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Living independently in a stimulating residential environment for young people with a mild intellectual disability

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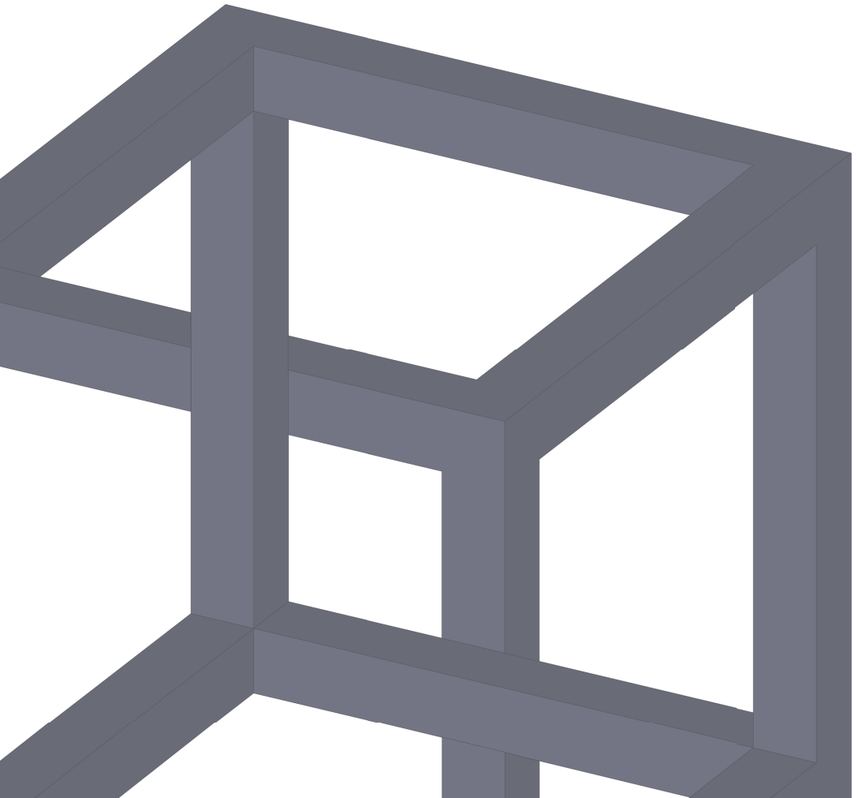

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Graduation Booklet
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PREFACE

Dwelling has always fascinated me, since elementary school I want to create what dwellers really need.

As a future architect I feel responsible for the safety and quality of the residential environment. A home forms the basis of everyone's life. Where life is personal, each home should that be too. Providing customization is one of my most important values.

Over the past year I followed the Dutch Housing Graduation Studio '*In search of a Humane Metropolis - The future of metropolitan housing in the Netherlands.*' The overarching theme is collectiveness as the basis for circularity. With our eyes on the '1M Homes' question, there is a challenging task for architects to create high quality and affordable housing for a diverse population.

Providing a stimulating residential environment for young people with a mild intellectual disability became my personal assignment.

This graduation booklet will give a clear overview of my graduation process, where I will explain my project and reflect on my personal journey.

Last year was challenging. Not only because of the stressful moments of graduating, but even more due to the ongoing worldwide pandemic.

It took me some extra effort to switch to online conservations and became quite challenging on a mental level. The weekly online meetings helped a lot in staying connected with my fellow students and were always fun due to our supportive tutors.

Therefore I would like to thank Theo, Pierijn and Ferry for all the guidance and support during my process.

Last but not least I want to thank all my fellow students, family & friends for putting a smile on my face, even in difficult times!

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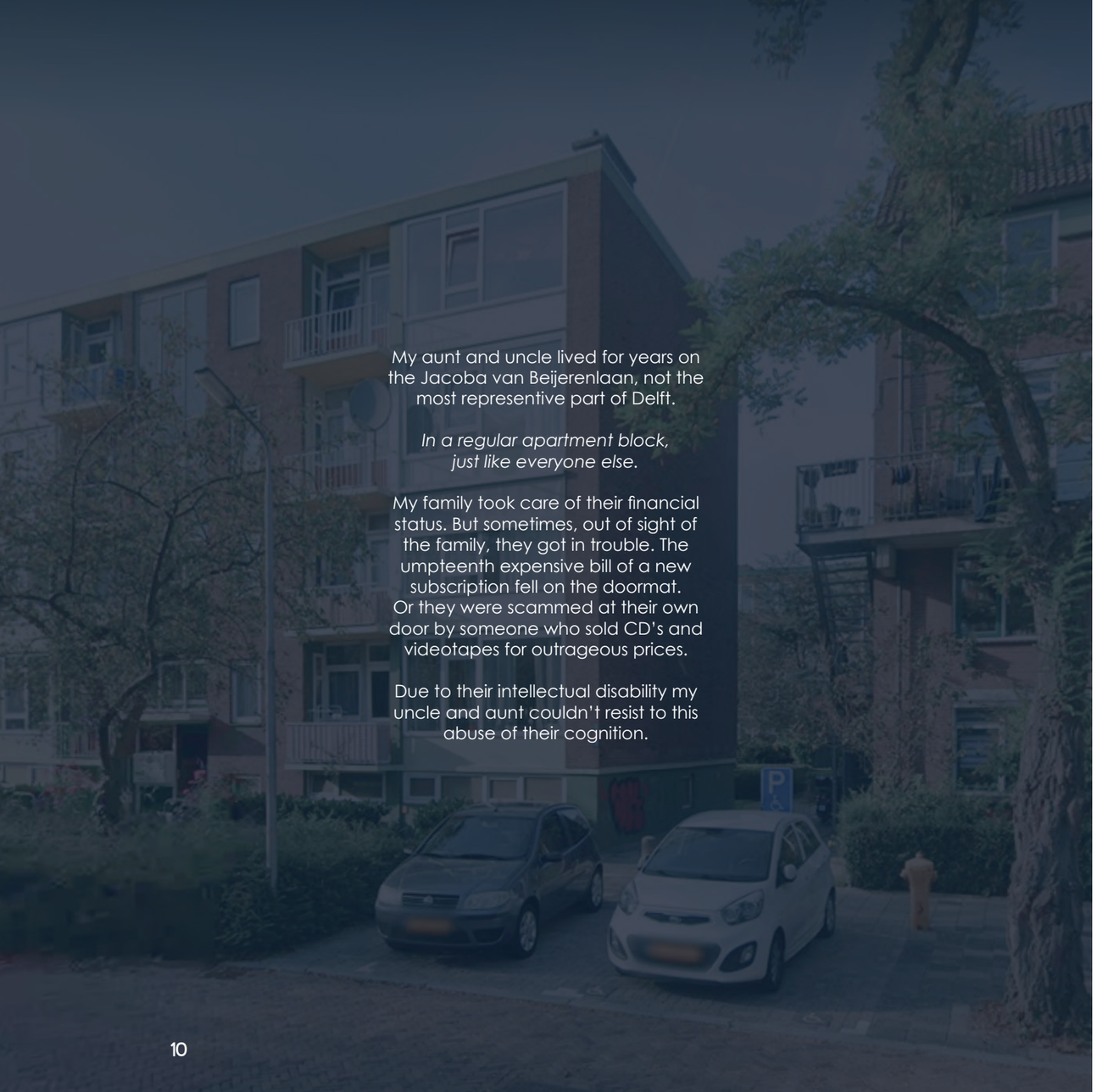


My aunt and uncle lived for years on the Jacoba van Beijerenlaan, not the most representive part of Delft.

In a regular apartment block, just like everyone else.

My family took care of their financial status. But sometimes, out of sight of the family, they got in trouble. The umpteenth expensive bill of a new subscription fell on the doormat. Or they were scammed at their own door by someone who sold CD's and videotapes for outrageous prices.

Due to their intellectual disability my uncle and aunt couldn't resist to this abuse of their cognition.

INTRODUCTION

The Dutch Housing Graduation studio is called 'In Search of a Humane Metropolis - The future of metropli-tan housing in the Netherlands'. The greatest challenges in this studio are a high-density and inclusive city.

Inclusive means to me 'for everyone'. Another challenge we are currently facing in the Netherlands is the one of '1 Million Homes' by 2030. But such a huge assignment raises the ques-tion if those dwellings will be inclusive enough for all different users.

My gradution project focuses on a stimulating residential environment for young people with a mild intellectual disability (MID).

This graduation booklet gives a clear overview of all conducted research in my gradution project, completed with the final design and technical drawings. It forms the crown on my graduation process.

Research and design are inseparable connected in this process. Where the research part focusses on defining the user group and the makers, the design will translate these challenges into a new building. It is an circular process, where the research will con-stantly influence the design and the design raises new questions for the research.

This booklet starts with the research part, where the community of the building is introduced. Together with the plan analysis this forms the input of the architectural design.

The plan analysis consists of research towards collectivity and some case studies. The collectivity was part of an overarching research with our stu-dent group, which is integrated in the conceptual design. The case studies were selected on the base of com-parability with the topic research.

From there the design process start-ed with a new urban master plan for M4H, initiated and designed by our group of 15 students.

The research is implemented in the conceptual design. These ideas are elaborated in the architectural de-sign, followed by technical drawings.

Finally, I will end this graduation book-let with my first struggles in my journey at university and how that changed my position in the architectural work-field. My journey at university ends here, but my personal story continues.

