes & Moments of Collectivity

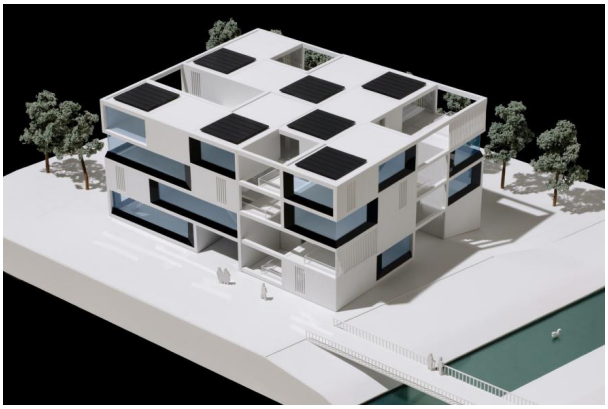
This projects is characterized by its overscaled hallways, which provide interaction between the residents. The living rooms are positioned next to this hallway, so when people walk by they can have a conversation. Seeing each other is causing cohesion.

Conclusion

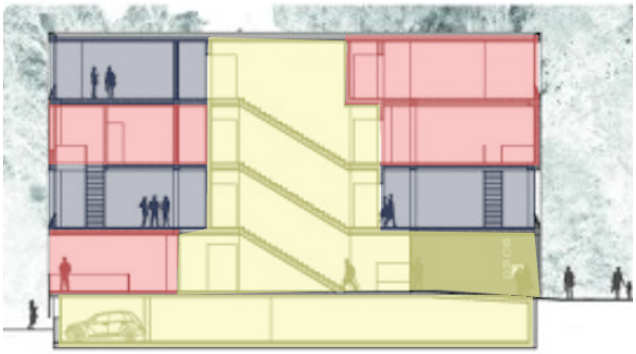
OCMW Nevele is a building where the elderly are brought together with the right care nearby. The hallway forms the essential element in the connection between the private and the public.

Architects: Bieling Architekten
Built: 2011 - 2013
Adress: Hamburg
Client: IBA Hamburg
Typology: 16 dwelling and working spaces
12 maisonettes and 4 apartments
Area: 2.040 m2
GFA: 2.500 m2

Functions

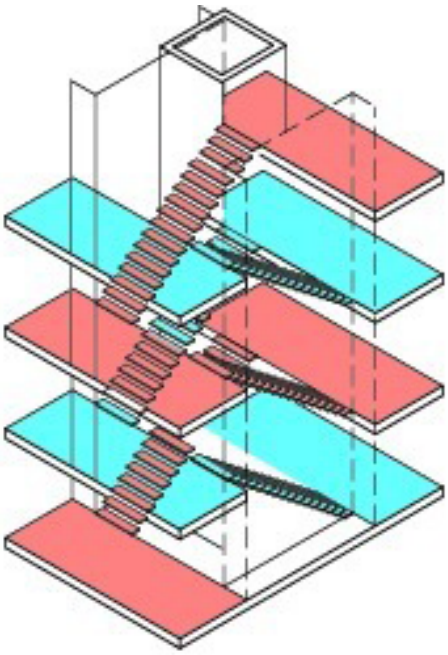


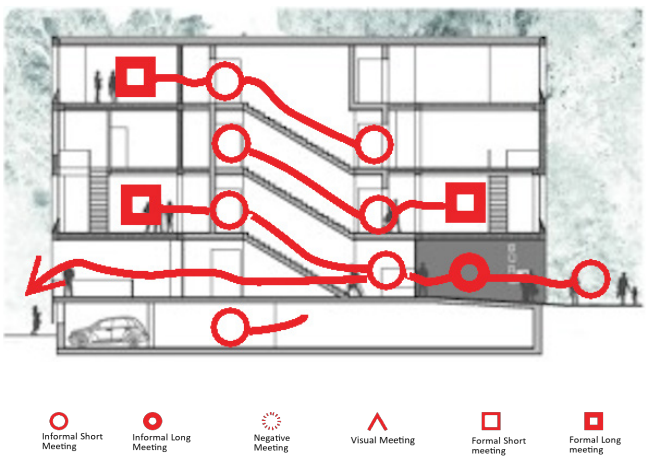
The Hybrid House is a hybrid, as the name suggests, of living and working. The homes in the building have office areas that can be accessed separately from the circulation. This results in a somewhat checkered pattern of living and working. The circulation is unique as the staircase functions as a helix. However it is important to note that from one floor you still only have one stairwell option as the two are separated from each other. It is still possible to access another stairwell via walking through the home to the other side or to the floor above/below where you will have access to the other stairs. Or ofcourse through the elevator however this is not safe.

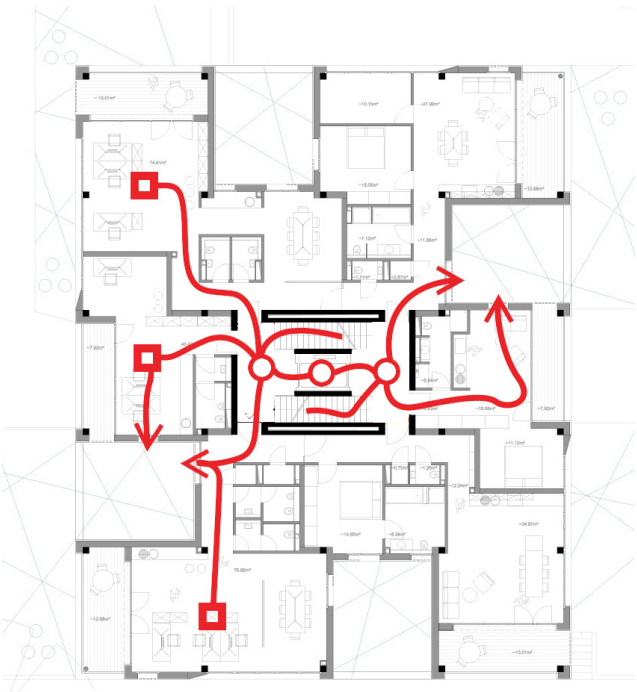


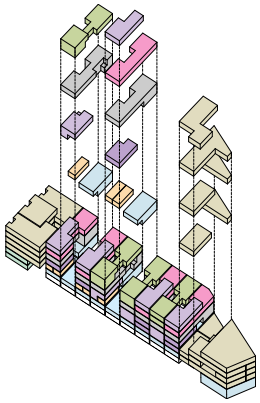
Meeting

Informal and short meetings can take place in the parking area, in the stairwell or elevator and at the entrance of the building. Formal meetings take place inside the work area of the houses. There are no short term formal meeting spaces.







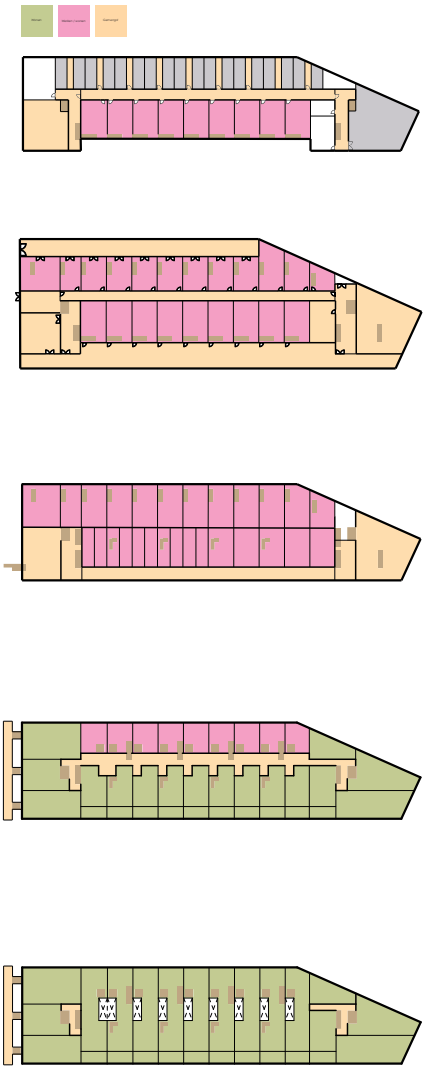


IBeB

year: 2018
architects: HEIDE & VON BECKERATH
city: Berlin
type: home-work building
amount: 87 live-work dwellings
plot size: 2798 m2
total floor area: 8.945 m2
FSI = 3,2

The IBeB is a home-work building in Berlin, completed in 2018. IBeB stands for Integratives Bauprojekt am ehemaligen Blumengroßmarkt.
The home-work building is set up to link living and working, which is why there are no separate workspaces. The building is five storeys high and has 87 live-work homes. It is mainly characterized by the special access from the center. At 3 levels, the digestion is formed by "Access roads". The construction process is also special. During the design process, the architects continuously consulted with the future residents.

Functions and typologies



Functions

The building has different typologies that are connected through interweaving between living and working. This makes it difficult to define each typology separately but roughly there are four to differentiate: workshop, appartment small (+studio), maisonette, appartment large.

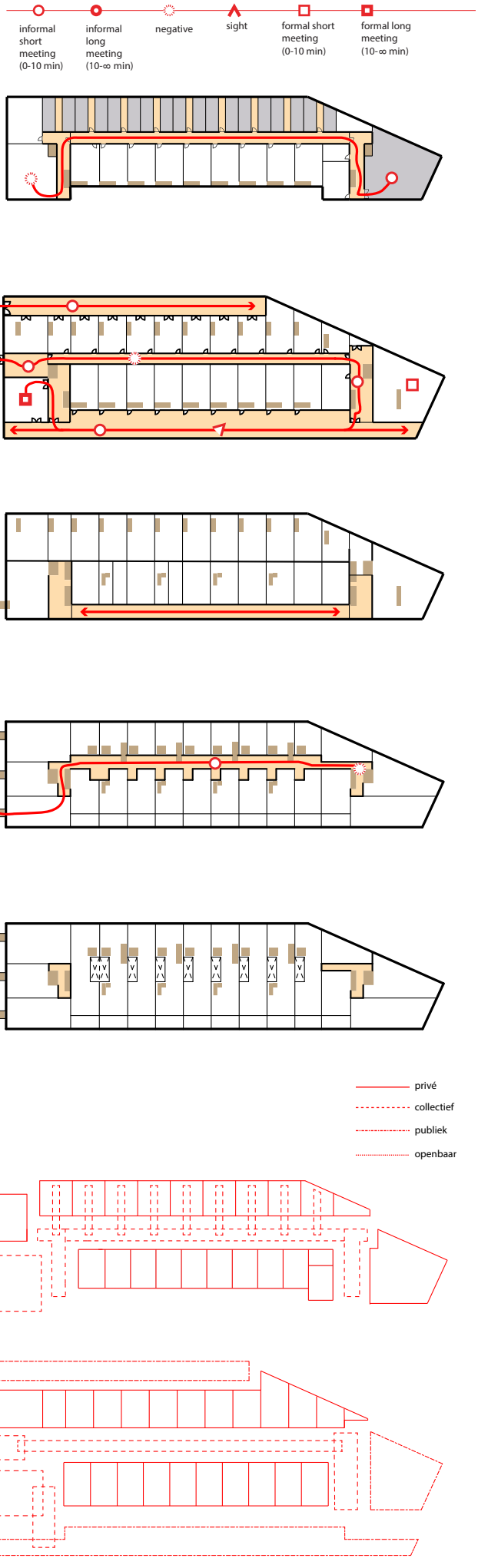
- 57% owner-occupied homes
- 25% Cooperative living / studio use
- 10% Social rent
- 8% Commercial spaces.

Living and working is distributed throughout the building.
Every home also has its own workspace, which is what makes this building so special. Living and working is usually divided over 2 layers per combination. This means that there is still a separation between living and working, but the spaces are directly connected through an internal as well as an external staircase.

Private-public

The baseboard is higher than the other layers and is together with the split level almost completely raised from glass. A roof garden is located on top of the building, which is not visible from street level.

The craftsmanship with which this building was designed lies in the intelligent access structure. The architects created four horizontal 'access streets'.



Private-public

Werkstraat and Atelierstraat
On the mezzanine level ("split level"), the wide gallery on the south side also provides access to work and living spaces that are internally linked with workspaces on the ground floor and on the first floor.

Central Corridor
On level 1 (that is, above the mezzanine level) they designed a central corridor to which five atriums (lichthoven) are linked that lead daylight deep into the building. This rue intérieure also opens up levels 1 and 2 via stairs and entrances that are connected to this corridor.

Roofstreet
Finally, on level 4 there is a 'roof-street' giving access to the living-working units on levels 3 and 4, separate studios, a collective space and a hortus conclusus on the roof.

Within this access structure the typologies vary of living and working spaces. 20 workshops for business and home-work use are situated in the plinth. All workshops that are directly accessible from the ground floor have direct access to a publicly accessible street for pedestrians and cyclists and can be set up as a workshop, office, gallery or shop. The transition from the double-height Souterrain Ateliers on the south side to the public space is formed by a cleverly situated, deepened patio, over which a bridge is stretched from the street to the entrance of the studio.

Conclusion

Both heads of the building have an urban sculptural quality. In the elongated south facade, the brick facade is interrupted by cantilevered balconies, which emphasize the horizontality of the facade. The plinth is strikingly transparent with space for public-oriented functions. By putting these functions in the plinth, the building acquires a collective character that is directly visible from the ground level.

In addition, part of the basement under the commercial area could possibly be used for a collective function. The open playground on the north side also contributes to the collective character of the building.

Furthermore the three horizontal streets on ground level stimulate the most collective encounters. These streets connect all the other communal spaces (i.e. gym, gemeinschaftsraum etc.). The large dimensions of the street on the south façade makes this more than just an acces route. People will actually use this space for longer informal meetings. The light characteristics of the street emphasize this long stay use.

Dwelling Type

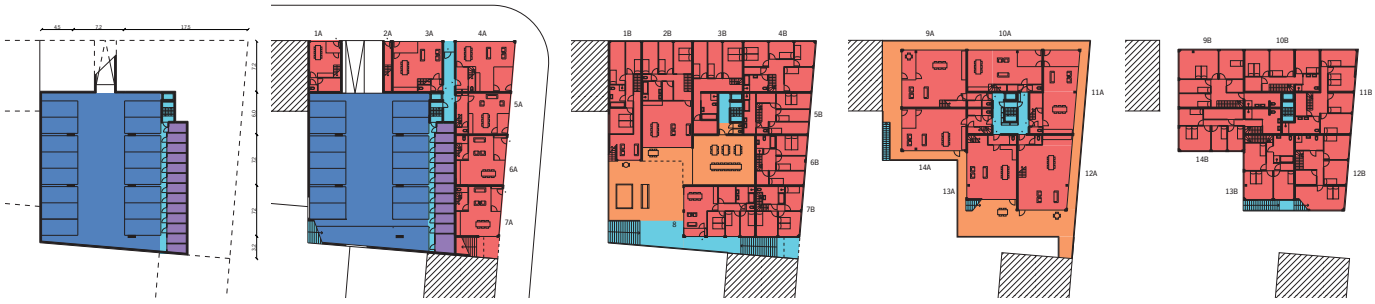
Babel
Laurens Boodt Architecten
Rotterdam, The Netherlands
Maisonettes, Vertical Street

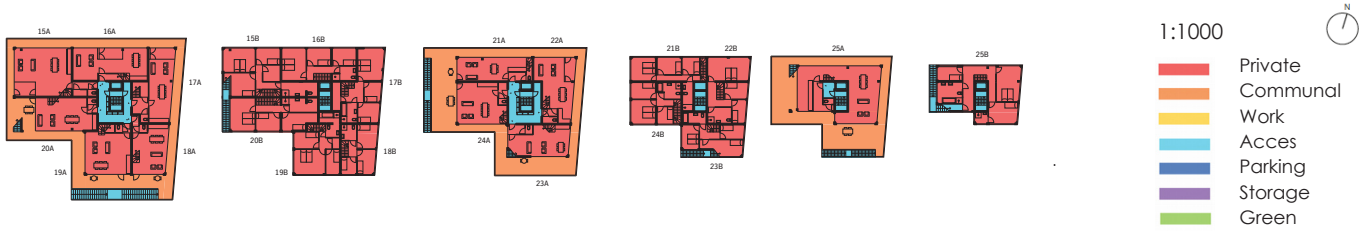
The Tower of Babel is a design for a new residential tower with 24 family homes on the Kratonkade on Lloydpier in Rotterdam. A special feature of this residential tower is the street that goes up around the building and which connects the various private terraces.

Spread over 12 floors, the family homes varying in size from approx. 90 to 145 m². The ground floor apartments have an entrance at street level, the other houses are accessible by elevator. The size of every floor is different, which accomodates the stair and terraces around the building.


Laurens Boodt Architecten

Laurens Boodt Architecten
1:500

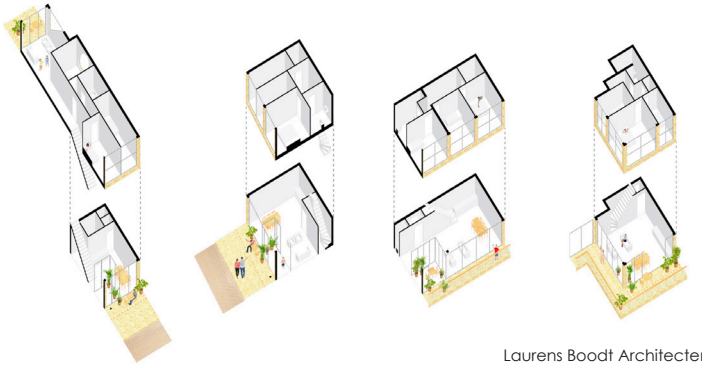




Houses

All the houses in this building are maisonettes and consists of two floors. The ground floor of every house is connectes to the street space. Here are the living roos and the kitchen.

On the second floor of every individual house you can find the bedrooms, bathrooms and storage.


Laurens Boodt Architecten

Communal

Street space

At the street level there is a gate with a staircase that forms the entrance to the street space around the building. The street space is widened on the first floor to a square, for a vegetable garden, picnic area, etc.

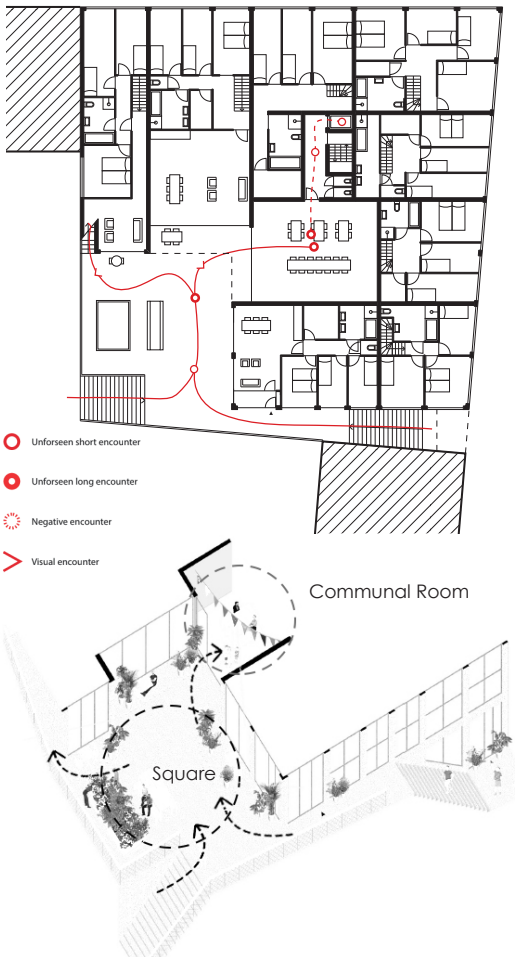
The street space continues upwards along the houses, with the stairs connecting the different platforms. The stairs are a reason for play, seating and viewing point.

On the square there is a common room for children's parties, (flex) workplace, meetings, etc.

Private Outdoor Space

The houses have loggias that can be fully opened, making these private outdoor spaces. These also function as an entrance on the ground floor.

In addition, homes have a private outdoor space on the street space, which is indicated by a number of thumbtacks.



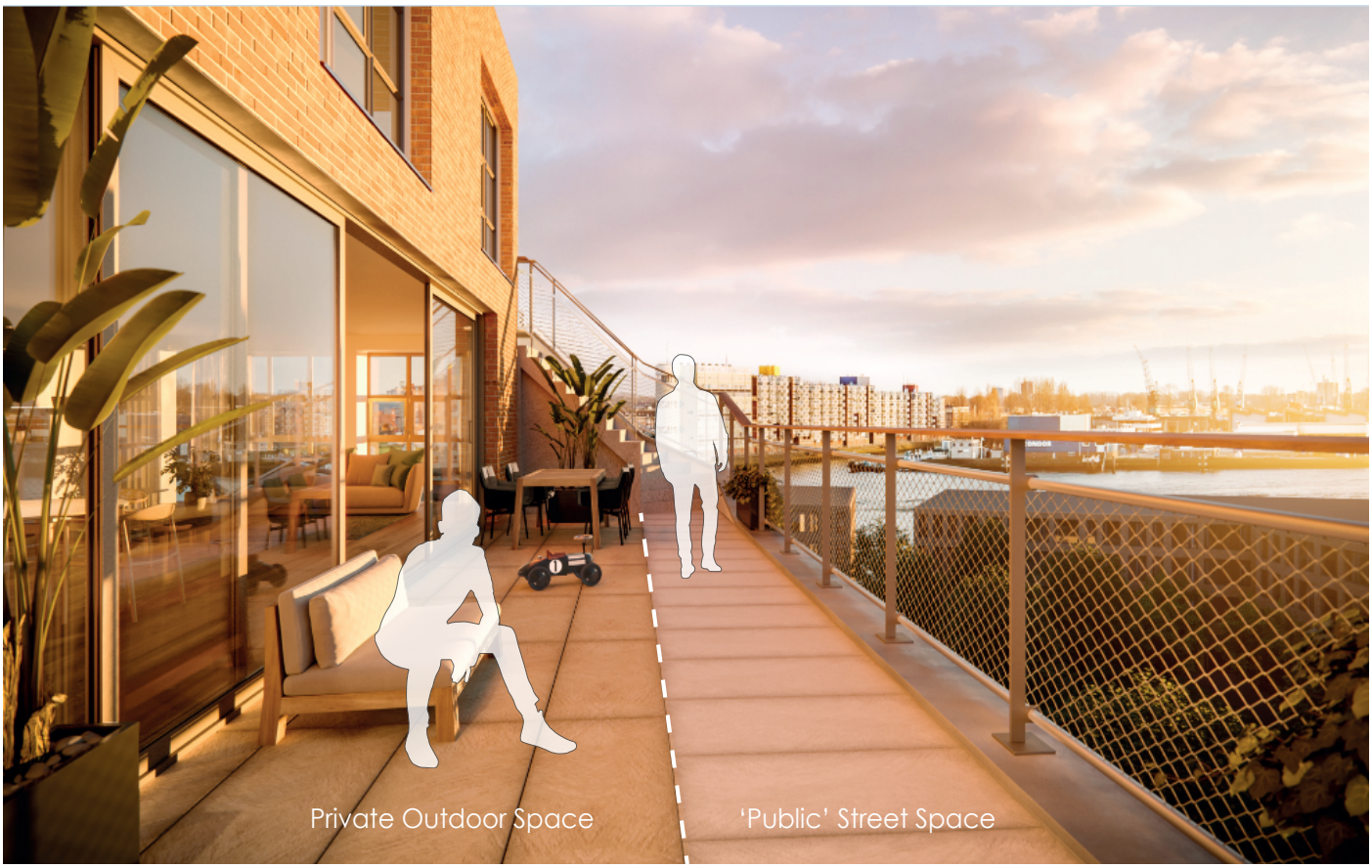
Conclusion

In the design for this building there are a lot of opportunities for communual space use. The vertical 'street' is leading you along al this communal spaces, like a large square, a communal room and the roof terrace.

But because of the fact that this residential building isn't built yet, it is hard to say if this vertical street will work that good in real life.

The residents living on the higher levels probably will park their car and take the elevator situated in the core of the building, and will never use the street to go up.

If the communal spaces will work the way they are designed will totally depend on the residents living in this building.



Conclusion

As the preceding case studies show, there are many different ways to respond to the inclusion of collectiveness in a building. While all preceding buildings are complexes with multiple residences and sometimes workplaces, they don't all directly include a collective element. Some buildings are collective in the sole aspect that they share a common staircase or hallway. Buildings like Kölner Brett, St. Jobsveem, Piazza Céramique and Hybrid House make these moments of collectivity incidental, with no specific space designed for meetings, but them occurring where paths cross on their ways through the building.

A different approach to this common staircase or hallway is to specifically design it so that it becomes a space where people meet and spend time. Examples are places like the hallway of de Olieberg, with its small squares where people can place benches, and the wrapping vertical street of the Babel building, where there will be space for picnics and children's parties.

Another way designers create moments of collectivity is by adding facilities to the building that draw the residents and create the collective interactions that can occur within such an environment. These facilities can include fitness areas or swimming pools, like in Hoge Heren or New Orleans. But they can also consist of more general communal areas like in Narkomfin, actively serviced collective facilities like in OCMW Nevele, or the independently organised variety of special room functions in the Tietgen dormitory. In that last building, as well as in de Olieberg, another potentially shared facility appears: The garden.

A fourth approach is one step more intimate. This step can be seen in Tietgen Dormitory and Svartlamoen housing. This approach revolves around communal living, where some of the living spaces are shared. This can include a kitchen, living room and laundry room. This step reduces the size of the private space, which means that the costs are shared. This can lead to more affordable housing.

More implicit ways of approaching collectivity are achieved through the visual senses. Many projects connect different spaces visually. This can enhance one's experience of safety as well as to actually improve safety. Visual connections can also stimulate actual meetings. However there are situations (like on the roof terraces of the Pullens building) where visual connections have been mitigated by inhabitants to increase privacy.

These five approaches to collectiveness and the shaping of moments of collectivity thus revolve around the design decisions for two aspects of the building: The collective access (ontsluiting) and collective facilities. How these are shaped and shared can be the determining factor in how the collective aspect of the building take shape.

Intention and result can also fail to meet each other through design when (but also in general) designing for collective use. This is the case especially with more ambitious designs considering collectivity. Demanding a lot from your users as a designer can cause them to resist the design. This does not mean that the ambitious is impossible. It rather points out that the ambitious design should be critically reviewed.

USER GROUP RESEARCH

KNOWLEDGE WORKERS IN THE CITY

INTRODUCTION

Currently in the Netherlands there is a big housing shortage. There is a change in the Dutch residential culture and lack of affordable and suitable homes in the urban regions. More people live alone in large houses, while the population is growing. Dutch citizens simply do not have the income to buy a new expensive house or apartment and due to changes in legislation housing associations are only allowed to offer dwellings to lower income groups.

Most of the houses in the Netherlands are built to live with a family, but the way we live changed fast in the last 50 years. Young couples are not living together instantly and even more married couples are splitting up. This causes a rising number of one-person-households.

The largest part of the current housing stock does not fit the requirements of this 'modern familys'. Many one-person-households are living in a house that's built for a family. Also empty nesters (parents where the children moved out) keep to remain living in their family houses. This is causing a huge shortage on the housing market, which is driving up the prizes.

To solve this problem there is not only a need to build a lot of houses, it's even more important to look how this new houses can 'meet the needs of the future generation' (1M Homes, TU Delft). We need to have a more precise look into who we are building for.

For this research and the following design project i have selected the Knowledge workers as target group. For this group of high educated just graduated starters there is a big shortage on the housing market. They can't make use of social rent, and most of the other houses are too large and expansive. Most of the time they don't have time to search because they have to leave their student houses, and they have an urgent need to live in the city because of work, network and the good connectivity.

How to create a building block which perfectly meets the requirements and wishes of the Knowledge Worker?

To answer that question I've conducted a research to define this group. On the basis of literature, City council reports, and comparable case studies i've set up a base for the design of a new multifunctional building in the Keilekwartier in Rotterdam.

KNOWLEDGE WORKERS

In the current Dutch economy, the amount of knowledge workers living in an area is an increasingly important factor in the location choice for large companies.

Herefore attracting and keeping knowledgeworkers is the base for the future economy of the city, so for large cities like Rotterdam the living climate for knowledge workers is an important issue.

At this moment there is a big housing shortage for this group. They earn too much for social housing, but not enough to rent or buy. The current housing shortage in every dutch city has a large impact on the group of knowledgeworkers, and make them move out of the city, which is also a reason to look for a job somewhere else.

Let's start to define the term 'knowledge worker'. The dictionary says: The knowledge worker is someone who is high educated (HBO or WO), takes in and interprets knowledge and information, develops it and then uses and distributes it. The knowledge workers can be defined in two main categories.

Dutch Knowledge Workers

This first category involves Dutch students who are just graduated and have to leave their student houses. The problem with this group is that they don't have a permanent job yet, and are single most of the time. For work (and network) they are looking for a place in one of the large cities of the Netherlands (Amsterdam, The Hague, Rotterdam or Utrecht) but in this cities, due to housing shortage, the housing prices are rising.

Social housing is not an option because their income is most of the time too high, but they don't earn enough to rent a house on the free market.

International Knowledge Workers

As an international port and trading city, Rotterdam has always attracted people from all over the world. The city now has more than 170 nationalities and more than 300 different cultures. Rotterdam is an example of a city where all these cultures live together and side by side. You can see the wealth that these different cultures bring to the city.

But we are now in a new phase of internationalization. In the 21st century, prosperity is increasing worldwide. This offers plenty of opportunities from an economic perspective. Higher educated people from other countries come to the Netherlands to study and work here. The Erasmus University enrolled a record amount of international students last year (5800) and also more gratuated students find Rotterdam because they see prospects for one of the internatio-

nal companies in the city.