M4H

ROTTERDAM

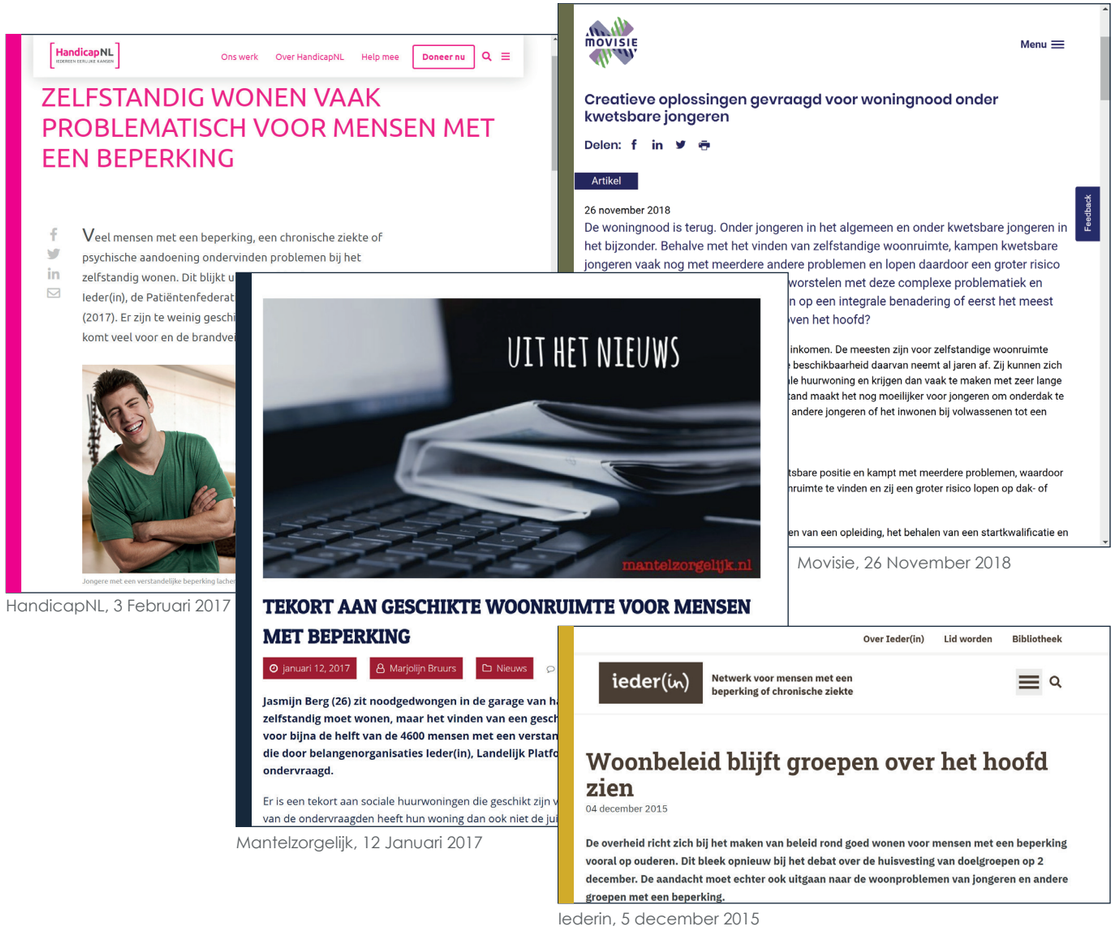
ROTTERDAM.
MAKE IT HAPPEN.

Looking out over de skyline of Rotterdam you notice the Port of Rotterdam and the urban development. These are the two main ingredients of the intended plan area of the municipality of Rotterdam to create a live-work environment for creativity, innovation and making together. This plan area is called M4H, an abbreviation of Merwe-Vierhavens. Collectiveness is one of the basic principles in the view on this plan.

Plans are there to transform this to the 'Make It Happen' region of Rotterdam, where the focus is on innovation, entrepreneurship and talent development.

We are currently facing a huge dwelling assignments in the Netherlands: we have to build up to one million homes in 2030 (ABF Research, 2017). Due to an expectation of the growth of the population there is need for affordable and suitable housing solutions in the Netherlands (TU Delft, 2020). With the task to build up tot 75.000 new dwellings each year, we need to question ourselves if those new dwellings are suitable for everyone? Aren't we losing our eye for the actual dweller? We have to pay some extra attention to a smaller group of this growing population.

RESEARCH



HandicapNL, 3 Februari 2017

Movisie, 26 November 2018

Mantelzorgelijk, 12 Januari 2017

Iederin, 5 december 2015

THE COMMUNITY

RELEVANCE

Around 15% of the Dutch population has an IQ between 50 and 85. 142.000 Of those people have an IQ lower than 70, wherefrom around 74.000 people with a mild intellectual disability (VGN, 2019). These people are not social self-reliance in one or more ways and need some support. Also in the group of people with an IQ between 70 and 85, a substantial part has a mild intellectual disability. In 2018 there were in total circa 1,1 million people with a mild intellectual disability (Woittiez et al., 2019).
It's not directly visible, but they often have trouble in keeping up with the increasingly complex society in social areas. Problems in the field of the social self-reliance can occur on multiple levels, among which social communication, health, safety, work and the ability to live independently (Woittiez et al., 2019).

Before 2015 people with a mild intellectual disability could rely on the care for the disabled for their housing. Since the introduction of a new law – Wet Maatschappelijke Ondersteuning (WMO) – in January 2015 this was no longer possible and they have to follow the regular process. (Architectuur Lokaal, 2016). However, because of their cognitive and financial problems, they often have little or no chance to successfully complete this process. *"Zij weten zich in de regel met moeite staande te houden en zonder steun en zorg kan dat leiden tot problematisch gedrag"* (Architectuur Lokaal, 2016, pp. 4).

It can be difficult for the parents to take care of their children when they stay longer at home, but there is no longer an alternative due to the changed WMO.

INCLUSIVE SOCIETY

A few years ago, numbers of the research of the SCP (Social Cultural Planning Agency) showed that the demand for care for people with an intellectual or physical disability increased each year strongly (Woittiez et al., 2014). At that time, the most outstanding declaration for this decrease was the increasing complexity of our society (De Haan et al., 2018). The consequences of this trend has a lot of influence on the daily life of people with a mild intellectual disability.

It's essential to know people with MID are just people like you and me. They have the same needs, dreams and wishes. Only they have trouble in moving forward in life, because making social contact is not naturally for them (Van Jaarsveld et al., 2016). Besides a lower IQ than the standard average of 90 - 110, people with MID have trouble in their social self-reliance. They need some support in social fields, like social skills, daystructure, finance, work, doing the household and more.

Till 2015 people with MID were assured of healthcare by the Dutch law AWBZ (Algemene Wet Bijzondere Ziektekosten). From 1 January 2015 there is only right to this kind of healthcare if intensive care and superivision is required all day long. This no longer applies to people with MID. For their healthcare they are now assured by the new law, WMO (Wet Maatschappelijke Ondersteuning. But a substantial difference between the AWBZ and WMO is the duty of care. Inside the AWBZ people have the right to healthcare.

But in the WMO these people should be compensated, with an emphasis on should. Municipalities are not required to provide services for the healthcare of these people (Woittiez et al., 2014). People with MID are now responsible for their own functioning and now have to apply for help and support by their own. They have to ask their own network for support first. This network also includes their neighbourhood or district. Only when there are no possibilities for help and support from their own network or from voluntary organizations, they are admitted to the formal help and support by the WMO (Woittiez et al., 2014).

The importance of a valuable neighbourhood is recognized by the Piramid of Maslow (Figure 1). It's also called the Theory of Human Motivation. It shows the building blocks on which our statisfaction is build. Maslow assumes when a 'lower' need is statisfied, more space opens for higher needs (Movisie, 2019). The need for a safe living environment is on the second place, after the physological needs.

The neighbourhood can contribute to someone's statisfaction, because it can fulfill more levels in the piramid. But it is also a building block which must be statisfied, before someone can work on his self-development.

Figure 1 - Piramid of Maslow (1943), from: Movisie (2019).

According to Dannenberg (2016) there are four different scenario's about how the society can deal with vulnerable people. The scenario's also reflect the ideas about vulnerable people from the past and what should be the focus from now on.

The most easiest way to deal with vulnerable people was to exclude them from our society. Unfortunately this still happens at this time. Close to this is separation, where people are still not part of our society but are separated from it. Well-known examples are the mental health institutions in the woods. From this part starts the re-integration of these people in our society. Projects with protected living are the most outstanding examples in this field of integration. But the focus now is on inclusion. Here, the people are part of our society just like everyone else. This trend of inclusion is also recognizable in different fields like education and work (Dannenberg, 2016).

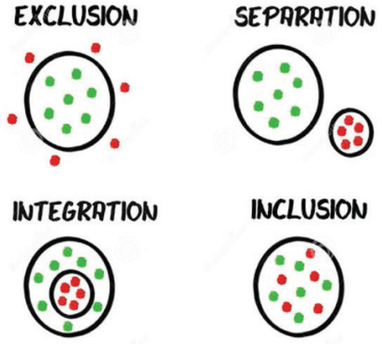


Figure 2 - Four Scenario's, from: Dannenberg (2016).

Since the entrance of the WMO, the government policy on healthcare is built on an inclusive society, but our residential environment is not yet ready for this kind of inclusiveness. The focus of the healtcare system is on living on your own, but without a suitable environment this is not going to work. Especially young people with MID are having trouble in this. Due to the changed WMO they now have to stay longer at home, because of their need for support. This is for the parents and caregivers a huge task. But also for the young people, where they have the willingness to live independently just like others (Architectuur Lokaal, 2016).

It's our task to design a user specific residential environment which is suitable for them. Young people with MID are in need of a suitable and stimulating environment, this raises the following research question:

"In which way can the design of the residential environment contribute to the social self-reliance of young people with a mild intellectual disability?"

The research question focusses on a inclusive residential environment, where the dweller can dwell independently with a little support from its personal network and neighbourhood.

DEFINITION MID

The most accurate definition of a mild intellctual disability, which is often used in the Netherlands, is the one of the Social Cultural Planning Agency (SCP). According to Woittiez et al. (2014, pp. 3) the definition of MID is:

- People with an IQ between 50 - 70;
- People with an IQ between 70 - 85 who are having trouble in their social self-reliance.

The social self-reliance is also considered as limited social adaptability. This is the case when the disabilities are causing problems in at least two of the following areas:

- *Communication;*
- *Self-care;*
- *Be able to live independently;*
- *Social and relational skills;*
- *Making use of community facilities;*
- *Make independent decisions;*
- *Functional intellectual skills;*
- *Work;*
- *Relaxation;*
- *Health;*
- *And safety.*

POPULATION WITH MID

There is no exact number of people with MID in the Netherlands, because it is hard to say who is also experiencing problems in their social self-reliance. Also the CBS (Centraal Bureau voor de Statistiek) is not familiar with an exact number of people with MID.