These new inhabitants are going to consume, want to travel and ensure that their children have the right education. More countries allow free travel. Partly because of this, and because Rotterdam has developed very positively in recent decades, the city is seeing an increased influx of tourists, but also of international companies opening a branch here.

The expat Center of Rotterdam already noticed a larger influx of higher educated 'internationals' who want to settle (temporary) in Rotterdam, because they see prospects for one of the international companies in the city. The number of internationals at the Rotterdam Expat Center increased by 46% in 2018 compared to the previous year. Companies in Rotterdam like to see them come, because they have a great need for the knowledge that these internationals bring.

But it brings also some problems. The housing market in Rotterdam is, since a couple of years, quite overheated. Rotterdam was once the city of cheap housing and plenty of space. Those times are now far behind. Rents in Rotterdam are rising faster than in the region of Amsterdam, and housing shortage is increasing faster. The group of knowledge workers which Rotterdam wants to attract can't find a fitting house in the city.

New Living District

But now there is a new opportunity. The old harbour area of the 'Merwe Vierhavens' is going to be transformed into a new living district with the focus on young makers. A place where entrepreneurs and knowledge institutions are putting the transition to the new economy into practice.

In the next 15 years this new district will place around 5000 new houses which will serve all different parts of the population, combined with a dynamic 'makers industry' which will place the current maker companies of this area combined with new categories of makers.

This areas new 'makers industry' brings the economy of the city and port together and contributes to the broadening and sustainability of both. It boosts the innovative power in the region and creates new jobs.

This makers industry responds to new opportunities, made possible by digitization and robotisation. She uses materials that are not harmful to people and the environment. The proximity to creative talent, markets and knowledge centers is decisive for the success. In addition, this industry needs flexible deployable space.

The 'Merwe Vierhaven' area is ideal for this. There is plenty of room. The universities and the city center are around the corner. And there is a promising prospect for further synergy with RDM directly across the river.

Connection with the Universities

In recent years, the old habour city Rotterdam has increasingly became a combination of a maker and a knowledge economy. With one of the best universities of the country and many international offices.The Universities of Rotterdam (EUR, HR and INHolland) argue that the city of Rotterdam has to do its best to be attractive for students and knowledge workers to study, work and live.

They advocate for a better living environment for this group. Don't isolate them on a campus, but make designs that place them in the center of the society.

The boards of the university of applied sciences and university suggest 'combining this goal with the further development of Rotterdam South, for example in buildings that contain more than just houses. This makes students part of everyone's daily life in the city.'

These boards set up 10 guidelines which they have presented to the city council. These guidelines should help to keep the city attractive for higher educated people. On the next page you will find a summary of these guidelines.

1 **Make Rotterdam more attractive for students and knowledge workers**. There is a need for more affordable housing for students and recent graduates. House students in the middle of society, in buildings with social functions where students are directly connected to the environment and the residents. Better public transport connections are also needed with the Woudestein campus, where EUR and HR teach around 40,000 students.

2 **Make Rotterdam more attractive as a place to work on the future**. Prevent too much talent from leaving for other cities after graduation and invest in initiatives that give Rotterdam as an innovation city its own, recognizable 'face'. Think of sustainable water and delta technology, ICT and open data.

3 **Invest in connection and inclusion**. The university and university colleges are pre-eminently social institutions that can bring about connection in society. EUR and HR also want to participate or take the lead in programs that will be developed to better secure the Dutch language in our society.

4 **Invest in a Knowledge Agenda**. Municipality and higher education jointly draw up a Knowledge Agenda 2025, with research collaboration in areas such as sustainability, regional economy, safety, creative economy and inclusive society

5 **Look differently at international students, knowledge workers and refugees**. Talent is becoming increasingly scarce and will increasingly make a difference. It is important that cities and regions are able to attract that scarce talent. Look at international students and refugees with that view: they are an opportunity to bind talent to the city.

6 **Joint international profiling.** There will be a joint new action plan to strengthen the profile of Rotterdam as an urban innovative knowledge center. This also increases the international recruiting power of the city.

7 **Rotterdam must maintain its own education policy**. Rotterdam is ambitious when it comes to educational objectives. With success, because the people of Rotterdam are getting better and better education. But Rotterdam education deserves continued support. Continue to support initiatives such as transferring from MBO to PABOs and look for solutions for the teacher shortage with Rotterdam teacher educators.

8 **Rotterdam supports higher education in its pursuit of equal opportunities.** This can be done, for example, by participating in programs such as the 'Talentenboulevard', a project in which students who drop out are brought back to higher education or are offered the prospect of high-quality work.

9 **Support collaboration in education and research in the arts**. The Rotterdam Arts & Science Lab (RASL), a unique collaborative project in the field of education and research in the arts of Codarts, the EUR and Willem de Kooning Academy (Rotterdam University of Applied Sciences) deserves support. With RASL, talented students can follow double excellent study programs.

10 **Be proud of higher education.** Rotterdam has a university with a unique profile and international reputation and colleges that can count on great respect nationally - and internationally. Make that part of the bigger Rotterdam story.

MAKERS

The 'Merwe Vierhavens' is called the 'Makersdistrict'. These makers are really important in the development of this area, and are the startingpoint in the design question. Room for this makers absolutely has to be integrated in every single building and they are going to be the base of this area.

To ensure that the makers are going to be part of this new society it is important to really integrate them in the buildings, instead of placing them in seperate ones. A good connection between Living, Working and Facilities is important for letting this new neigbourhood work well.

But not only the integration in the buildings is important, It's also important that the future makers of this area have a good connection with the residents of the buildings, or even better, Live in the buildings. To achieve that i have chosen to facilitate workplaces for technical startups in robotics and automation. This makers group is mostly technical educated (TU Delft) and is also part of the target group of the knowledge workers. This ensures a good connection between the residents of the building and the makers working in the building.

For Example you can think of a company like somnox. This startup from TU Delft Students is creating a robot to improve the quality of your sleep. By giving this kind of startups a place where they can develop their products and grow a company in Rotterdam, they will have a positive influence on the Rotterdam market. Another great example is the 'Robo House' a place where companies can explore the possibilities of implementing robots into their company.

This kind of companies also perfectly fits the vison the city council of Rotterdam has for this area. A combination of the traditional and the modern makers.

KNOWLEDGE REGION

Relevance of building for this group

South Holland has a relatively large number of locations where knowledge-intensive activities and knowledge providers are concentrated around a university, knowledge institute or large company. These locations together form the 'knowledge axis'. This axis runs from Noordwijk to Dordrecht.

The most important locations on this knowledge axis are the three university areas in this region. Leiden, Delft and Erasmus. (LDE Universities)

In addition to these three-campuses, the knowledge axis has large research companies as Shell, DSM, Unilever and Esa / Estec in Noordwijk and testing grounds, such as the Improvement Center for the greenport in Bleiswijk.

The development of the knowledge axis, and more specifically of campuses, is particularly conducive to conditions. Campuses have a positive influence on the exchange of knowledge, people and resources and increase the innovative capacity of actors (companies) on campus.

Campuses are a breeding ground for the development of knowledge-intensive activities. The other locations on the knowledge axis can benefit from this.

The campuses in South Holland have a focus on biotechnology (Leiden) Clean Technology (Delft) and medical (Erasmus MC). Knowledge and innovative applications developed here can be applied in strong clusters such as the HIC and the Greenports. With this collaboration between the universities of Rotterdam, Delft and Leiden the region have a knowledge base that belongs to the global top.

To facilitate the constancy and growth in this knowledge region it's important to keep investing in a good working public transport network with enough capacity and to invest in enough housing possibilities.

The public transport netwerk is really improved in the last two decades with Randstadrail, intercity direct and faster train connections, but the housing shortage is a big problem at the moment.

In Delft there are already a couple of plans for this group in the new 'Spoorzone' area. One of these plans is Volt, completely focussed on this target group. But the whole region has to come up with new housing facilities to end the current shortage problem.

The new M4H area in Rotterdam is also a perect place to extend the housing facilities for the group of knowledge workers that this region depends on.

The purpose of this neighbourhood is to be young and dynamic, to make a connection between living and working, and to facilitate technical startups. A nice startingpoint for a place to live for the knowledge workers. The 8 main assumptions of this new area perfectly fit this young and dynamic target group.

1. M4H permanently offers space to different types of makers.

2. M4H prefers to share facilities over individual ownership.

3. M4H gives room for experimentation and learning.

4. M4H produces and uses sustainable energy.

5. M4H values residual flows.

6. M4H makes it possible to choose sustainable mobility.

7. M4H acts as one resilient climate adaptive system.

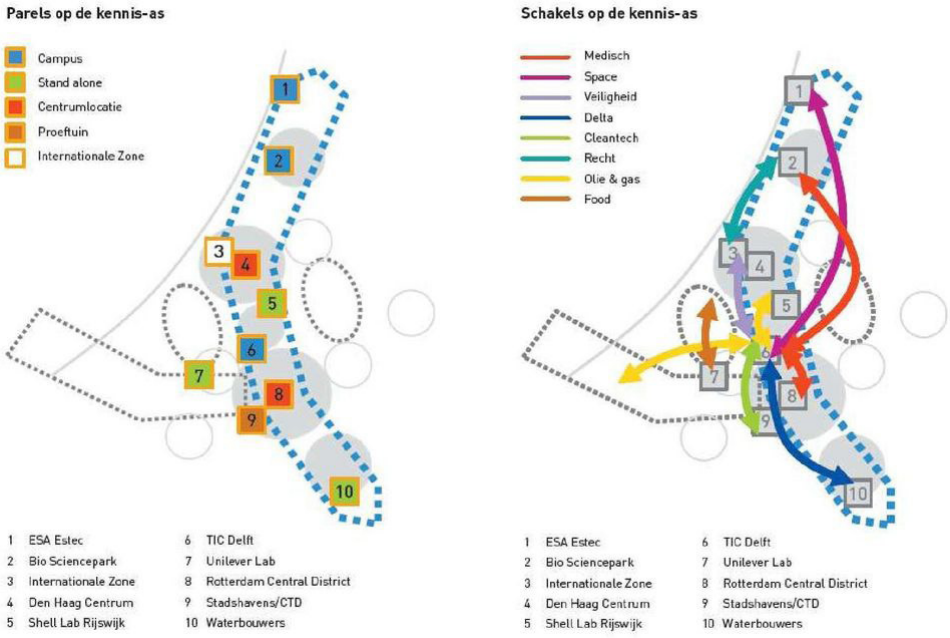
8. M4H builds on industrial capacity and quality of the area.

M4H Rotterdam together with RDM Rotterdam forms the Makers District. Large companies can experiment with new products here or processes. New technologies are invented, tested and applied. These new technologies are based on digitization, robotization, additive manufacturing, on the application of new, sustainable energy and materials.

This makes the Makers District a testing ground and a showcase for the new economy. Visible to everyone.
The added value of the Makers District is not only in the physical space, but especially in a business climate that stimulates and strengthens cooperation and entrepreneurship. Cooperation with knowledge and educational institutions in the region is crucial. Here, young people are introduced to the techniques of the future.

The aim is to create a community of successful and innovative entrepreneurs, integrated into the broader regional innovation ecosystem of companies, knowledge institutions and funding sources. The Makers District is increasingly developing into a lively area with housing, a wide range of facilities, culture and events.

Also the accessibility with public transport is really good. Metrostation Marconiplein is a few footsteps away and the location is also located between two important intercity trainstaitions (Schiedam Centrum & Rotterdam Central Station).



PREFERENCES

The group of Knowledge Workers ofcourse has some preferences for their future homes. Different from other target groups these prefe-rences are more based on the price and location, than on the house itself.

To set out the preferences for this target group, at first it was important to define this group. Not all the know-ledge workers are te same.

I've devided this group in 3 subgroups. Singles, Young Couples and Expats. These three subgroups have many matching preferences, but for a good fitting house the preferences are different.

Housing Preferences

For just graduated singles who just leave their stu-dent house, a small studio is good enough, while young couples are looking for a 2/3 room apartment. The bud-get of this couples is also sig-nificant higer. For the inter-national Knowledge Worker the price is less relevant, but the service is more impor-tant. They prefer furnished houses, with maintenance included because most of the time they are 'short stay' residents. Buying furniture would be too complicated and expansive.

For most of the knowledge workers the size of the size of the house is less impor-tant. The availability, locati-on and price are leading by choosing for a place to live.

Connection

One of the most important consideration points is the location. A good connecti-on with public transport is re-ally important for this group, but also a good connection to the city center. They are looking for good urban fa-cilities on walking/biking dis-tance, and want to live clo-se to the city center and the entertainment area.

For this group it's not a pro-blem when the house is smaller, when there are good facilities in the near surroundings. The city as an extention of the living room.

Price

The most important aspect for this target group is the price. Knowledge Workers who just started working are looking for a place around 60-80 m2 to rent for a maxi-mum monthly amount of €700(inclusive), When they are together they can pay more (€ 1,000 + per month) and they are looking for about 100 m2. (Research of the municipality of Delft for attracting knowledge wor-kers).

For Expats the price is less important. They are mostly short stay residents, and the location is for them the most important aspect. The big-gest problem for this group is that they are not familiar with the dutch housing mar-ket and its hard to find a good place, on the location they want.

The three pillars in the live of this young knowledge workers are: Living, Working and Services/Facilities. These are the three most important parts of their lives, and in all these categories they have their preferences. Not only in the city, but also in the future building itself these are the three pillars.

In this area there are a lot of chances and possibilities because in terms of location it meets most wishes of this group.

Location

The location of this new urban area is really good accessible with public transport, car and bike. It's close to the city center of Rotterdam and all the important urban facilities are nearby.

Also the area itself will develop to a new urban area, with horeca, clubs, metting points, public parks and lots of facilities.

It is going to be a nice green area with a park, a nice waterfront, characteristic old harbour buildings combined with modern 21st century architecture. Culture and Making are also important in this area.

So in less then 10 minutes you are in the city center of Rotterdam, but for good facilities you only have to walk a couple of minutes.

SINGLES (23-28)
- Rent
- Uncertain Future
- Location is the most important
- Around City Center
- Studio/Apartment
- 1/2 Rooms
- 40-70 m^2
- ± €700,- Incl.

YOUNG COUPLES (28-35)
- Rent/Buy
- Ensured Job
- Location is still important
- Size of the house is important
- Around City Center
- Apartment
- 2/3 Rooms
- 80-100 m^2
- > €1000,- Excl.