According to the research of the SCP, published in 2019 there are 142.000 people in the Netherlands with an intellectual disability, which means an IQ below 70 (VGN, 2019). 68.000 Of them have an IQ below 50 and the other 74.000 an IQ between 50 and 70. Furthermore, there is a group of circa 2,2 milion people with an IQ between 70 and 85.

How much of them deal with MID depends on their social self-reliance.

Although some of the literature used in the research of the SCP seems to be outdated, these results are the most representative. Out of this latest research, the total prevalence of people with MID is 1,1 milion people in 2018, with an width between 0,8 and 1,4 milion as extreme values. ***This means 6,4% of the total Dutch population deals with MID.***

There is no other research available which gives a more precise estimation (Woittiez et al., 2019).

SHIFTING PARADIGM

However the focus now is on a inclusive society, so people with MID have the same chances as anyone, this has not always been the mindset of our society. This is developed over the years, starting in early 19th Century.

Erik Dannenberg desribes in 'Van beschermd wonen naar een beschermd thuis' the terms exclusion, separation, integration and inclusion (Dannenberg, 2016).

In the beginning people with intellectual disabilities were seen as crippled and not part of our society. They were excluded from it. This changed at the time of the medical defect-paradigm, but still the emphasise was on their disabilities. Nevertheless they got care in large institutions, separated from the society. In the next paradigm, the view of the disabilities changed into that of the possibilities. When people had the capacity, they could integrate in society. New housing forms were built, where people with a disability lived in so-called 'housing-groups'. People with the same disabilities lived together in a group as an integrated form in the society. From the citizenship paradigm till now the framework is formed by inclusion. Inclusion assumes that having a place in society is a fundamental human right and does not need to be earned.

We're currently still in the citizenship paradigm, but we may question ourselves if we are inclusive enough. According to Xavier Moonen, endowed professor in MID, we still deal with a negative view and are people with MID still not always accepted in society.

"Burgers zonder beperking willen lang niet altijd met mensen met beperkingen samenleven." (Moonen, 2015, pp. 16). He is referring to Vermeer (2000), who says these people are still not fully embedded in society.

Moonen in is article 'Is inclusie van mensen met een verstandelijke beperking vanzelfsprekend?' advocating for the next step; working towards an inclusion paradigm (Figure 3).

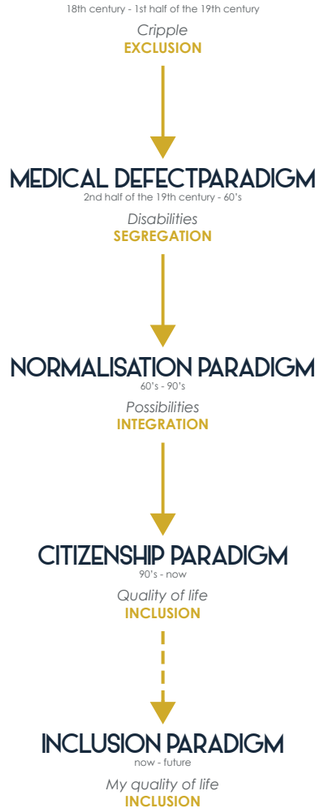


Figure 3 - Paradigms based on Gennep (1997) and Moonen (2015).

CHANGED WMO

The changed paradigm also had its effect on the organisation of the Dutch healthcare system. People with MID were now seen as full-fledged citizens, but the socialization of the care stayed behind (Brummel, 2017). In line with the citizenship paradigm, the dutch law 'Wet Maatschappelijke Ondersteuning' made its appear-eance in 2007. The purpose is that everyone in this society can participate.

The old WMO from 2007 made a re-entrance in 2015 with newer ambitions. The organisation of the healthcare system radically changed. A major difference was the disappearence of the 'Algemene Wet Bijzondere Ziektekosten'(AWBZ). It was replaced with the 'Wet Langdurige Zorg (WLZ). From that moment, people with disabilities could only apply for care from the WLZ when care and supervision is essential all day long (Woittiez et al., 2014). For instance, they have the right on housing, personal care, support, treatment and transportation. Other functions like support and guidance moved to the WMO, this are exactly the needs of people with MID.

The WMO provides the legal framework for the policy on support of municipalities. This kind of support is meant for people with physical, mental, intellectual or psychosocial disabilities. But the duty of care changed with this transition. Inside the AWBZ people have the right to care. But in the WMO these people should be compensated, municipalities are not activily providing services for the care of these people (Woittiez et al., 2014). People with MID are now responsible for their own.

According to the WMO, they have to ask their own network for support first before they can apply for support of the municipality. This network also includes the neighbours of the residential envrionment (Woittiez et al., 2014).

When someone receives a WMO-indication of the municipality he has the right on healthcare. This can be compensated in two ways:

+ Natura
  This means the municipality decides which care insti tutions are involved and payed of the budget.

+ Persoons Gebonden Budget
  PGB is the personal budget. The client will receive the compensation and can decide by its own where he will spend the money on. The municipality is not in volved. This means also keep ing a financial adminsistra tion, which can be hard for someone with MID.

The WMO-indication als says something about the kind of healthcare. With a WMO-indication there are less hours per week available for support then with an WLZ-indication. But for some people with a WMO-indication, support is needed. Most of this support is currently given by the parents at home.


SELF-LOVE

THE ACTUAL DWELLERS

The focus is on young people with MID who have the willingness to live independently, just as there friends. They often lived at their parents before who took care of them. When they are moving out, they need to improve their social self-reliance in order to fully live independently.

AGE BETWEEN 18 AND 23 YEARS

All actual dwellers are in between the age of 18 and 23 years. Till the age of 18 years, young people with MID are supported by the Dutch youth law, the 'Jeugdwet'. But when they turn 18, they are part of the WMO. Because the WMO is focused on own strength, this transition can cause problems (Koks-Leensen, 2018). The age of 23 years is a general age limit, mostly used by healthcare organizations in the Netherlands (Stichting Koraal Groep, 2012). Furthermore this is a crucial age in the rights on receiving a housing allowance (Belastingdienst, 2020).

WMO - INDICATION

The changes of the WMO is part of the problem, so this is also the guiding theme in the user group. They have a WMO-indication instead of LWZ. This means they receive support from the municipality in one of the two forms: natura or PGB.

LOW BUDGET

Most of the residents have an income near the social minimum, are eligible for a benefit and can apply for housing allowence (Plaisier & de Klerk, 2018). They only receive housing allowence if the rental does not exceed €431,25 (Belastingdienst, 2020). This is the maximum of the housing rental, with all services included.

PRACTICAL SKILLS

Because of their cognitive limitations they need work what is focussed on pratical skills. As a consequence of our increasing complex society, also simple work is asking for higher requirements. When they have not the ability to work, they require more attention from the healthcare for daystructure. Working is just as important for the social self-reliance as the residential environment. Above all, work is also providing a social network on which they can rely if they need help and support.

NET FF ANDERS

'Net ff anders' is a documentary series about six young people with a mild intellectual disability. The documentary shows the problematique of these people and the willingsness to live on their own. The series were broadcasted on the Dutch television in January 2020.

This series helped me in feeling connected with the community of my building. It is giving the future residents a real face and shows that the community is a diverse group.

Our approach in architecture at university is mostly on the imagined dwellers, instead of the actual dwellers. We do a lot of literature research to create an image of the future residents, but not always have a view of who these people are as a person. Something that seems essential in this research. My research is focussing on providing customization, which asks for a more antropological approach. In order to focus on the actual dwellers, a few people of this series are briefly introduced as possible residents of my design.

Veerle - © Linnele Deunk (2020)

VEERLE (22)

Veerle is cheerful and loves horseriding, music, singing, make-up and her two cats. She is working in a deli-shop. She is living with her parents in Amsterdam, but wants to live on her own. The only thing is she find it hard to make decisions. Therefore she is avoiding some situations. Cooking is one of them. Because she is afraid for failure, she prefers to avoid these situations. Learning cooking is essential for her to eventually live independently (KRO-NCRV, 2020).

SANNE (21)

Sanne is cheerful, enthousiast and not afraid. She is working in a supermarket. But she has a MID and also ADD. Too much incentives are causing distraction for her. She wants to live on her own, but therefore she needs to get grip on her concentration and getting home with the right groceries instead of what she didn't need. Keeping overview and dealing with money are the most important problems she is experiencing in her social self-reliance (KRO-NCRV, 2020).

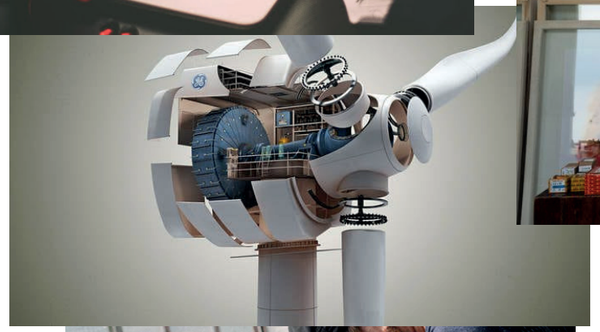
"Je ziet niks aan de buitenkant, maar.. als je naar de binnenkant gaat, dan zie je van alles."

Sanne - © Linnele Deunk (2020)

Sander - © Linnele Deunk (2020)

SANDER (24)

Sander has a YouTube channel, where he shows the world what it is like to deal with MID. He has some problems in language and speaking. Despite he is vlogging his life, he finds it difficult to make social contact. Unfortunately people made abuse of his kindness, that's why he wants to work on more self-confidence and resilience (KRO-NCRV, 2020).



THE MAKERS

FOCUS M4H

Out of the report 'Ruimtelijk Raamwerk M4H' appears the vision of the muncipality of Rotterdam on M4H. The Municipality and the Port of Rotterdam want to develop M4H to an innovative live-work environment optimalized for the innovative makers industry, with a mix of working, living, culture, horeca and education (Rotterdam Makers District, 2019). The makers-industry is represented in the The Makers District, which will be an innovative environment at the intersection of the harbour and the city (Bal & Bulterman, 2019).