EXPATS (25-30)
- Rent
- 'Short Stay'
- Location is the most important
- Preference for Furnished Room
- Studio/Apartment
- 1/2 Rooms
- Price is less important

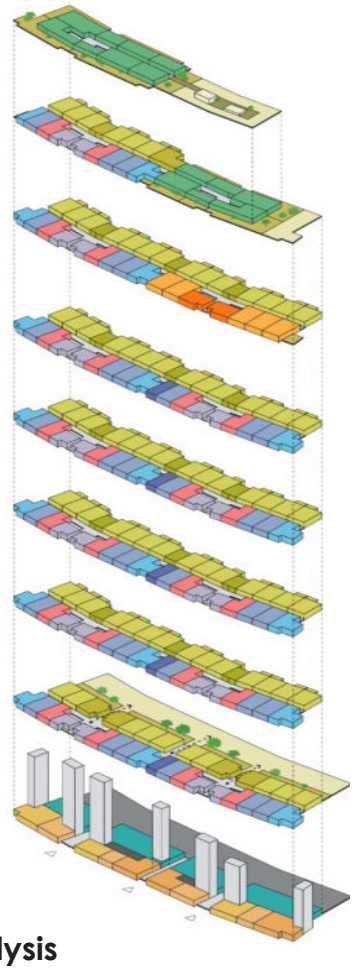
LIVE
Living urban environment with various types of building and population
Green Neighbourhood
Studio / Small Apartment
The city as an extention of the house
Small private outdoor space

WORK
Large international offices
Technical startups
University Campus
Port Of Rotterdam
High educated region

SERVICES
Shared Facilities
Urban Facilities on walking/biking distance
Good Connection to Public Transport
Close to the city center
'Urban Living Rooms' Like a coffeebar

SCYE010

Location	Schiedam
Building Year	-
Design Type	Renovation
Architect	Mei Architects and Planners
Dwellings	236 Apartments / Studios
Bruto Floorspace	21.600 m2
Client	SOM Nederland
Target Group	Starters / Knowledge workers Young Professionals
Images and Drawings	Mei Architects and Planners



9th floor
8 Dwellings

8th floor
23 Dwellings

7th floor
33 Dwellings

6th floor
35 Dwellings

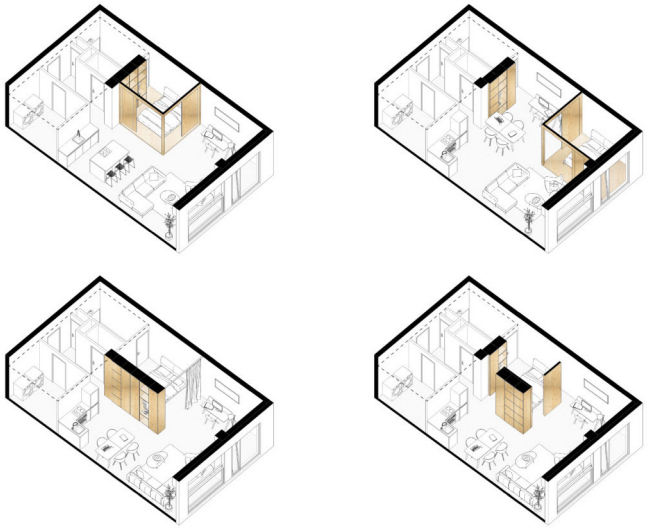
5th floor
35 Dwellings

4th floor
35 Dwellings

3th floor
35 Dwellings

2nd floor
32 Dwellings

1st floor
0 Dwellings



Flexible studio rooms

Analysis

This building has the same building depth and housing type as the building i am designing. The depth of the studio's is solved here by placing the bathroom and a storage room at the back of the apartment. These rooms doesn't need windows. The living area is placed in the front with a modular sleeping room. Because this is a room in a room it doesn't need windows but his module also can be placed by the windows for more daylight in the bedroom.

VOLT

Location	Delft
Building Year	2020
Architect	Barcode Architects
Dwellings	130 Apartments
Bruto Floorspace	17.800 m2
Client	ERA Contour
Target Group	Starters / Knowledge workers
Images and Drawings	Barcode Architects

This building in the new center of Delft is completely focussed on knowledge workers. People who just have been graduated from the TU Delft and who are looking for a next step on the housing market. On the ground floor there is space for cafes and restaurants, and in the towers you find small appartments.

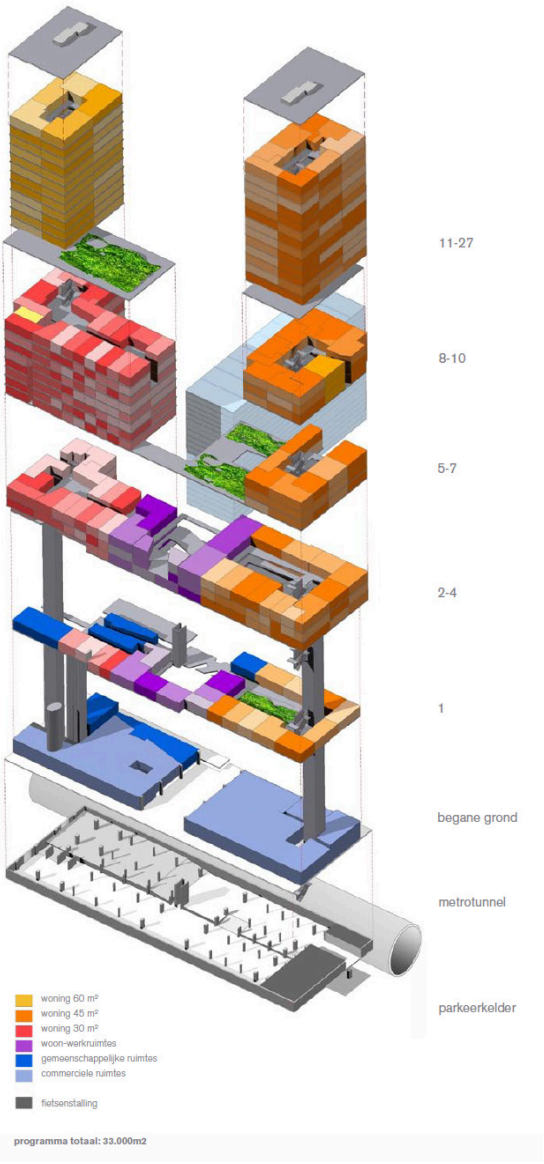
"VOLT is a well thought concept that makes urban living in Delft accessible for starters on the housing market. The compact apartments are approximately 50 to 70 m² in size. You see that people increasingly see the building and the city as their living room, instead of just the four walls of their home. People who like to live in the city are willing to settle for a smaller apartment if there is sufficient attention in the immediate living environment for facilities and services aimed at convenience and meeting."
(Wim Wensing, Amvest)

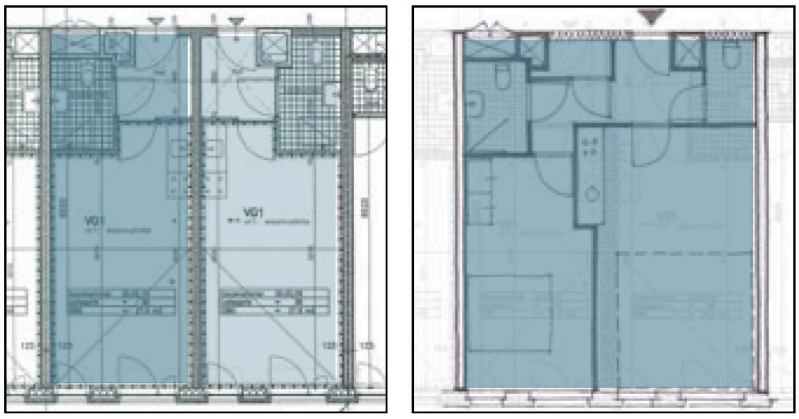
The apartments are spread over different towers and are accesible via the core of the towers. Every tower has its own core, with elevator and staircase. Around this core the apartments are situated.

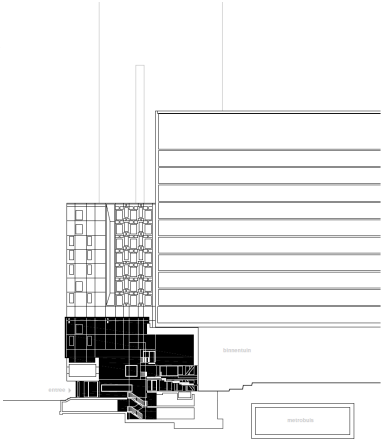
In the center, between the towers there is a large square surrounded by commercial spaces. Here is space for terraces where the residents of the building, but also other people from the neigbourhood can come together.

CITÉ

Location	Rotterdam
Building Year	2010
Architect	Tangram Architecten
Dwellings	228 Studios 266 Apartments (2/3 Rooms) 84 Short Stay Rooms
Bruto Floorspace	44.342 m2
Client	Stadswonen Rotterdam
Target Group	Students / Knowledge workers







Analysis

This building contains different housing types and different users. Students and Knowledge workers. The rents are low and the houses are small. Due to the small houses it was possible to add a lot of collective spaces in the building. There are even spare rooms where your family can stay when they are over. Other collective spaces are:

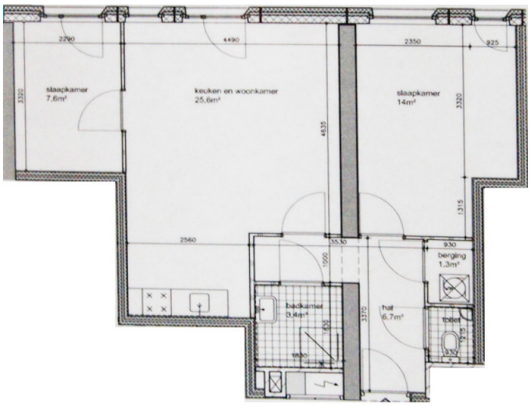
+ Large Atrium
+ Washing Room
+ Fitness
+ Party Room with Bar

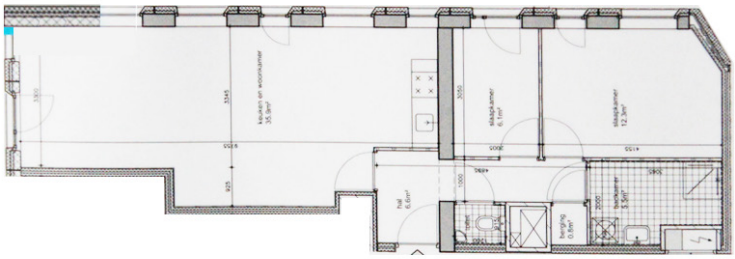
Flexible Rooms
It's possible to combine two seperate rooms to one apartment

In the Cité building in Rotterdam collectivity is well implemented. It starts with a large atrium which is the entrance of the building, but also an informal meeting place.

This entrance is a city on itself. With offices, commercial spaces, a squash court and a Fitness room. This large atrium was financially possible because the architect improved the density of the dwellings. This made it possible to use more space (and spend more money) on the collective spaces in the building.

The dwellingtypology is a combination of apartments and studios, accesible via corridor.





Two different room floorplans Cité

COLLECTIVITY

An important part of this research is collectivity in residential buildings. How does people experience collectivity and how does it work in different residential buildings? These questions are investigated in the group research part for different buildings around the world, but what parts of this collectivity research fit the group of Knowledge Workers?

Different sources and case studies showed that This group of young starters want to have primary facilities in ther own house. In their student time most of them had to share a kitchen and a bathroom with others, but now they are graduated they are ready for a next step. Having their own Bathroom, Toilet and Kitchen is one of the requirements while looking for a new home.

Exaption in this are groups of friends who are going to live together after studies. They don't have a problem with sharing this facilities, but for this group the existing family houses are affordable (because they can combine multiple incomes), and meet their wishes.

Looking into the case studies i've seen that there are also a lot of facilities this group of knowledge workers is willing to share with the rest of the building.

Washing machines is one of the things people in this age don't need for themselves. When you live alone you use the washing machine once or twice a week and buying one is expansive, will take a lot of space and make a lot of noise in your room.

Other great examples of shared spaces found in the case studies are collective fitness spaces, Bike storage, a collective group room (with a bar) to give you the possibility of inviting larger groups, and collective outdoor space (Like a roof terrace) In one of the buildings there were even spare rooms where your family can stay when they are over. these are great examples of collective spaces which are an addition on your living comfort, which are great to share with the rest of the residents of the building.

Another great collective space on this location is the park in front of the building, and the waterfront. These are collective spaces outside the building where you can have informal meetings with other residents of the neigbourhood.

This group of Knowledge-workers like their privacy and rest. When they are at home they want to have the primary facilities for themselves, but they also like to meet people and to hangout with their naigbours (since they mostly live alone). The building has to contain a good mix of this both worlds.

DESIGN PROPOSAL

FROM URBAN PLAN TO BUILDING VOLUME

URBAN PLAN

With the group of graduation students of the dutch housing studio we have created an urban plan for the 'keilekwartier' which is part of the M4H Area. This former harbour area contains a lot of characteristic old buildings which remind you of the rich history of this area.

In groups of four students we have designed the urban plan for one of the four quadrants of the 'keilekwartier'. In this part you can see how the plan for quadrant A is created.

Existing Buildings

There are 3 types of existing buildings in this area:

1. National Monuments
2. Iconic Buildings
3. Not so special buildings

In the urban design we have decided to remain the monuments and iconic buildings, and to situate the new buildings around them.

We not only want to keep the existing buildings, but we want to make them real monuments. To achieve that, we have created small squares next to these old buildings which give them a good visibility from all different sides.

Fine Meshed area

But it's not only the old buildings which give this area identity. Also the fine-meshed structure with narrow alleys and building plots in difficult shapes and different sizes gives this area identity. Thats why we have decided that we wanted to remain this structure in the new urban plan

To achieve that we've set up a couple of rules. One of the most important was that the 'streets' and alleys in this area may not follow one straight line. This ensures that you never immediately see where you are walking towards.

On the places where the streets ends we created small squares where you can stay for a while, or you can continue your route.

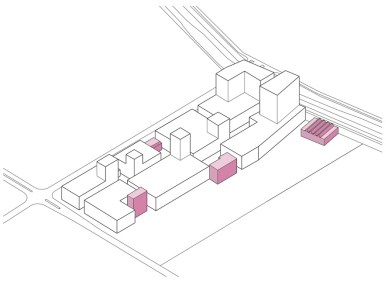
Landmarks

At the endpoint of every street the building blocks are extended with towers, which wil act as a landmark.

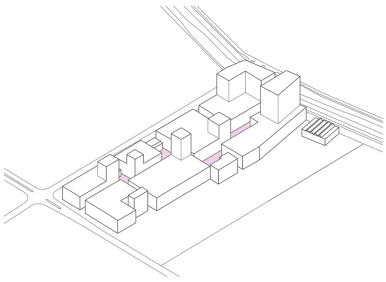
This 'landmarks' not only give you direction while moving trough this area, they also break the monotonous heigt of the rest of the building blocks, and attract peaple to have a look what's happening inside this area. These tall towers attract the attention, waiting to be discovered.