The makers industry is consisting out of three global fields; the processindustry, the 'core' makers industry and the 'Twilight' zone (Figure 4). Where RDM focusses on the process and core industry, M4H has its challenge in the 'Twilight Zone'. One of the five objectives of M4H is on innovative business (with an accent on the makers-industry) and attracting additional support to facilitate companies from the start-up phase to corporate (Rotterdam Makers District, 2019).

BEELDMAKERS

The 'Beeldmakers' (EN = visual designers) are the visual designers who create content for other companies. These designers are indispensable in every business growth phase; from start-up to growth and corporate. Especially in the start-up phase it is important to communicate your new business to the world, the visual designers provide these needs. Furthermore, they offer possibillities for long-term collaborations in the same area. Those creative people are part of the creative industires, one of the focus point of M4H and include:

\+

Arists & Sculptors
Illustrators & Typographers
Digital Designers
Photo- & videographers
3D Visualisation
Printshop

OPPORTUNITY

Bal & Bulterman point in their essay 'Spanning tussen wonen en maakindustrie' on the opportunities of M4H for the creative industries: *"Gaat het daar lukken om in de herontwikkeling voldoende en gevarieeerde bedrijfsruimte te realiseren tegen een voor creatieve bedrijven betaalbare huur?" (EN = Will it be possible to realize sufficient and varied business spaces at affordable rental for creative businesses?)* (Bal & Bulterman, 2019, pp. 7).

The second objective of M4H is focussed on creating employment for the full range of the population of Rotterdam (Rotterdam Makers District, 2019). This inclusive approach is also evident for the user group: young people with a mild intellectual disability. *"Ook kwetsbare groepen in de stad profiteren, bijvoorbeeld doordat werkgelegenheid ontstaat in ondersteunende diensten." (EN = Also vulnerable groups in the city benefit, for example because employment arises in supported services)* (Rotterdam Makers District, 2017, pp. 4).

Especially people with MID have trouble with working in our complex society, they need work with practical skills. Working with their hands is something they excel at. That is just something where the makers industry suits the best, this industry needs people like them. M4H is a great opportunity to combine work and living for people with MID.

They can work in the area, but also in the building with the visual designers. For instance, photographers need assistence in transporting their equipment and a printshop needs people in the production process. But the creative entrepreuneurs also offer a large network relations and companies if they are looking for something else than visual design.

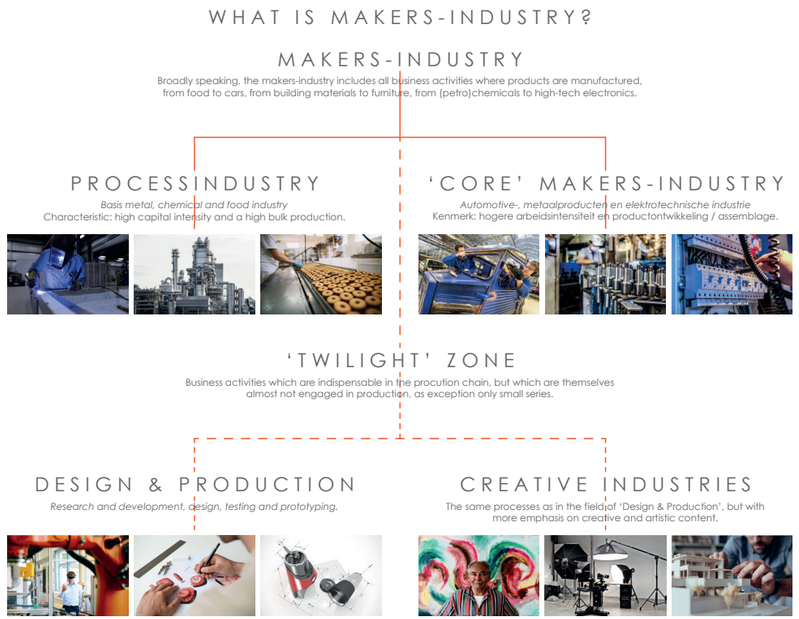


Figure 4 - Own illustration based on EVR010: 'Spanning Wonen en Maakindustrie' (Bal & Bulterman, 2019).

THE REQUIREMENTS

INCLUSIVE NEIGHBOURHOOD
The aim of the project is to work towards an residential environment where young people with MID can live independently, with a little bit of support where they need this. The design of the building should and the neighbourhood are seen as the key elements which can contribute them in their social self-reliance. But what are their requirements towards the residential environment and what kind of neighbours should be there?

Movisie, a national knowledge institute specialised in social issues, developed a guide on how to include people with disabilities in our neighbourhood. In their publication 'Een buurt voor iedereen' (2019) they are questioning how we can include everyone in our neighbourhood so they feel safe and welcome.

They name five characteristics of 'a neighbourhood for everyone' (NL = 'Een buurt voor iedereen') and how to achieve them (Movisie, 2019):

AN OPEN ATTITUDE
It is important that all people involved in the neighbourhood (residents, volunteers, professionals) are open to diversity. Work on the connection between groups, work against stigmatizing and stimulate social contacts.

MAKE A DIFFERENCE
To feel home in your living environment, it is important to contribute something to it. Work on qualities of people and work on interaction; people rather give than receive.

COMMUNAL FACILTIES
For vulnerable people it is often not naturally to make social contacts and participate in social activities. Therefore work on active citizenship and communal facilities for inclusion.

SUSTAINABILITY
People in vulnerable positions have fluctuating periods in which it goes well or not. Take care of a strong network on which they can fall back and ensure accessible access from professionals.

SAFETY
This is a basic condition for 'a neigh bourhood for everyone'. A neighbour hood should be safe for all residentens and social workers, at home and in the building. Arrange a 24/7 support point with the help of professionals, work on public safety, spaces were people feel comfortable and communicate clear and timely.

INCLUSIVE NEIGHBOURS
Working towards an inclusive building means that the user group will fully live and participate in society. This differs from an integrated building, where the user group lives together in a group as part of the society.

These other user groups make an important contribution to the social inclusion. Therefore it is important the other user groups provide an stimulant for people with MID, so they are stimulated to get the best out of themselves:

YOUNG PEOPLE / STARTERS
They are in the same stage of life and are facing the same challenges. This group is mostly busy with building their life in the fields of living, working, friends and relationships. They are the same age or a little older and therefore know where people between 18 and 23 go through. Because they are dealing or already dealt with this age, they can provide tools to handle in difficult situations. These apartments will be around the same surface of 50 m^2 as for the people with MID, 2-room apartments meant for singles and couples.

ESSENTIALS
Other valuable people are those who already deal with inclusiveness, called the 'Essentials'.Especially some public professions have to deal with inclusion everyday. These professions include police officers, firefighters, teachers and nurses. Those are the people who are essential for a vital city like Rotterdam. Unfortunately they cannot find a place in the city.

The problem is they earn too much to qualify for social housing, but they earn to less for the free rental market or buying a house. At this moment, only 8,5% of all owner-occupied houses is affordable for these essentials (Financieel Dagblad, 2019). They belong to the middle incomes. The mayor of Rotterdam wants to house these people in his city, because he regards them as essential for a healthy city (Algemeen Dagblad, 2018). Therefore the muncipality of Rotterdam wants to build more houses in the category of €711,- to €1.000,- (Rijnmond, 2019). These dwellings will be 2-room apartments for singles and couples and 3- or 4-room dwellings for families.

These people have already a feeling for an inclusive society from their profession and are unconsciously working with this. For instance, the nurses constantly deal with carefulness in their daily life. This makes these people perfect for keeping an eye on things and providing support where needed. They contribute to a safe and inclusive living environment.

MAKERS
The makers will form the connection between the living and working envrionment. The aim to house creative entrepreneurs will follow out of the next part. They will form the spider in the web of the working environment. Those creatives are all dealing with pracitcal skills, which suits to needs in work of people with MID. Furthermore, with their local network in the area they can connect people and work to help generate income, an other essential part of improving social self-reliance.

DWELLING REQUIREMENTS

These interventions have their effect on the building and the dwelling as well. According to the dwelling requirements something can be said about the layout. This is based on the case studies and interviews out of the publication 'Wonen in een kelderbox' from Architectuur Lokaal (2016). They did research towards a residential environment for young people with MID. Dwelling requirements in this field are hard to define, because the user group is that specific that all the requirements are that too. Although in the publication of Architectuur Lokaal people with MID name what is important for them according their disabilites.

SEPARATED ROOMS

One of the participants say it is important to have separate rooms, otherwise it will be too busy (Architectuur Lokaal, 2016). Because people can have difficulties in relaxtion, they need a separate space where they can rest when they have too much impulses. So, it can be helpfull to separate private rooms from the more open rooms.

COMMUNAL FACILITIES

Communal facilities can help in not feeling alone. Social interactions are important to feel involved. What kind of communal space this will be, is presented in the conceptual design.

LIVING ABOVE THE STREETS

According to safety, an other participant prefers to live above the street. *"Boven wonen voelt veiliger." (EN = Living upstairs feels safer)* (Architectuur Lokaal, 2016, pp. 28).

COMPACT APARTMENTS

The apartments have to be comfortable and not too large based on their limited budget. According to the case studies, especially Westkaap, around 50 m^2 will meet their needs.

TOOLBOX INTERVIEW

These preferences for the envrionement are supported by an interview I had with a mentor of people with intellectual disabilities. Out of this interview (Appendix 'Research Report', Interview Ipse de Bruggen) a few characteristics came forward which are important for the interior of the dwelling. Again, this is very specific and detailed information. But it represents a general view of what is important to people with MID.

+ Clarity
  Pracitcal interior, everything you need close by.
+ Structure
  Store stuff in the same place.
+ Recognizability
  For instance bright colours.
+ Cleaned Up
  Many spaces to store everything.
+ Little Distraction
  For instance separated rooms, not distracted by television while cooking.

COLLECTIVE RESEARCH

In a group of 15 students we did research towards collectiveness in residential buildings which served as inspiration for our own buildings.

We analysed 15 projects all over the world on the base of collectiveness. This served as input for our own buildings. One of the analysed projects which fascinated me the most was the elderly complex OCMW Nevele.

Some elements of this project are integrated in my own building. The 15 analysed projects showed that here are five approaches for including collectiveness in residential buildings.