Park

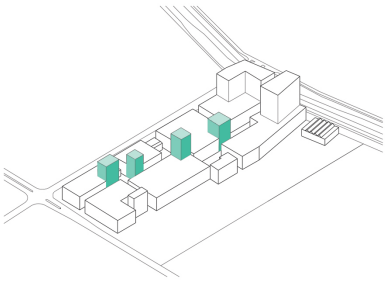
Another important part of this area is the large park at the southside of the building blocks. This park is also monumental and remains in the new urban design. The building blocks on the park side all have the same height which is based on the heigth of the



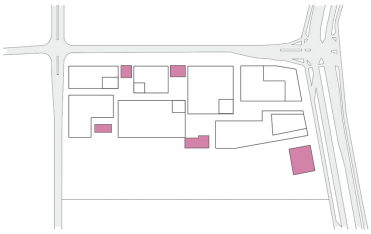
Keep the old characteristic buildings
And form the new buildings around them.

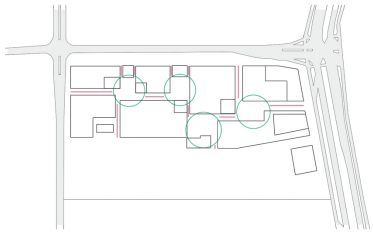


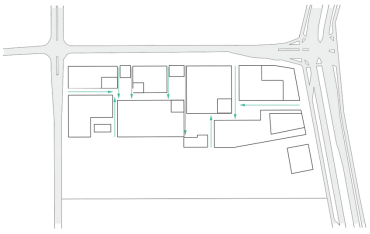
Create small squares inside the block
to keep the cozyness of the current
area alive

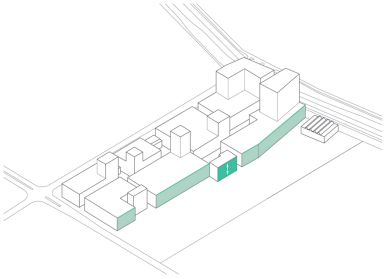


Create landmarks
at the end of every street

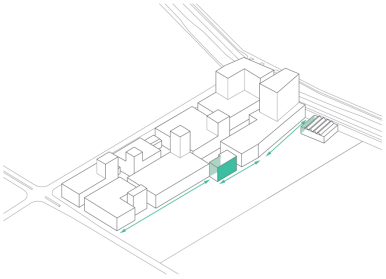




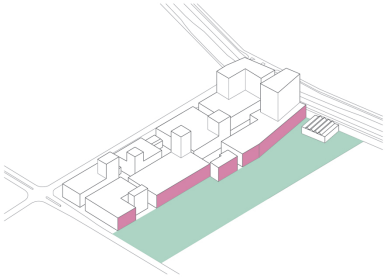




The building heigt at the park side
is based on the height of the soundport
building



The building line at the park side
is based on the keeped buildings



The facades at the park side
are all the same height and orientated to
the park (South-East)

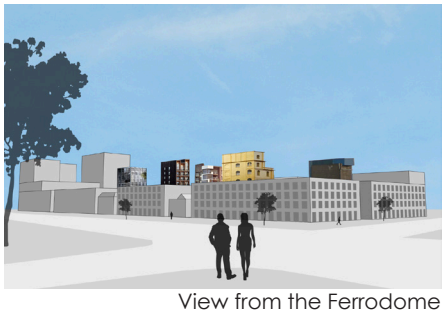
soundport building. By recording this, an uniform facade line is created along the park, even if the individual facade design of every building is totally different.

Also the border of the buildings around the park is based on the remained existing buildings. (Mainly on the Soundport building, the sloping end is based on studio Roosegaarde). This is done to emphasize the importance of the Sounport building, and to involve this existing buildings in the new urban design.

Building Height

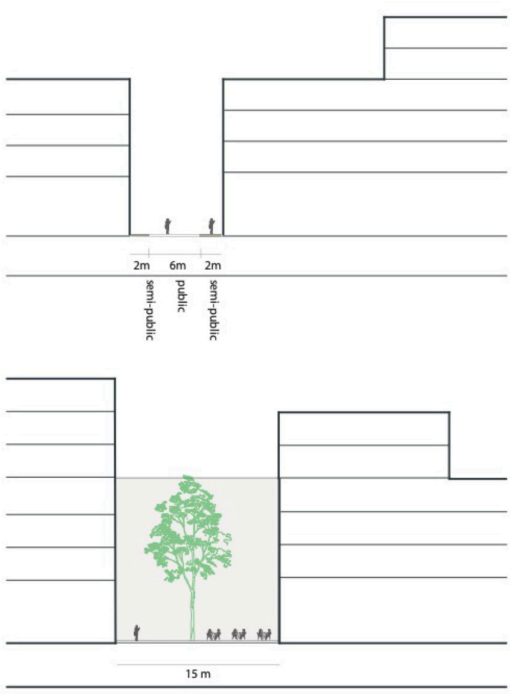
The quadrant is recognized by tall structures at the Vierhavenstraat. These tall structures quickly make place for lower structures as we move closer to the waterfront. The facades surrounding the quadrant express unity, only to be interupted by the contrasting kept structures.

View from the park side



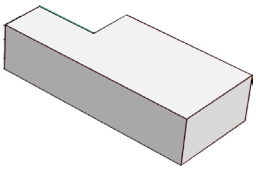
View from the Ferrodome

URBAN RULES



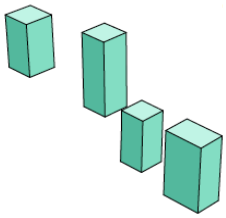
Street Profiles

Building blocks
Plint height 6 meter
4 Layers on top
Monotony and Unity



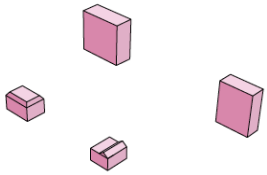
The Towers
8-12 Floors Heigh

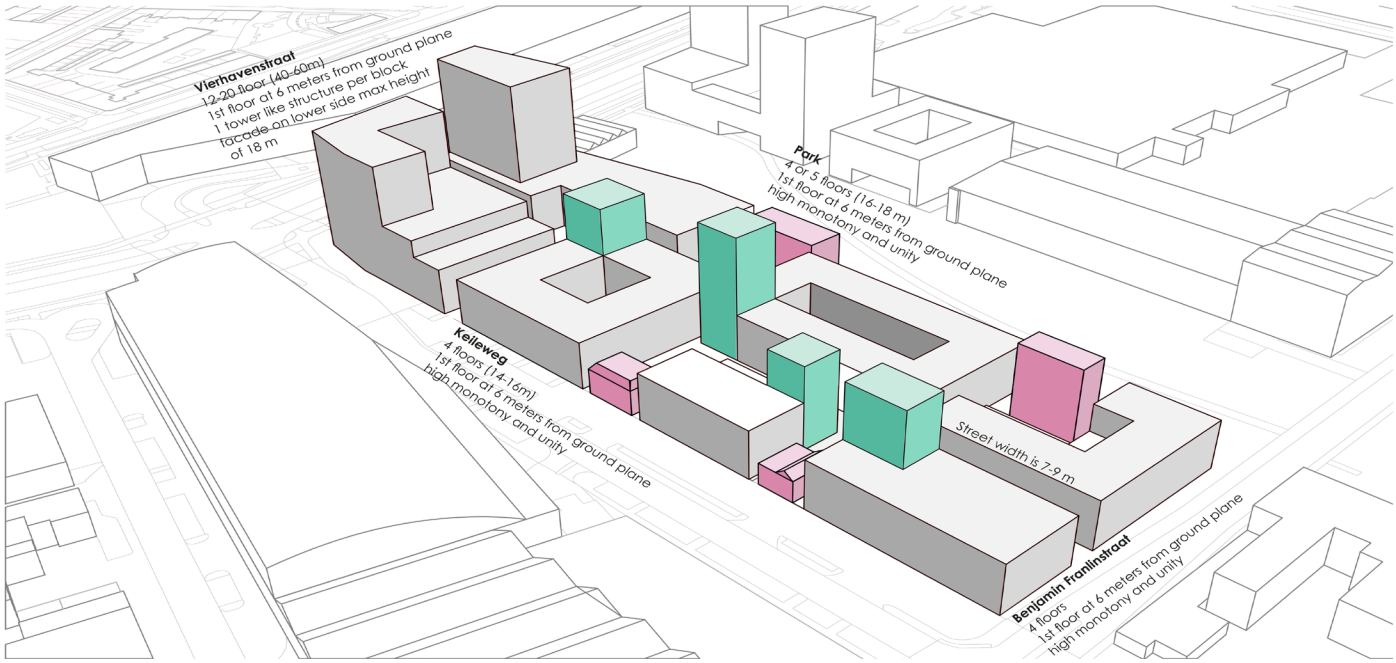
Need to be visible from the ground floor of the Ferrodome



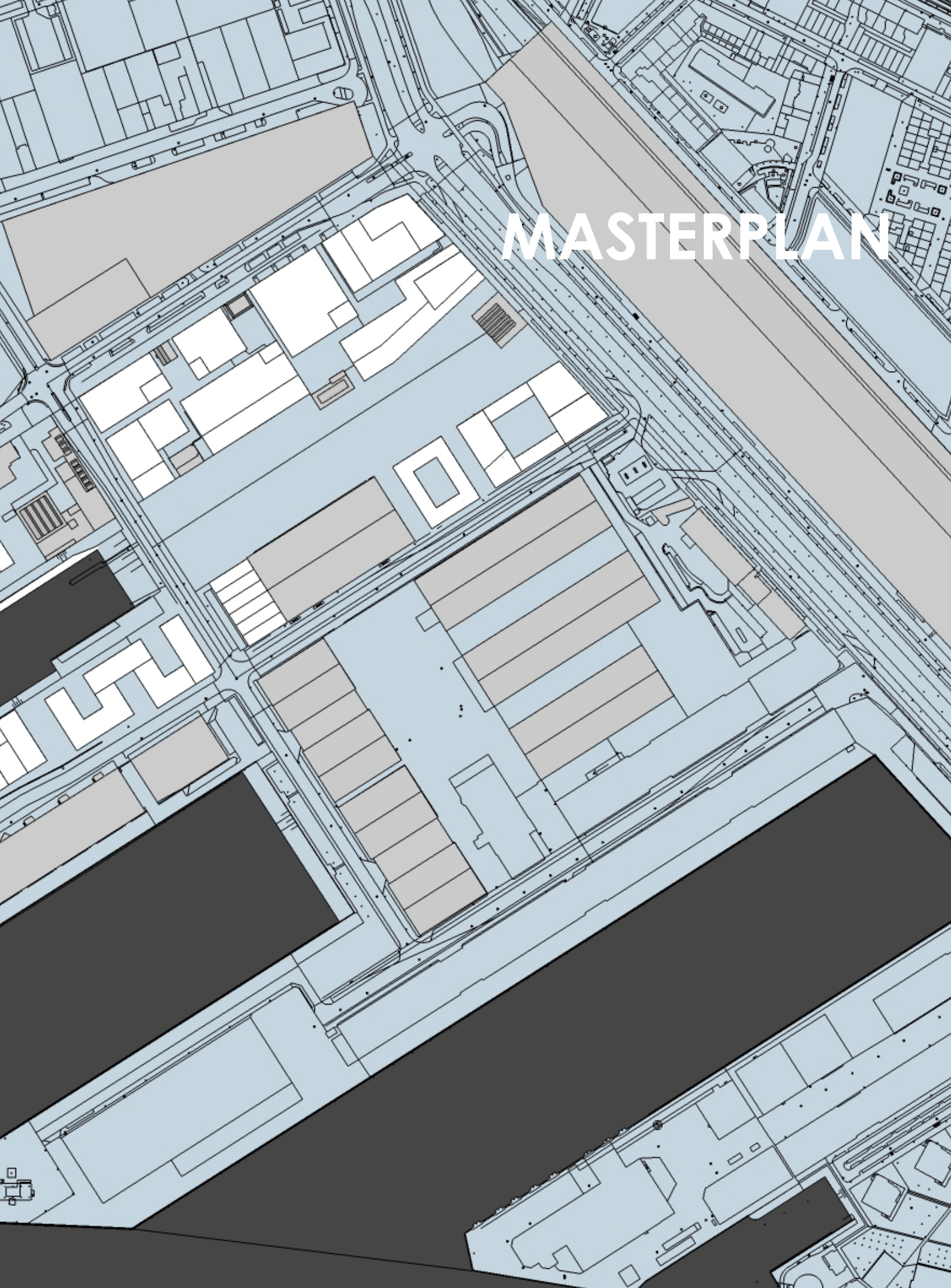
Kept Structures

Original character and structure are kept. Only minor refurbishments and interventions





MASTERPLAN



BUILDING BLOCK

The building block A4 is situated on the head of the keilekwartier, and consists out of two different parts. A tower at the side of the 'Vierhavensstraat, and a lower part going into the area. As described in the urban plan the lower part consists out of 6 layers and is the same heigt as the soundport building. Also the front facade is aligned with this building. The height of the lower part is 18 meters

The tower contains 14 floors, and the total height is 43 meters. This is the real 'eye catcher of the building and will contain appartments with a nice view over the new park, the 'dakpark' and the skyline of Rotterdam.

The shape of this building didn't change a lot during the research tutorial. The reason behind this is that the shape of this building was really thougt out in the urban plan. All the lines of this building are based on surrounded buildings, and also the shape of the space between the buildings was carfully shaped out to keep the fine meshed structure olf this area.

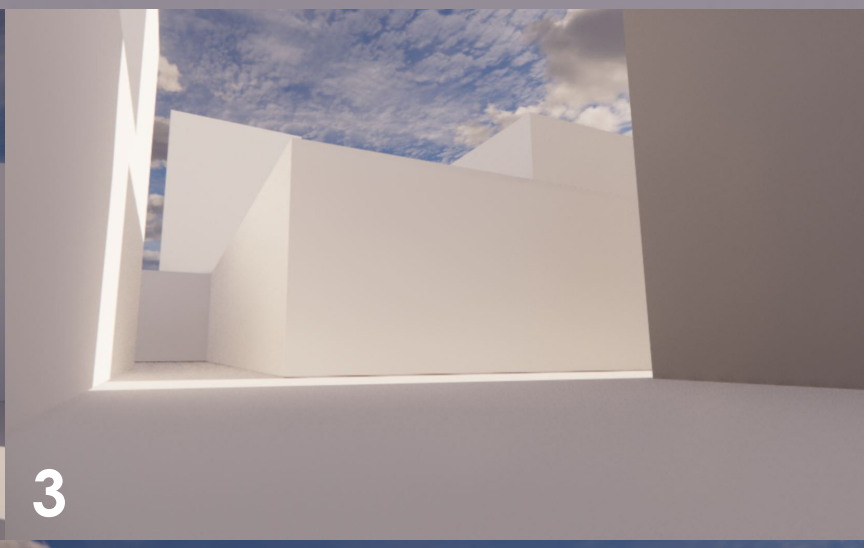
This shapes in between can be seen as cavities (altough they are surrounded by Solids). They are carfully carved out of the building blocks to create a fine meshed area, that at some point feel as a maze, but due to the placed towers always provides direction.

Also the places where the higher levels lay back (like the tower are carefully thought of) For this reason i tried to change as less as possible to the shape of the building.

When i looked to the building and 'walked around it' all these decisions worked, and made the scale of the building look and feel smaller than it is. The diffterent heights and corners worked good, and also the size looked good. All the different parts of the building were in proportion with eachother.


1


2


3


4

CAVITIES

One of the most characteristic elements of this area are the cavities created by the surrounded buildings. On this little squares is place for small terraces. These places provide shelter and giving this neighbourhood it's identity.

The shape of the building is really important for creating and shaping those cavities. In the urban plan the outlines of the building thought out carefully. This results in a cohesive whole, and moving these outlines would change the whole area. Thats why i decided to keep the outlines of the building the way they are, and also the heights of the different parts stay the same. (Higher is not allowed and lower is a waste of floorspace.

The shape of the building is also challenging to fill with dwellings because of all the slanting walls. But this also gives the bulding as a whole, but also the seperated dwellings identity.

All the proportions of the different parts of this building are carfully matched. This makes the building as a whole a nice compostition. and the different roof levels are a good possibility for collective outdoor space.

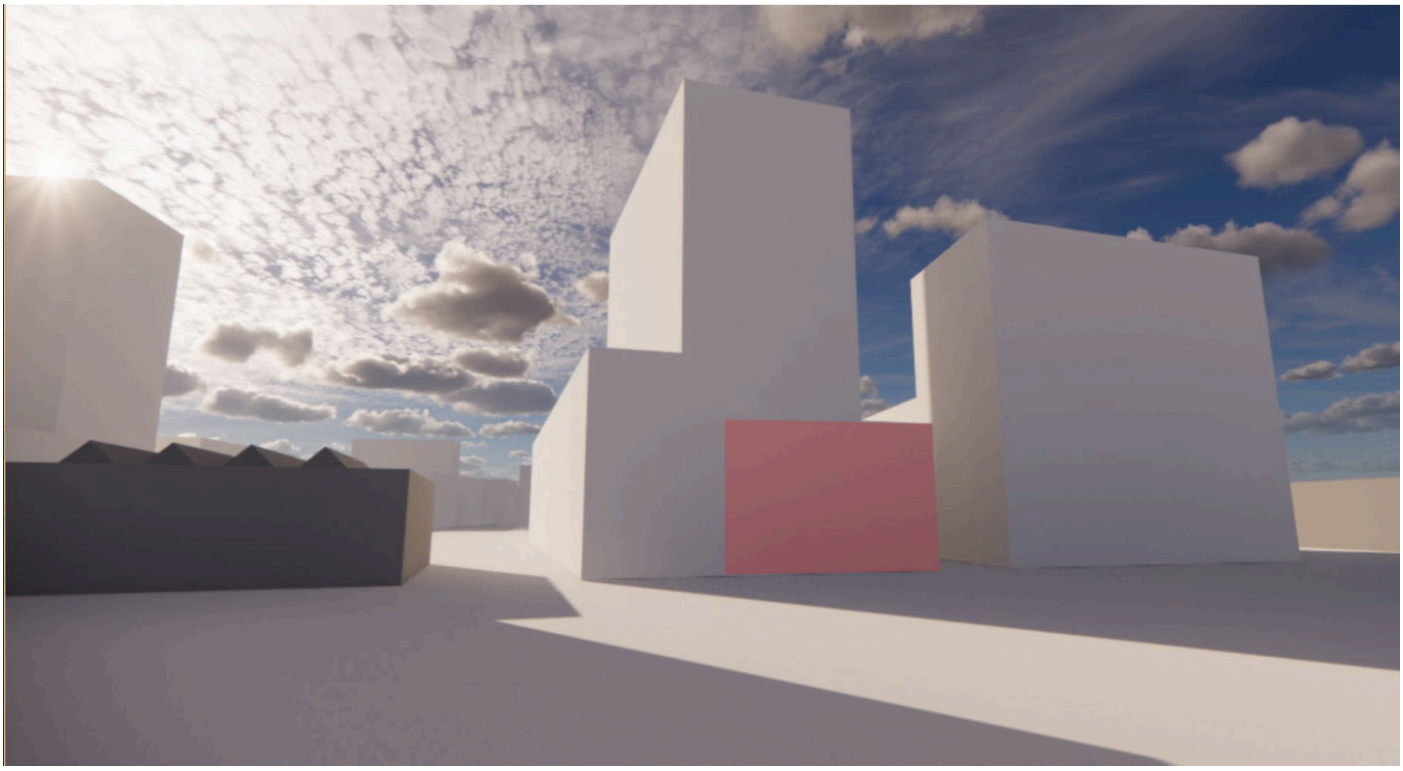
DAYLIGHT

For a residential building daylight is the most important aspect. The daylight as shown in the picture is the situation around 12:00 PM on a spring day. On the park side of the building the daylight isn't a problem. The situation here is quite ideal. On the other side of the building (Which is the North) there is a low amount of sunlight. For the lower part there isn't a big problem. Sunlight will reach the facade indirect, but in the part between the two higher towers there is not enough sunlight to place one side oriented dwellings.

But te sunlight is not the only problem on this side of the building, also the depth of the building is not suitable for dwellings, and because of the tower on top it's not an option to crave out an hole in the block.

Thats why i decided that at this place the makers will be placed in the building. (the red part) Here will be designed a wing of the building which contains working rooms for the robotic companies. There will be a plint with a height of 6 meters, and two layers on top of that with a height of 3 meters.

By putting the makers in this part of the building, the rest of the plint can be filled with houses.



CONCEPTUAL DESIGN

From the outside the building is shaped, but now it's time to have a look how this building will work and function at the inside. What kind of dwellings are placed, how are they placed in the building and how are they accessible? How is the collective space defined, and how is this all connected to the makers in the same building?

The outcome of the research is the starting point for this phase in the design. For the Knowledge workers it is desirable to design a building with studios (±50 m2) and apartments between the 60 and 100m2.

The building exists out of three parts. The lower part, the tower and the makers part. These 3 parts are folded around eachother which connect the different parts of the building into one composition. By alternating the facade structure and materials you can distinguish these different parts.

The shape and the depth of the building is a callenge. With a building depth of 25 meters it is impossible to make an inner courtyard, which result in a corridor acces. But for a corridor buiding 25 meter is quite deep.

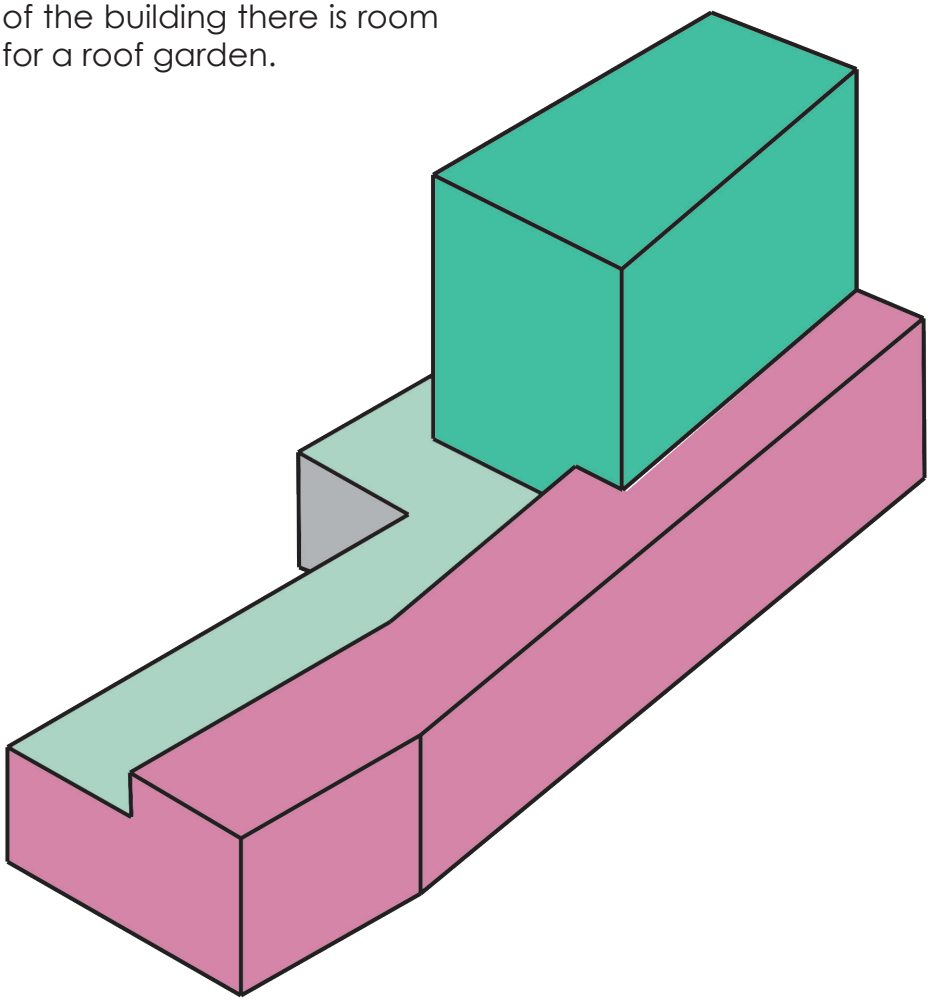
On the top of the lower part of the building there is room for a roof garden.