All other projects which are studied on collectiveness can be found in the 'Research Report'.

This group research is fulfilled in collaboration with Anne de Schepper, Coen Gordebeke, Daan van Schie, Deniz Tichelaar, Fija van der Laan, Isabel Huiskes, Maaike Mossinkoff, Maarten Jellema, Mazeen Majeed, Nathalie van Wees, Teun Theijse, Teun van Knegsel, Tijmen Dijk, Martijn van Leeuwen and Sebastiaan Nieuwenhuizen.

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

© Filip Dujardin

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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.

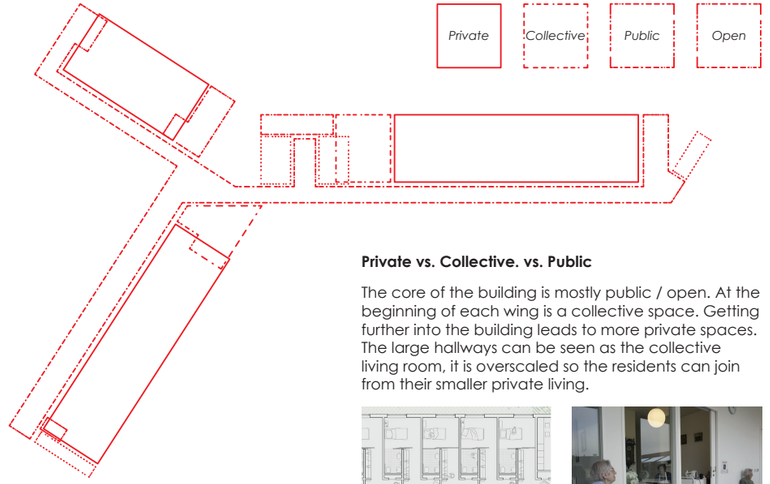
Living-Healthcare

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

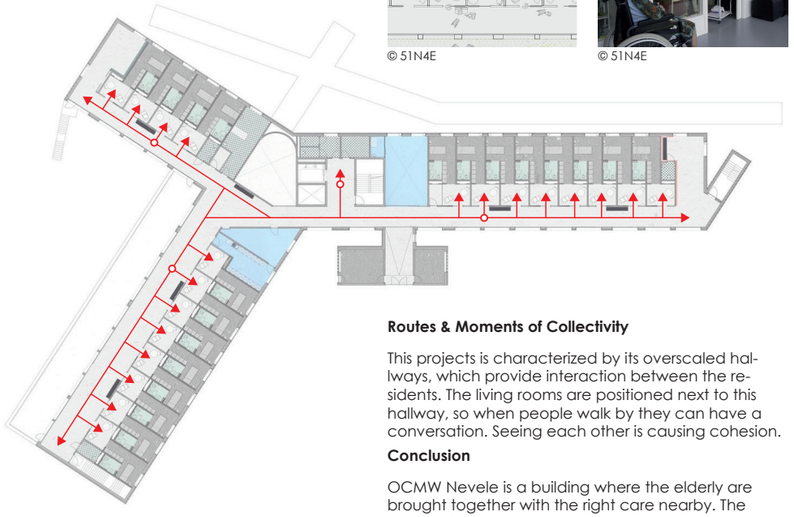


Private vs. Collective. vs. Public

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.

© 51N4E

© 51N4E



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.

OCMW NEVELE

INTEGRATION OPEN vs. CLOSED

What was really fascinating in OCMW Nevele was the transition in privacy in all the apartments. All more public spaces of the dwelling are near the hallway where you meet your neighbours. Deeper in the apartment you'll find the more private spaces like the bedroom and bathroom.

All living areas are facing the communal hallway, which functions as a small street. You can notice your neighbours while sitting in your living.

I translated this principal to my building where all 'open' rooms like the living are next to the gallery and your private outdoor space. On the outside are the 'closed' rooms like your bedroom and in the middle of the apartment the most private space: the bathroom.

Everyone has a private outdoor space at the gallery, so social interaction is stimulated when people are walking by.

FIVE APPROACHES

1. SHARED STAIRCASES OR HALLWAY

One of the most obvious way to stimulate social interaction is meeting people in spaces where paths cross each other, like the staircases, elevator or hallway.

2. CREATING MEETING ELEMENTS

A variation on the first approach is to specifically design the hallway that it becomes a space where people meet and spend time.

3. SHARED FACILITIES

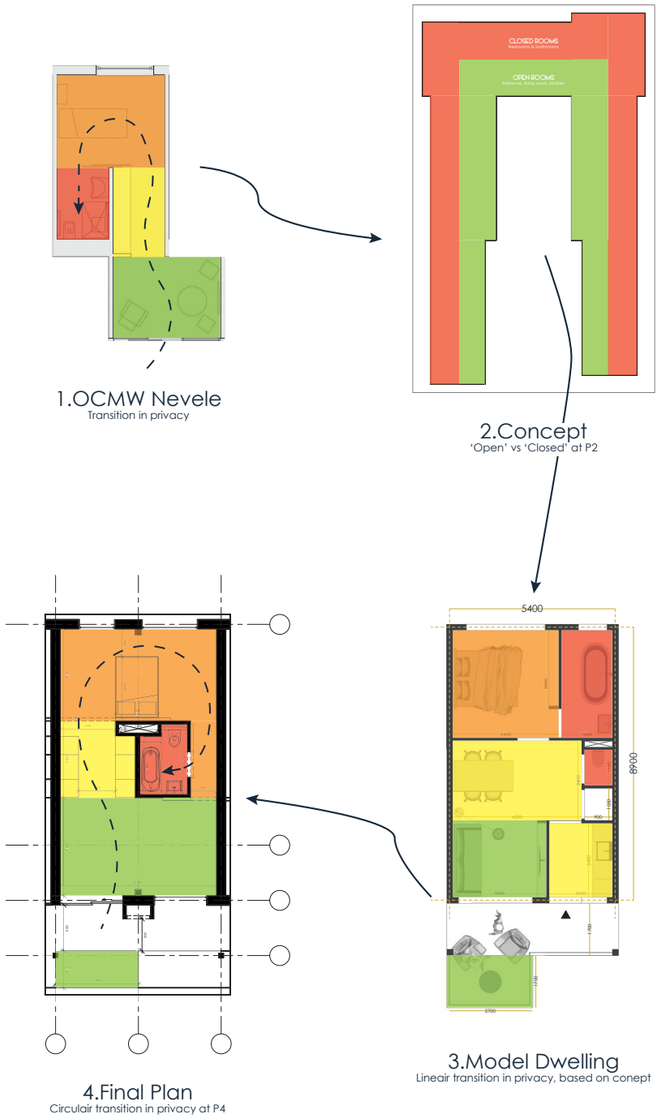
Shared facilities can draw the attention of residents to enter a certain space. Fitness areas or a swimming pool can be attractive spaces where people will meet each other. But they can also consist of more general communal areas, like the garden.

4. SHARED SPACES

These shared facilities can also be implemented on more intimate level. This approach evolves 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 the costs are shared.

5. VISUAL CONNECTIONS

More implicit ways of approaching collectiveness are achieved through the visual senses. Visual lines can connect spaces and also stimulate social interaction.



1.OCMW Nevele
Transition in privacy

2.Concept
'Open' vs 'Closed' at P2

3.Model Dwelling
Lineair transition in privacy, based on conept

4.Final Plan
Circulair transition in privacy at P4

Some difficulties in finding case studies occured, because it seems the research question is that much relevant there are almost no reference projects. Most of the projects for people with MID focusses on supported living, but where all these people live together in a community, separated from other user groups. Although it looks like this is a good starting point, it's more a kind of integration instead of inclusion. But sometimes the word 'inclusion' is wrongly used to identify these projects. This refers to the 'label scam', where Van Gennep (1997) is talking about. Anyway, to create a in-dept analyses, some other projects are selected on the base of people with MID, other disabilities or how to focus on inclusiveness.

CASE STUDIES

KAMERS MET KANSEN

'Kamers met Kansen' (EN = 'Rooms with Opportunities') is a recently new project in Amsterdam, where young people with problems live together. They project is meant for young people between 18 and 23 years who have the willingness to live and work independently, but need a little support. With a team of 16 professionals they guide these young people to an independent existence (Kamers met Kansen, 2020). This project is the most closely related existing project to the research, but it is a step before independent living.

Kamers met Kansen has three projects in Amsterdam: New-West, Southeast and East. The analysed project is the one in New-West, called the 'Pieter Calandlaan Blok 5', designed by DKV Architecten. Here the project has contains 20 apartments with in total 70 rooms. 5 Apartments are so-called HBO-dwellings, where two people live together. The other 15 are KMK-dwellings, where three young people live together with one main resident.

HBO
The HBO-dwelling is meant for two people or a young mother with a child. These dwellings are located next to the elevator. The dwelling has two rooms of 15.8 and 17.1 m^2, connected to a shared kitchen of 19 m^2.

The rooms both have their own bathroom, but are sharing the toilet and kitchen. Out of contact with the organisation 'Kamers met Kansen' appears that the shared kitchen is sometimes causing indifferences

Complaints about doing the dishes, garbage, using each other's stuff and the furnishing are common.

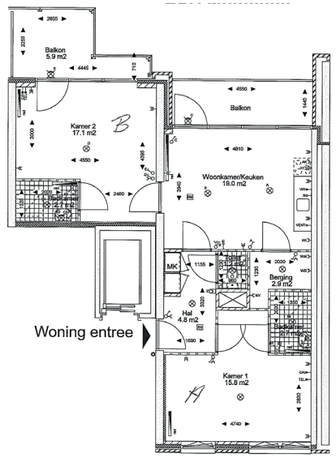
Resident 1 has a total private living area of 18.5 m^2, where resident 2 has 25.9 m^2, because of its private balcony. The shared rooms are together 31.5 m^2. Furthermore about the dimensions, the width of the rooms is set to 4550 and 4740 mm. This seems to be wide enough, because the entrance is in the middle of the dwelling and is not crossing any rooms.
main resident.