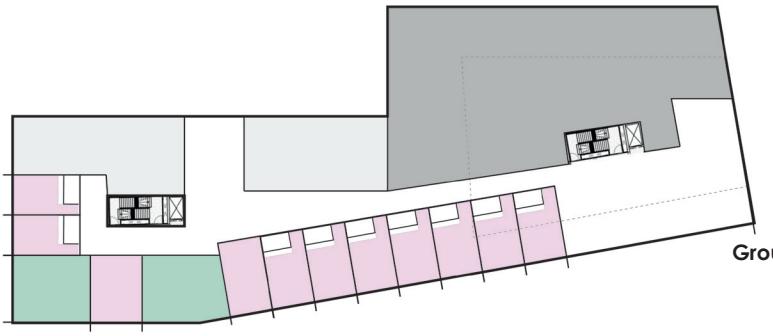
STUDIO

APARTMENT

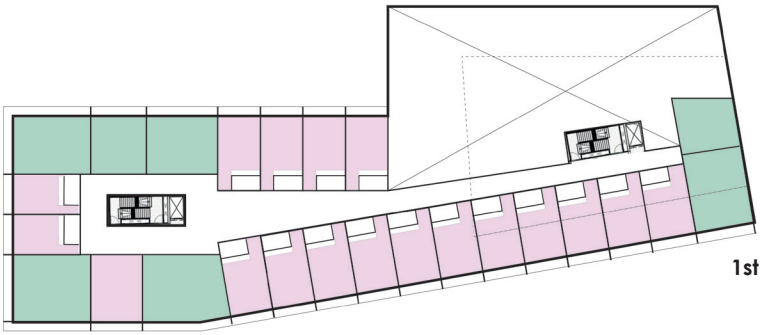
MAKERS

COLLECTiVE

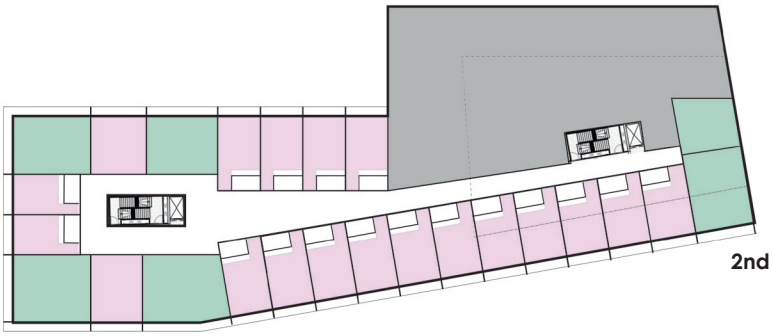




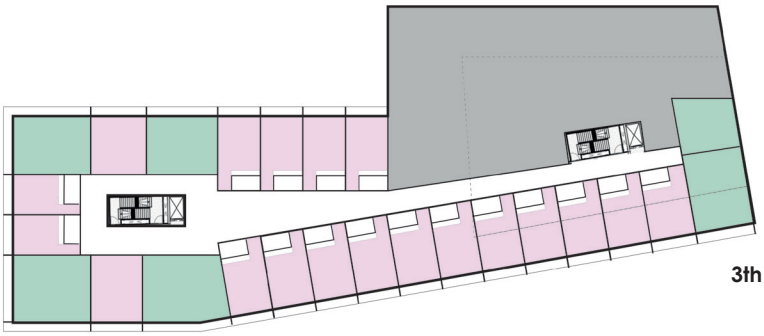
Ground Floor



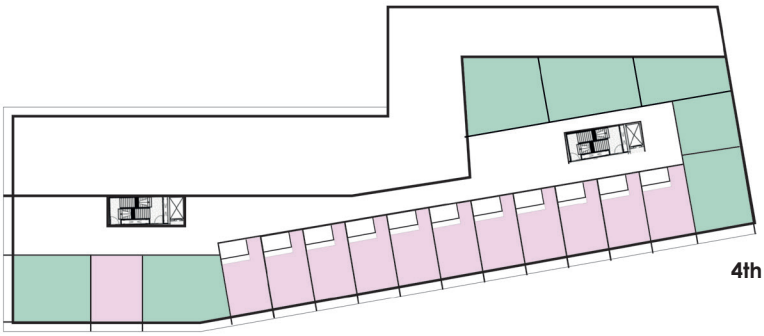
1st Floor



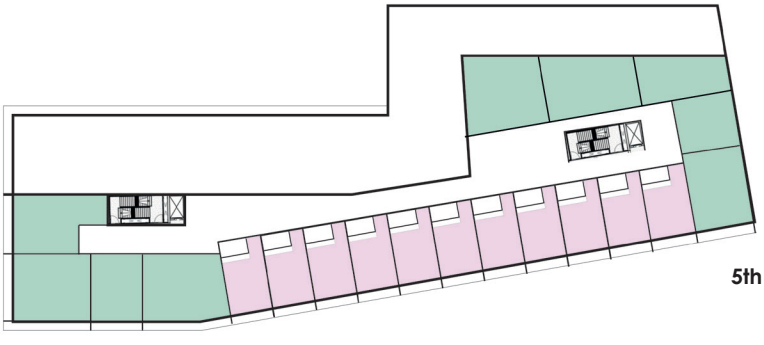
2nd Floor



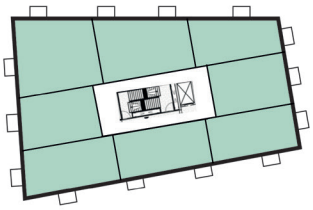
3th Floor



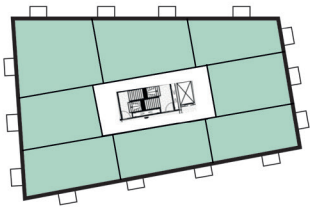
4th Floor



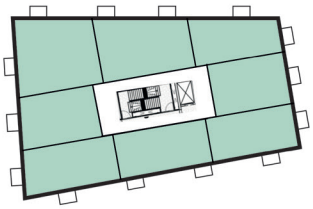
5th Floor



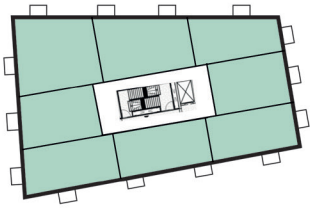
6th Floor



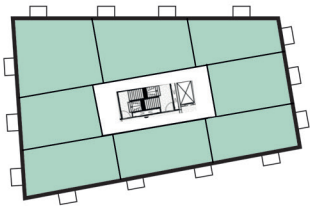
7th Floor



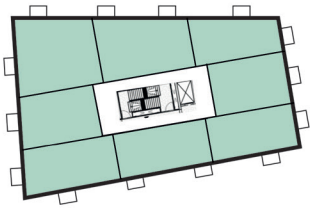
8th Floor



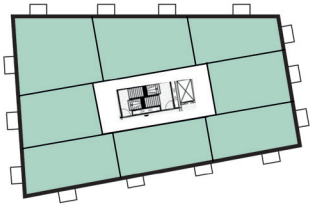
9th Floor



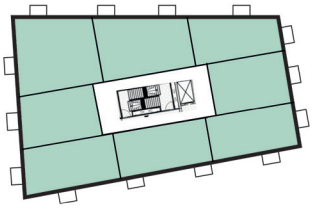
10th Floor



11th Floor



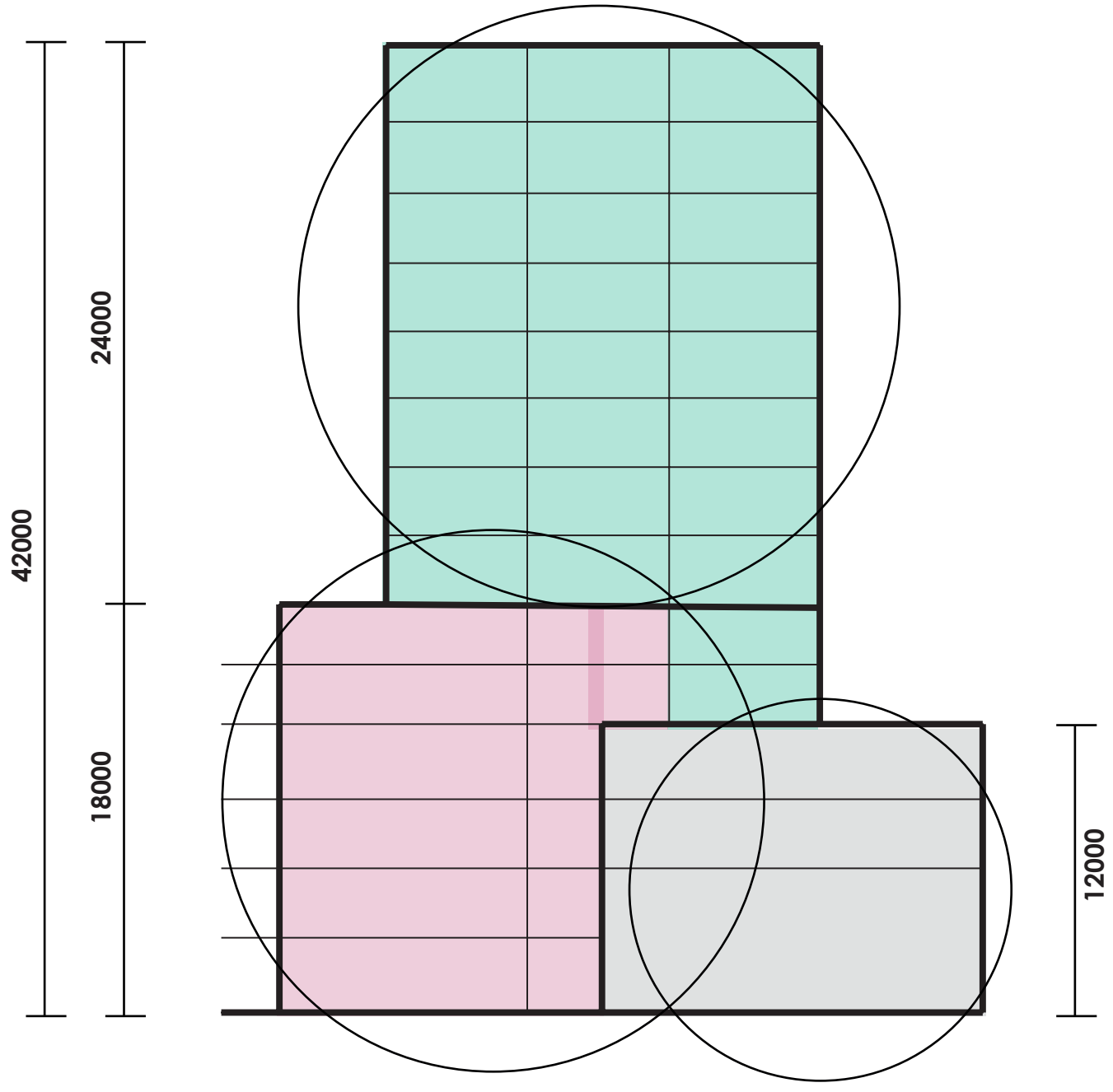
12th Floor

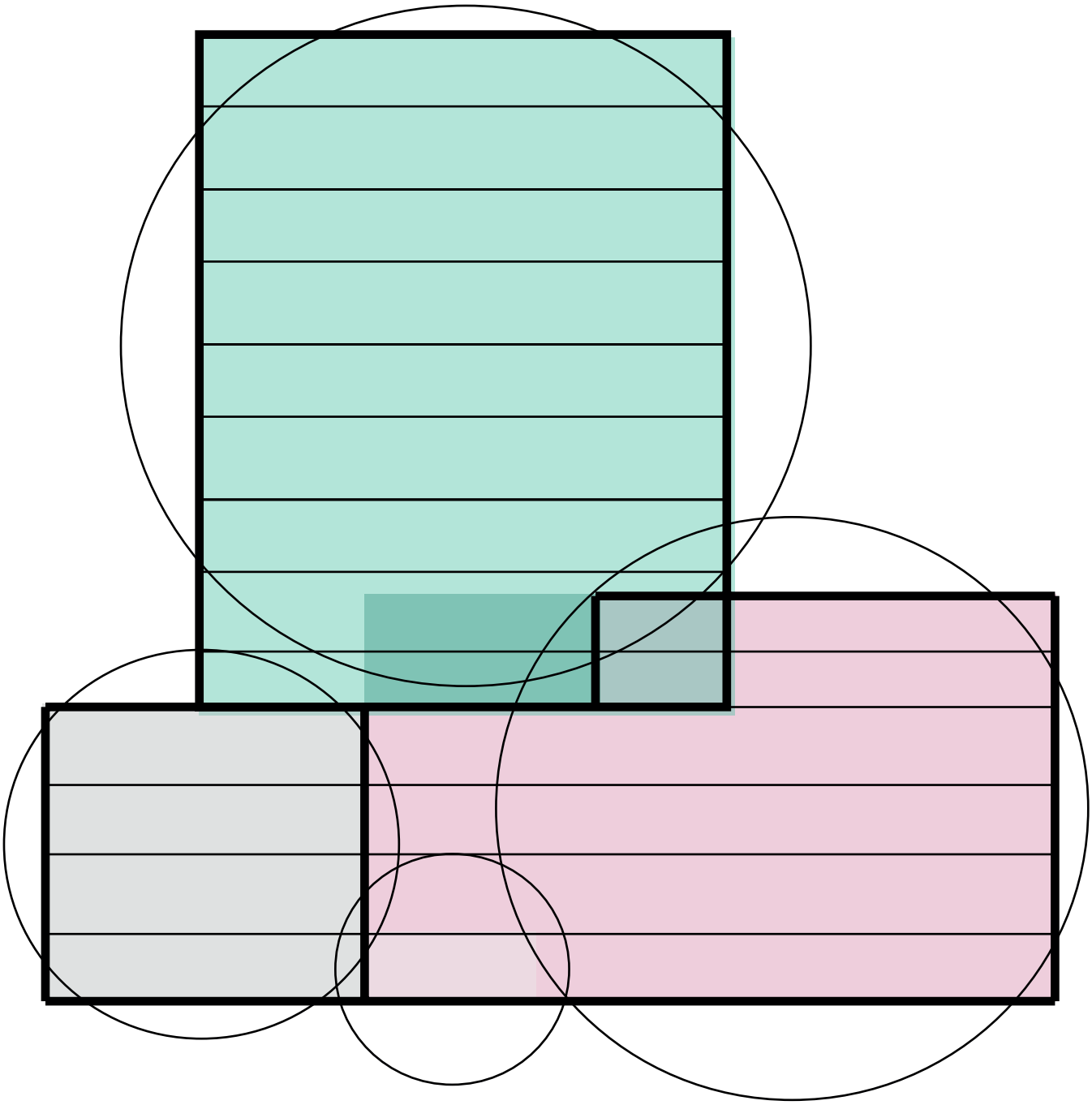


13th Floor

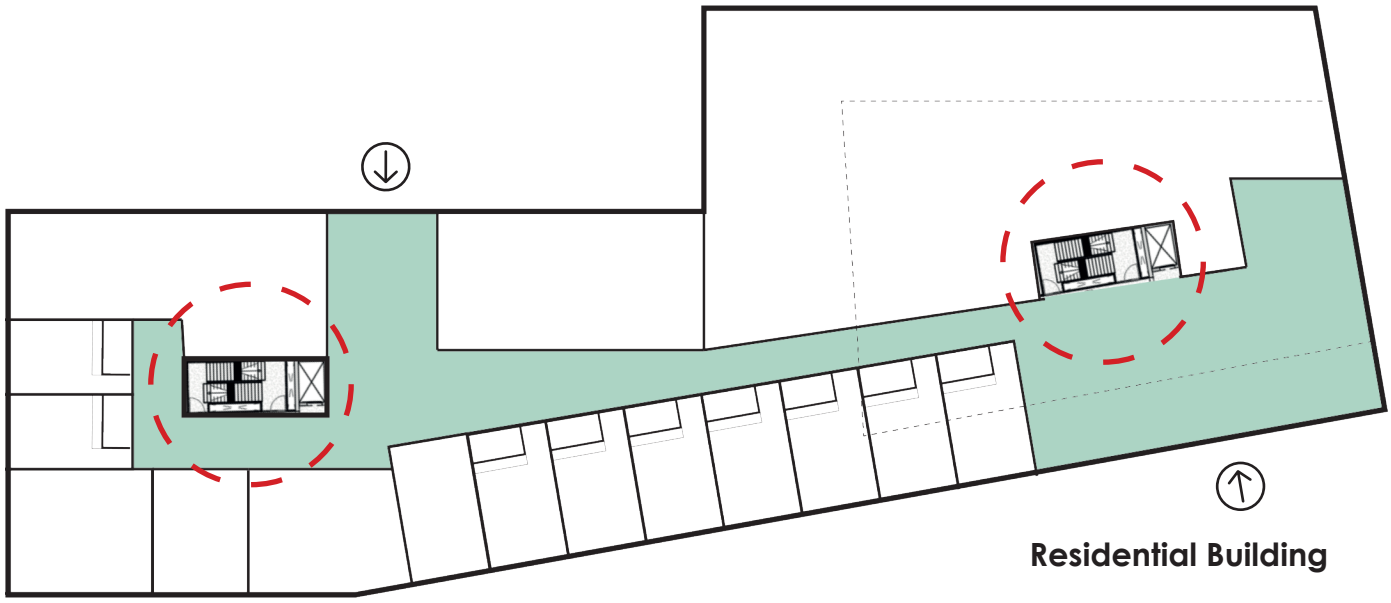
1:1000

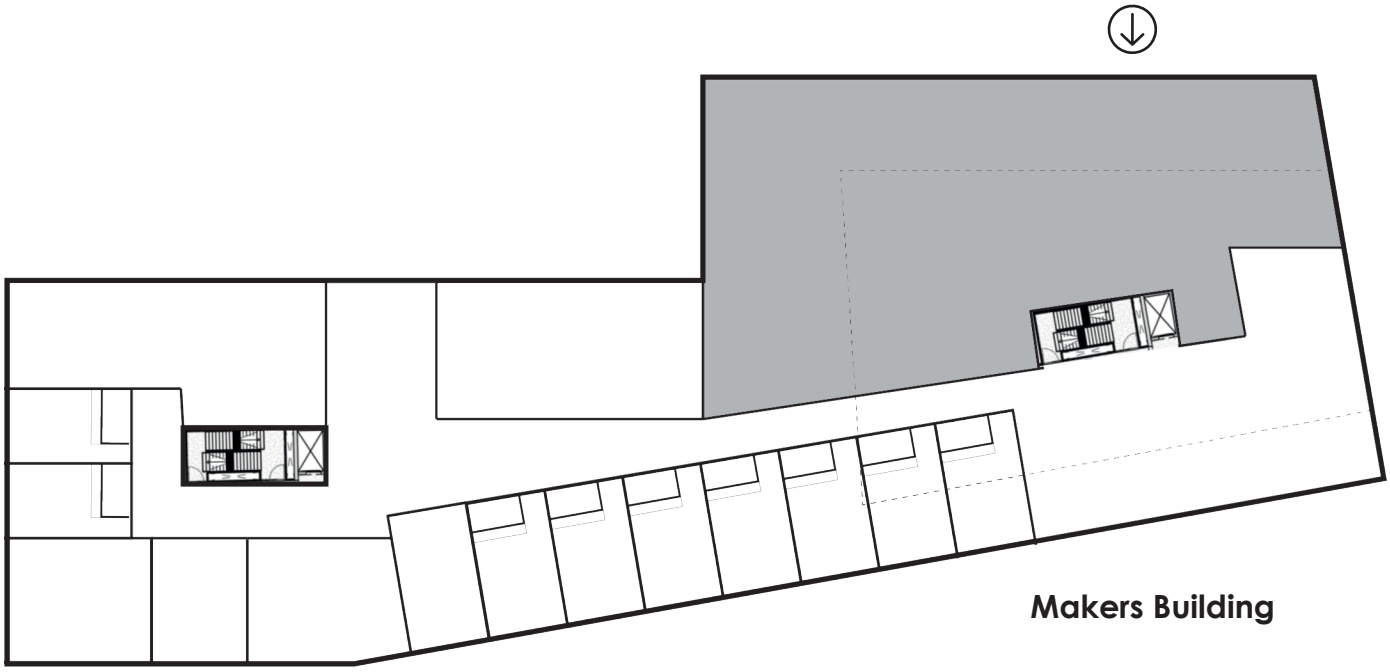
CONCEPTUAL SECTION



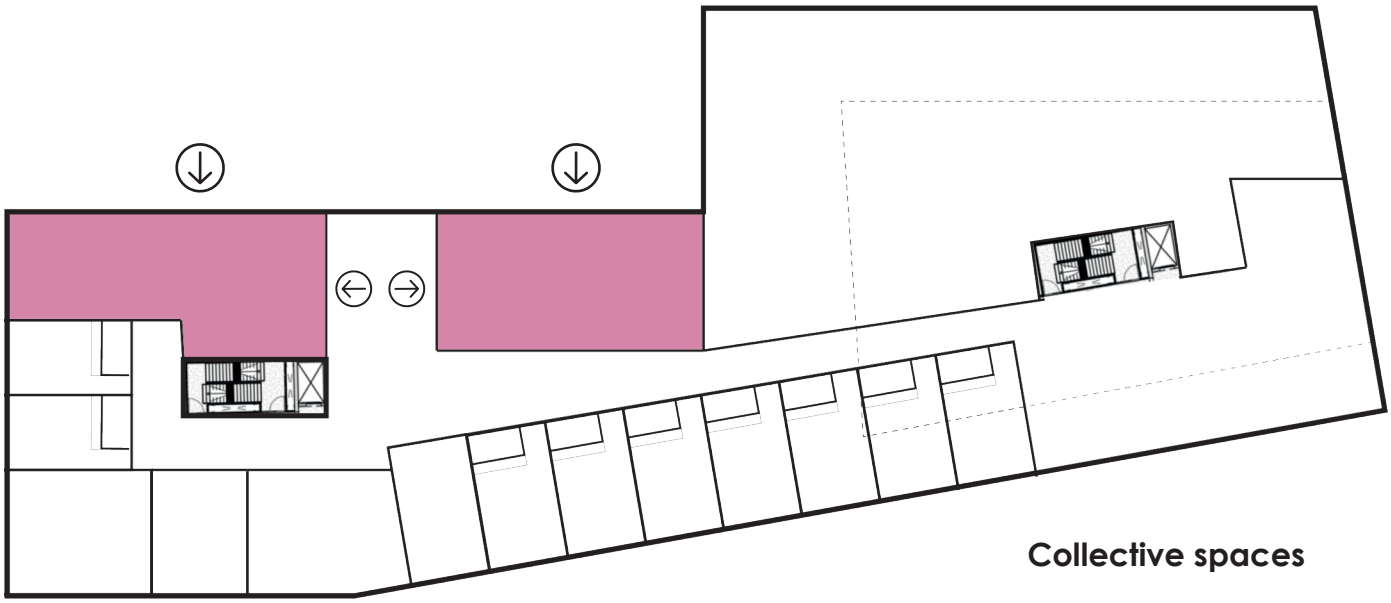


ACCESSIBILITY

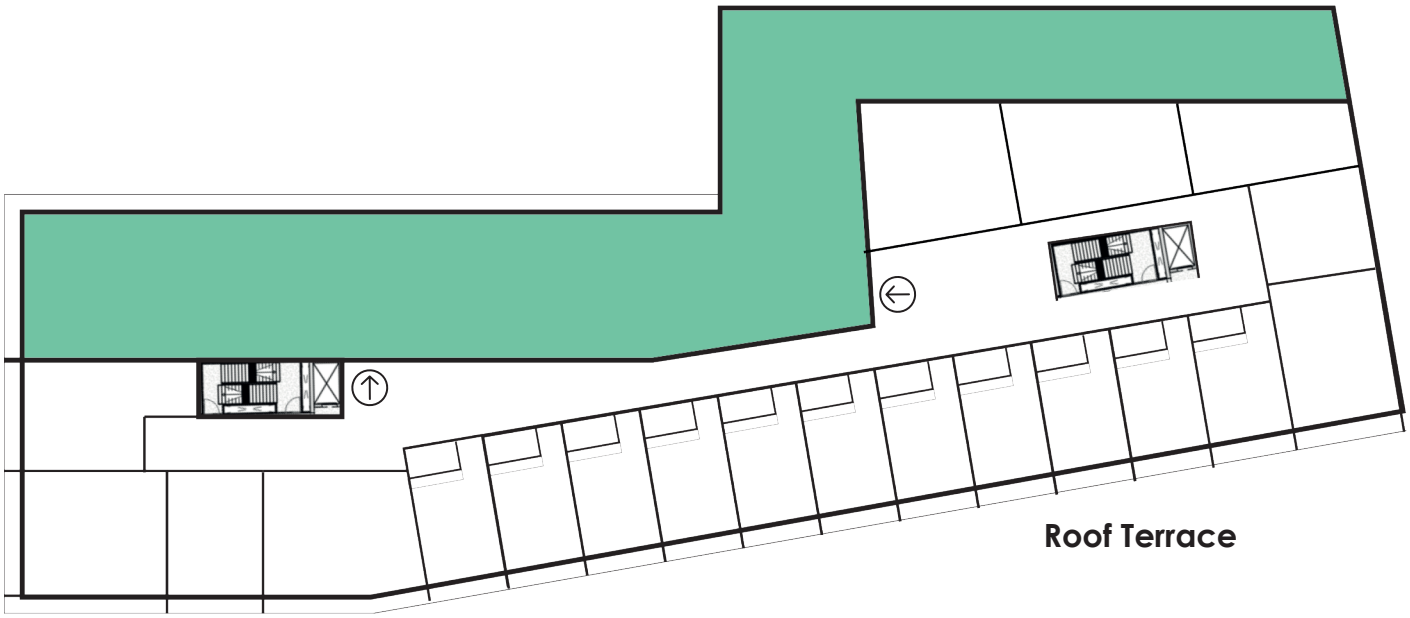




COLLECTIVITY



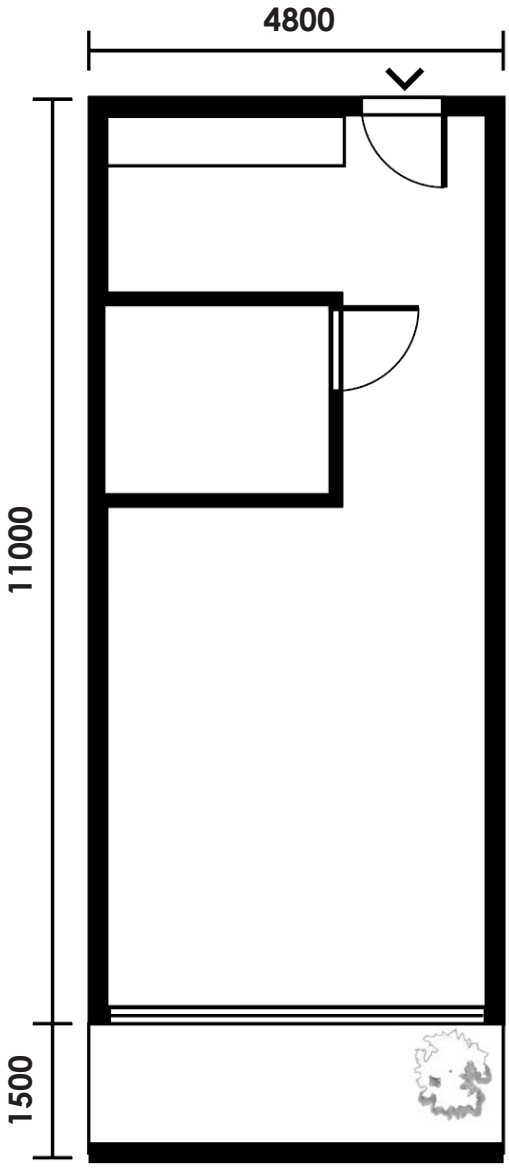
Collective spaces

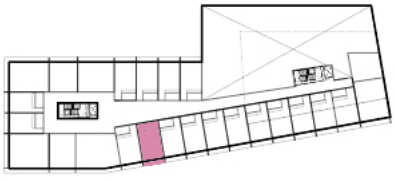


Roof Terrace

CONCEPTUAL DESIGN

Studio





In the lower part of the builidng most of the planned houses are 50 m2 studios which have a one side orientation.

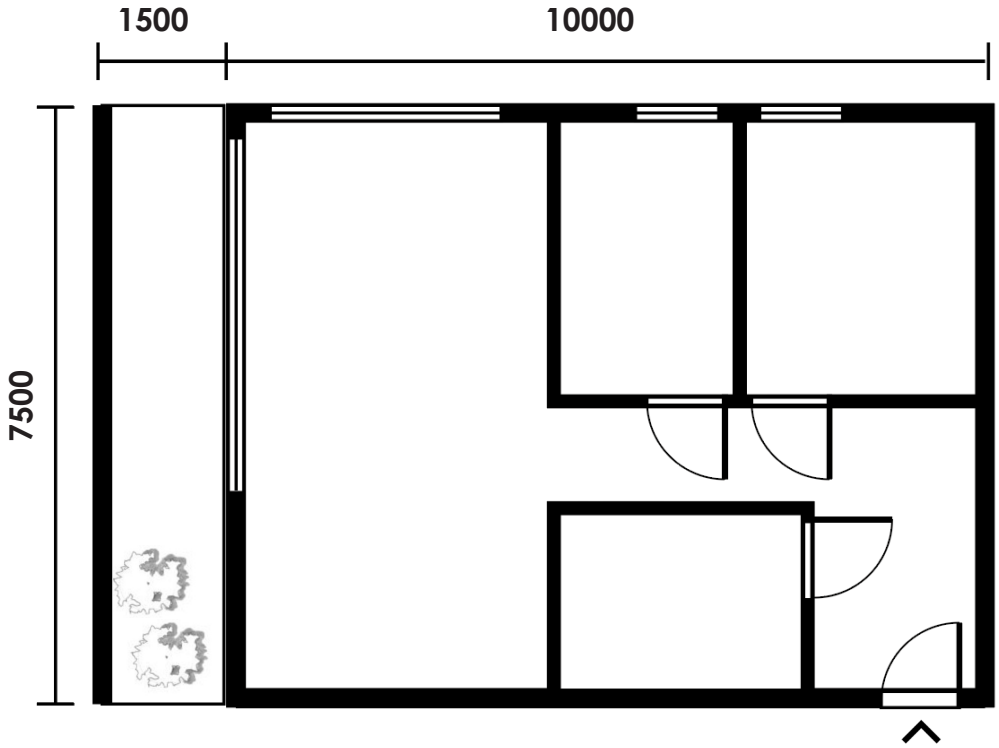
The depth of these stdios is a challenge because the corridor side of this studio doesn't recieve enough daylight and can't have natural ventilation.

Placing the kitchen on this side was a solution. By placing the kitchen first followed by the bathroom the problem of the open kitchen is also solved. In a studio dwelling it's comfortable to have your kitchen 'seperated' from the rest of the room because of the smell during cooking.

By making the facade mostly of glass enough daylight can enter the room, This facade also can be opened to enter the balcony.

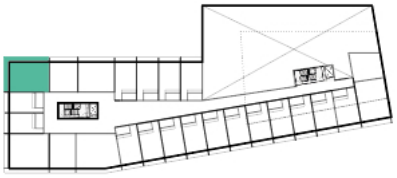
CONCEPTUAL DESIGN

Apartment



Most of the apartments are situated in the corners of the building. This corners have a two-sided orientation, which make it possible to add multiple rooms to this dwellings.

The apartment is this building are 2- or 3 room apartment varying between 70 m2 and 100 m2.



The conceptual apartment above is existing out of a large livingroom with open kitchen, a studyroom , a master bedroom and a bathroom. From the livingroom it is possible to enter the balcony.

In contrast to the uniform design of the studios, the apartments all have their own unique shape.

GRADUATION PLAN

Personal information	
Name	Tijmen Dijk
Student number	4303458
Telephone number	
Private e-mail address	info@tijmendijk.nl

Studio		
Name / Theme	Architecture & Dwelling, Dutch Housing	
Main mentor	T.W. Kupers	Architecture
Second mentor	J.P.G. Holst	Building Technology
Third Mentor	P.S. van der Putt	Research
Argumentation of choice of the studio	The housing shortage in the Netherlands is getting bigger every year. Especially for people of my age, who are just graduated it is really hard to find a fitting house. For that reason the theme of this studio is really actual, and that attracted me to learn more about this theme and to search for a solution for this problem.	

Graduation project	
Title of the graduation project	Knowledge Workers in the city
Goal	
Location:	Rotterdam, Merwe Vierhavens
The posed problem,	At this moment there is a large housing shortage in the Netherlands, which is caused by a growing population but also by the fact that the average family composition is changing and the design of the average house doesn't fit this new compositions. This results in one-person-households living in family homes meant for 4 (or more) persons.
research questions and	How to create a building block which perfectly meets the requirements and expectations of the knowledge worker in the city?
design assignment in which these result.	Create a building block, totally focused on the knowledge worker which is divided in three different categories. Singles, Young Couples and Expats. Combine their living preferences with as much collectivity as possible and fit this into the new makers district of the Merwe Vierhavens. Strengthen the design by making a combination of living and working in the building.

Process

Method description

The research in this project is done in three parts. All these parts you can find in this research report.

1. User Group Research
At first there is a research into the future users of this building. This is a combination of literature studies, Case studies and research reports of other municipalities in the Netherlands about this subject. In this part the User group of 'Knowledge Workers' was decided, and the preferences of this group were defined.

2. Group Research into collectivity
The second part is a group research into collectivity in residential buildings around the world. This study is done by analyzing 15 case studies. The focus in this research was the relation between collectivity and living, how collectivity was implemented in the design and what kind of collectivity there is in residential buildings. How does this collectivity work, and how can this be implemented in our own design.

3. Research by Design
For the design there is done a research by design trough virtual reality. By walking around the designed building block you can see the impact of different choices and change the height and the forms of different parts. Due to the Corona restrictions this part couldn't be done the normal way, so the virtual reality was replaced by enscape to make it possible to work from our home offices.

These three parts of the research are all combined in the conceptual design.

Literature and general practical preference

For this research I used different kinds of literature. It started with newspapers, which showed the urgency and actuality of the problem. I've read a lot of literature about this subject, but the most useful were the research reports from municipalities like Delft which already did a lot of research about this subject.

Reflection

1. The main theme of the studio topic is to see the relation between collectivity and the living environment, in a high dense metropolitan area, and to relate this to a target group. The topic I've chosen is very interesting for this subject because this users (the knowledge workers) live due to the costs in relatively small dwellings, and also use the city as their 'Livingroom' At one point they absolutely want their privacy and their own facilities, but on the other hand they are openminded to share some facilities. In the end the research will lead to a building in which the stated problems will be solved

2. In this research I've had a look how we can build denser in the future, and to fit the size of the dwellings better to a selected group of people. In the current situation where we have to build 1 million homes to have enough living space for everybody it is relevant to search to new ways for building denser, while the living pleasure increases.

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