KMK
The KMK-dwelling is a special kind of dwelling, which reminds the most to a studentroom. The dwelling is a maisonette, existing of 2 levels, where all four residents share the same entrance. Per level they share the toilet and bathroom, but they all have their own kitchen.

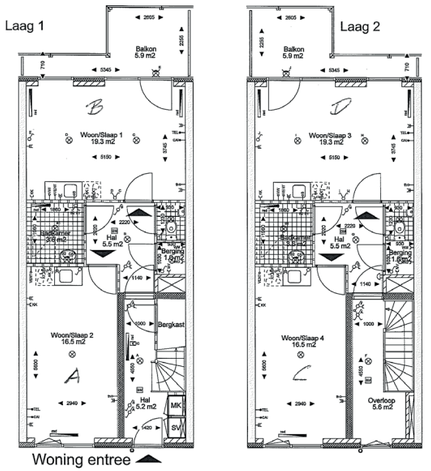
In comparison with the HBO-dwelling, the rooms are slightly wider. The width is set to 5450 mm, wich makes it possible to integrate a living room of 2940 mm and an entrance at the same side. This because the building is accessible by the gallery.

The HBO-dwelling is more focussed on collectiveness, because they share the kitch / living room. The KMK-dwelling is the most independent type, where they can learn from their main resident. This kind of collectiveness is helping in improving their social self-reliance, because they can ask their fellow residents if they are stuck with something.

Render from Pieter Calandlaan - © Kamers met Kansen



HBO Apartment - © Kamers met Kansen



KMK Apartment - © Kamers met Kansen

WESTKAAP

Westkaap is an assisted living project in Vlaardingen for people with intellectual disabilities and mild intellectual disabilities. It is a collaboration of housing corporation Waterweg Wonen and foundation Philadelphia.

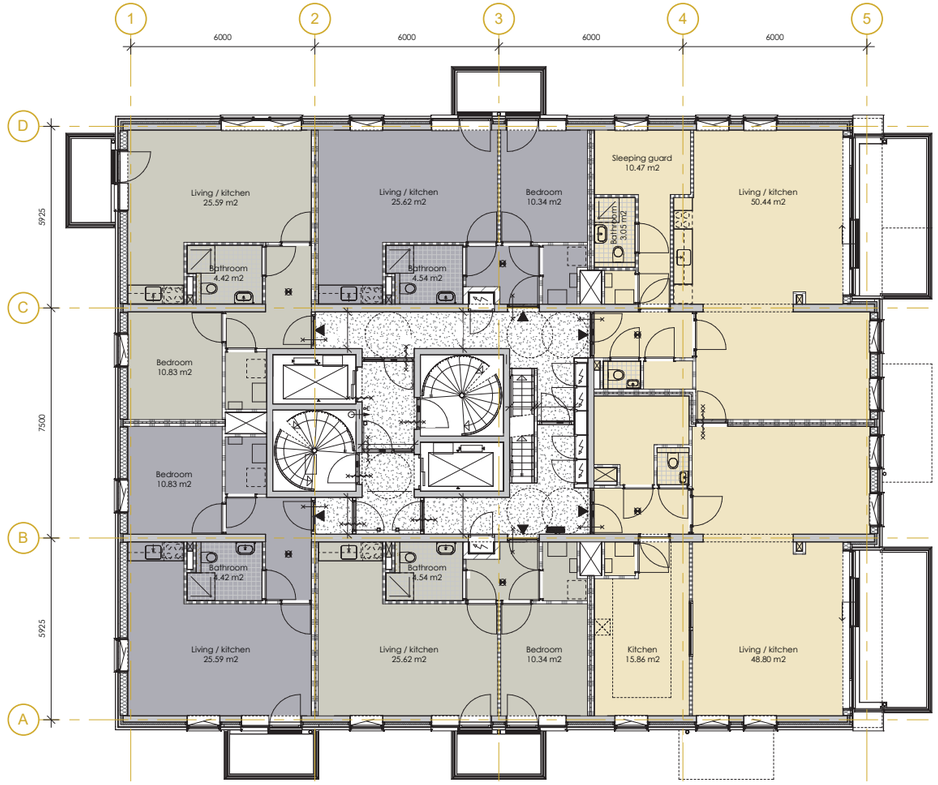
The building is designed by Marge Architecten. In the original plan they tried to create a restaurant on the ground floor, where the residents of the building could work. But this was not achievable. Eventually it became 36 apartments of ca. 52 m^2, 4 communal living rooms of 75 m^2, a sleeping guard room, a guest bedroom, and on the ground floor an office room and communal bicycle shed.

To make the plan financial achievable they integrated 12 apartments of 75 m^2, wherefrom 2 on the ground floor and 10 on the two top floors. Floors 1 till 6 are totally meant for the people of foundation Philadelphia.

The building block has 2 entrances, one for the 12 regular apartments and one for the people with intellectual disabilities.

Every apartment was focussed on independent living, so it has its own living room, small kitchen (not for cooking), bedroom, bathroom, storage and balcony. Furthermore it was important to create large bathrooms, where care can be given. Every 9 apartments are connected to one communal living room.

Westkaap - © Van Zanten Bouw



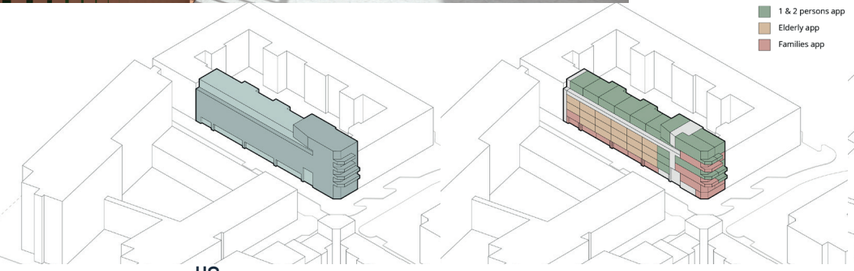
2nd Floor Westkaap - Scale 1:200

KRAMATWEG

One way to stimulate social control is maximalizing the social interactions. The Kramatweg in Amsterdam, designed by ANA focusses on elderly housing. Here the gallery forms an interesting connection between private and collective. Deepened balcony's provide a transition between the gallery and dwelling and also stimulate social interaction with all the neighbours on the same level.

The gallery is set to 2 - 2,5 meters where space is reserved in front of your own front door. This small space can be used to sit on your own 'balcony', facing the more collective gallery. When neighbours are walking by, people can easily make social contact. From the dining room large windows are looking out on the gallery, which stimulates social control.

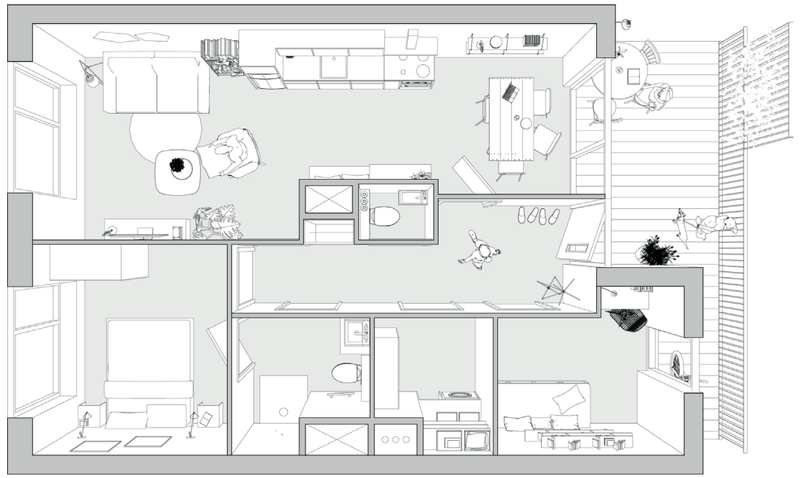
Furthermore, the plan of the dwelling is designed in a way that more private rooms are on the site of the streets, where more open rooms are close to the gallery.



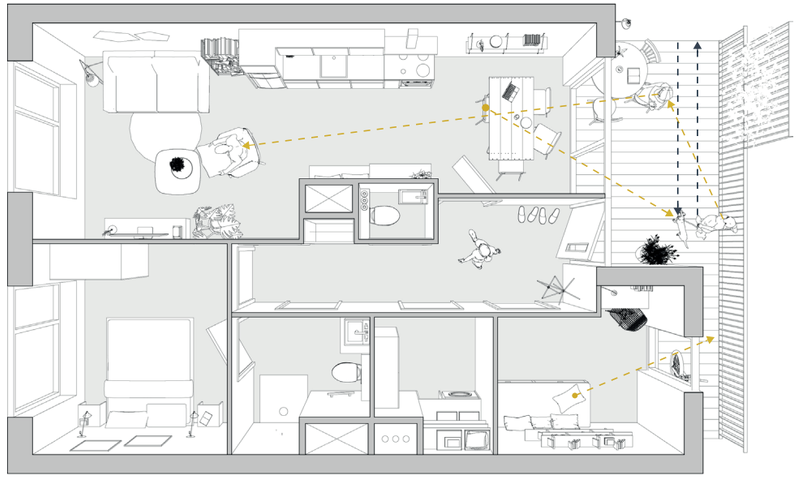
Building Shape - © ANA (2020)

Typology - © ANA (2020)

Accessibility - © ANA (2020)



Dwelling Plan - © ANA (2020)



Social Interaction - Own Illustration

At the beginning of the graduation studio we developed the urban master plan for M4H as a group. We devided the studio in four groups, containing all 3 or 4 students. Each group worked on one of the quadrants A, B, C or D towards a urban master plan. All groups worked together to shape a new framework for the Keilekwartier in M4H.

LOCATION

URBAN MASTER PLAN

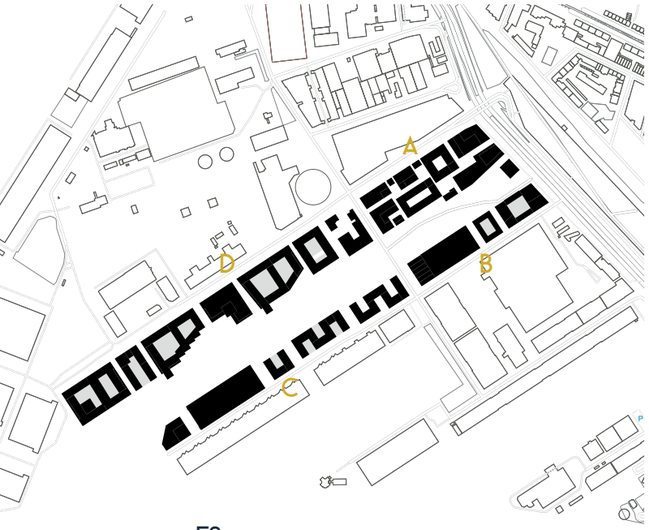
RUIMTELIJK RAAMWERK M4H

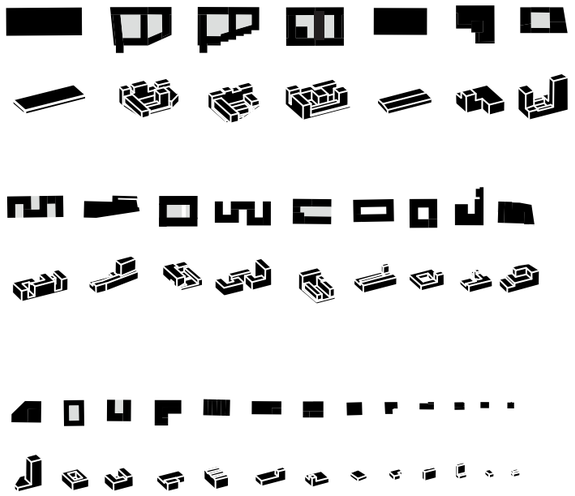
The urban master plan developed in the total group is in line with the vision of the municipality of Rotterdam, represented in 'Ruimtelijk Raamwerk Merwe-Vierhavens Rotterdam' (2019). The Makers District in M4H is existing of five area's, where we focussed on the 'Keilekwartier'. The Gustoweg and Keilewkartier have the same ambitions: urban work-living environments with space for craft and creative businesses, in the transition to work environments on the edges.

The Keilekwartier has three major structures: the cultural route, the green structure along the waterside and the (cycling) roads. The old-dated Ferro Dome will be the heart of the cultural centre, in the middle of the Galileipark, Marconikwartier and Keilekwartier.

URBAN MORPHOLOGY

In line with the culture-historical investigation (Van Es & Voerman, 2017), most of the existing buildings are preserved. This stands out in the urban morphology of quadrant A. Because the existing buildings are small, the small grain size is preserved in the new buildings. Plot C and D contain the larger buildings. This namely is coming from the existing buildings such as the Katoenveem, so the new buildings suit to the old ones. All the buildings form the same building line as the 'Ruimtelijk Raamwerk' desribes.





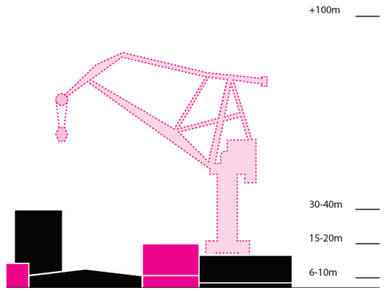
Quadrants in Urban Morphology

KEILEKWARTIER

For the Keilekwartier the muncipality is aiming on a FSI of 2.5. All quadrants worked together in the urban paster plan to meet this requirement. Because of the most free space to built, Quadrant D contains larger building blocks with a total FSI of 2.6.

All the building blocks differ in shape to create a mixed variety of buildings as the Makers District is aiming for in 'Ruimtelijk Raamwerk M4H'.
We tried not to exceed the maximum building height of 40 meters. Space for the makers is mostly reserved in the plinth of the buildings up to a height of 6 meters or higher.

On top of these plinths rise the potential live-work apartments. Futhermore the total plan is blocking the car, the focus is on cyclists and pedestrians. Therefore a few parking hubs are created to park the car and explore the area by foot or bike.



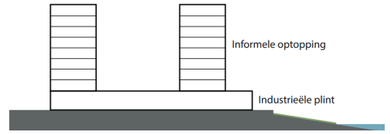
Building Height according to 'Ruimtelijk Raamwerk M4H'

QUADRANT D

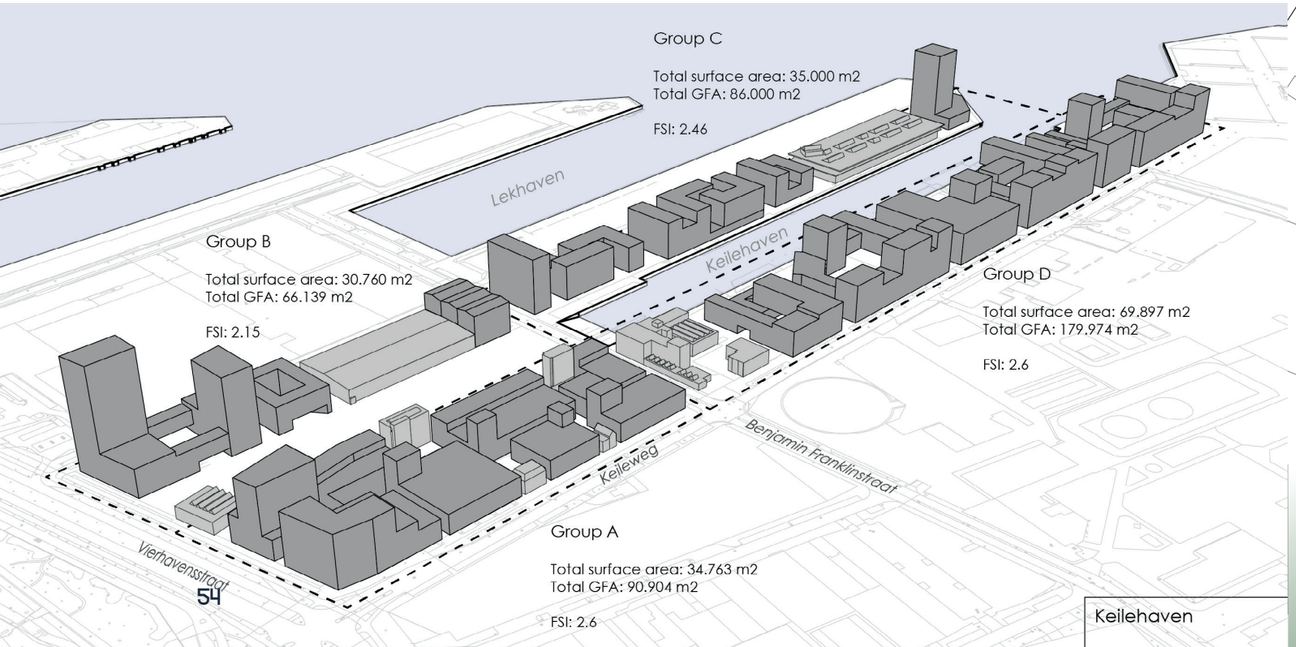
Together with Maarten, Isabel and Teun I worked on quadrant D, which is also the quadrant of the chosen plot for the building. In the beginning it was quite hard to fill in the plan, because there were almost no reference buildings in the plan.

Our plan is existing out of five building blocks and a parking hub in the center. These blocks are opening up towards the water. The Makers street wil have an industrial look, where the waterside is more focussed on green.

All building blocks have an industrial plinth of at least 2 stories high. These plinths form the outline of the building block. The building blocks on top can have a setback and are more informal blocks. The plinths provide space for large workshops with possibly large machinery.



Informal Blocks on Industrial Plinth



THE BUILDING PLOT

CHOICE FOR THE PLOT

For the choice of the plot I was looking for an envrionment where young people with MID would feel comfortable. Because they can be very sensitive for impulses, it is quite important the environment is not too overwelming. Furthermore, I am aiming for an intimate environment for the user group, so it seems logical not to design a huge building.

My eyes fell on the plots D6, B3 and D2 which all have their pros and cons. D6 was interesting because of the connection it has with the cultural axis and the older existing buildings. B3 is a smaller building in between two larger buildings. This can be a bit too overwelming for the residents, so eventually and in consideration with the group is chosen for block D2. This building block is in a quite serene environment with a nice overview over the water. The building blocks next to D2 are quite the same height, which is a positive thing according to the sunpath and shadows.

VISIBILITY

One of the most important issues adressed is the visibility of the building block. The block D2 is quite small in relation to the overwhelming neighbours. All the blocks are quite large and have distinct shapes. In particular the visibility from West to East suffers from these massive blocks. When approaching the building from the other side, along the ringroad 'The Keileweg' the building block is much more visible.

To let the building block being part of the whole urban master plan and create a statement towards inclusion, the architecture is outstanding along the Keilehaven.

Plot Choice © Martijn van Leeuwen [2020]

Visibility of the building block - © Martijn van Leeuwen [2020]

URBAN PLAN **1:500**

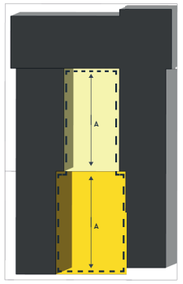
ARCHITECTURE

CONCEPTUAL

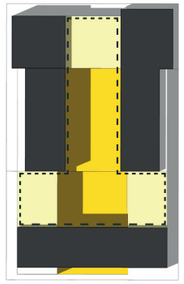
A PATTERN LANGUAGE

Feeling comfortable and safe are important in the building. The concept of the building block is based on ‘A Pattern Language’ from Christopher Alexander (1977).

These patterns are used to create a human residential environment.



Shape of positive outdoor space at floors 2 - 5



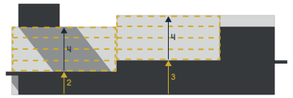
Shape of positive outdoor space at floor 6

FOUR STORY LIMIT

+ Maximum of 4 stories for not loosing connection with inner space.

  Feeling involved in the neighourhood is an outstanding goal.

+ Max. 4 stories difference in between outdoor spaces & inner courtyard.



Four Story Limit

“In any urban area, no matter how dense, keep the majority of the buildings four stories high or less. It is possible that certain buildings should exceed this limit, but they should never be buildings for human habitation.” (Alexander, 1977, pp. 163).

POSITIVE OUTDOOR SPACE

+ Space feeling safe & comortable.

  The inner couryard has a definite shape created by the different building blocks.

+ Feeling protected by a back.

  Primitive instinct; we don’t have eyes in our back.

Positive Outdoor Space / Having a Back

“Outdoor space is negative when it is shapeless... An outdoorspace is positive when it has a distinct and definite shape.” (Alexander, 1977, pp. 518).

HIERARCHY OF OPEN SPACES

+ Looking from a smaller space into a larger space.

  The inner couryard has a definite shape created by the different building blocks.

+ MID is looking out over society.

  Shows the inclusion of people with MID in our society.

Hierarchy of Open Spaces

“Whatever space you are shaping... First, make at least one smaller space, which looks into it and forms a natural back for it. Second, place it, and its openings, so that it looks into at least one larger space.” (Alexander, 1977, pp. 559).

SOCIAL INCLUSION

THREE LEVELS

Social inclusion is integrated on three levels: Work, Dwell and Live. These are all connected in the building.

GALLERY - DWELL

The three user groups will be connected in horizontal direction by the gallery on all floors.

COMMUNAL FACILITIES - WORK

In vertical connection these user groups will be connected to the makers by communal facilities, like the communal laundry and the gym.

INNER COURTYARD - LIVE

The inner courtyard forms the heart of the building, where you can meet your whole neighbourhood.

OPEN vs. CLOSED

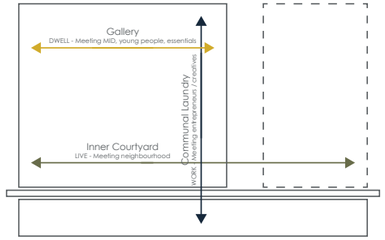
For people with MID it is important they can isolate themselves, when getting too much incentives.

OPEN ROOMS INSIDE

Therefore all open rooms like living and kithcen are on the inside of the building, facing the inner courtyard.

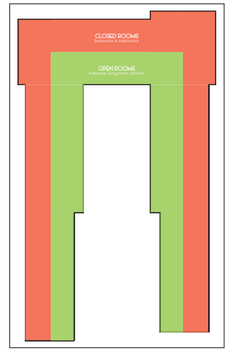
CLOSED ROOMS OUTSIDE

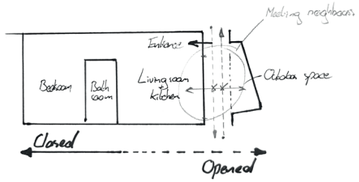
The private rooms like the bed- and bathroom are on the outside.



Three Levels of Social Inclusion

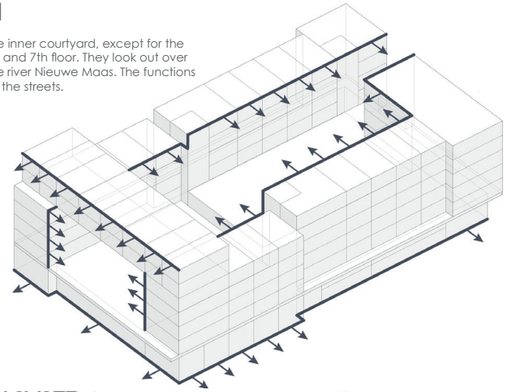
Social Inclusion on Gallery





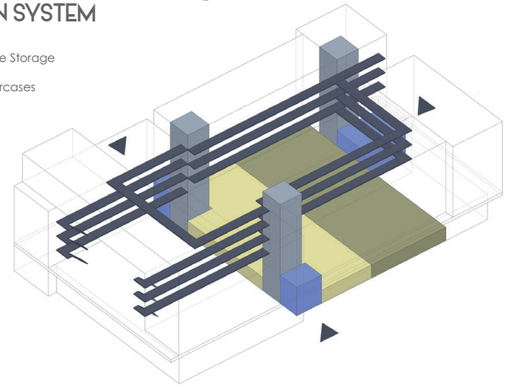
ORIENTATION

All livings are facing the inner courtyard, except for the maisonettes on the 6th and 7th floor. They look out over the Keilehaven and the river Nieuwe Maas. The functions in the plinth are facing the streets.



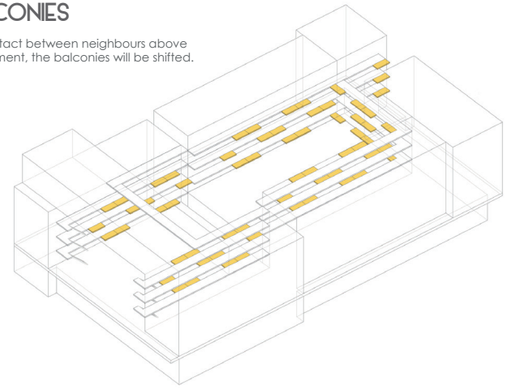
CIRCULATION SYSTEM

- Entrances
- Communal Bike Storage
- Parking
- Elevators / Staircases
- Gallery



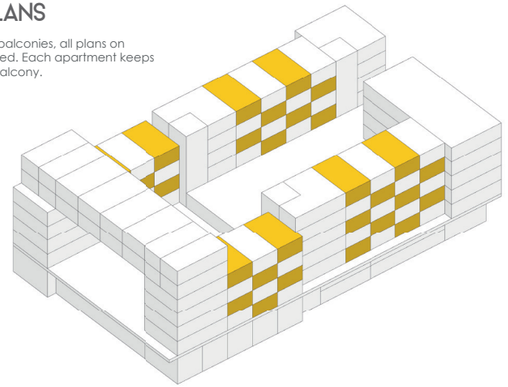
SHIFTED BALCONIES

To stimulate social contact between neighbours above and below your apartment, the balconies will be shifted.



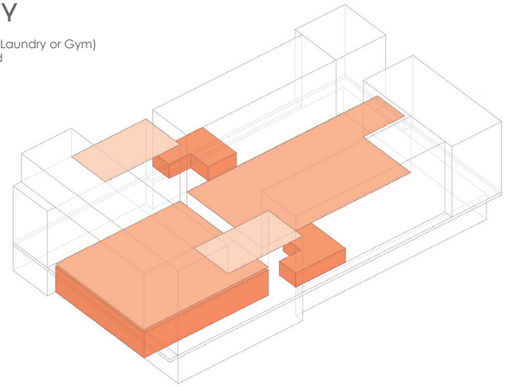
MIRRORED PLANS

Because of the shifted balconies, all plans on each floor will be mirrored. Each apartment keeps their living next to the balcony.



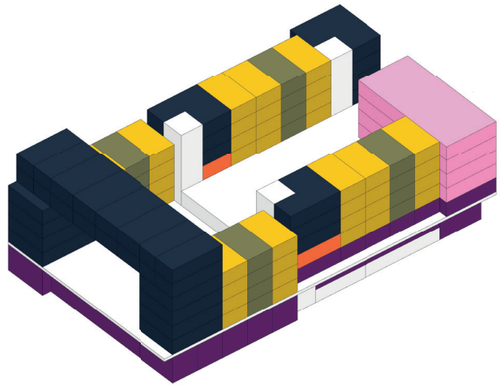
COLLECTIVITY

- Social Spaces (Laundry or Gym)
- Inner Courtyard
- Roof Terraces



TYPOLOGY

- MID
- Young
- Essential
- Assisted Living
- Communal
- The Makers



SOLAR STUDY

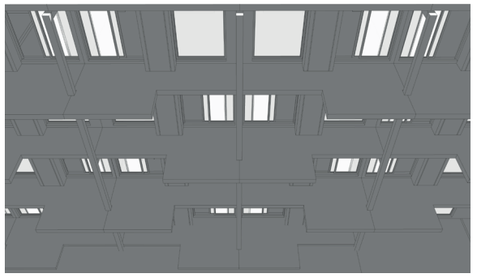
SHIFTED BALCONIES

Because of the shifted balconies, every dwellers has sunlight on his balcony during the day. The width of the gallery is set to 1500mm, which was a optimum between space and shadowing. A wider gallery would cause too much shadows. Now the apartments are lighted, but the galleries are blocking direct sunlight during hot summer days.

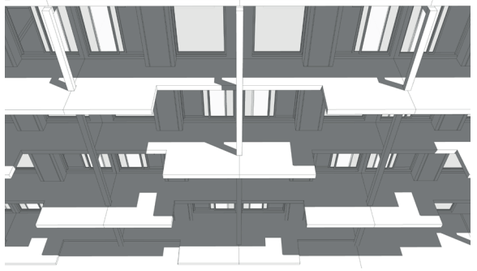
BUILDING BLOCK

With shaping the building block sunlight has been taken into account. The lifted inner courtyard together with the 4 story limit is giving enough daylight during the day.

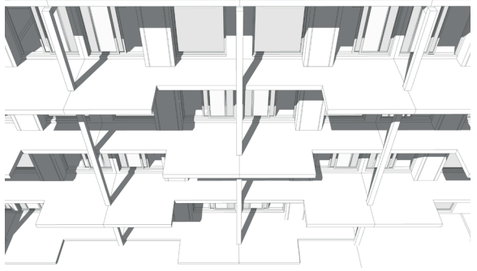
Also the communcal terraces are catching the last sunrayes during the summer evenings.



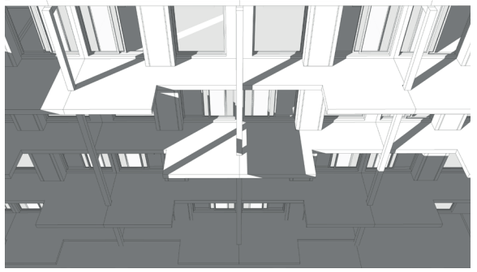
21st of June - 09:00



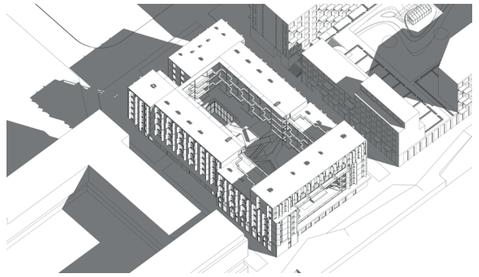
21st of June - 12:00



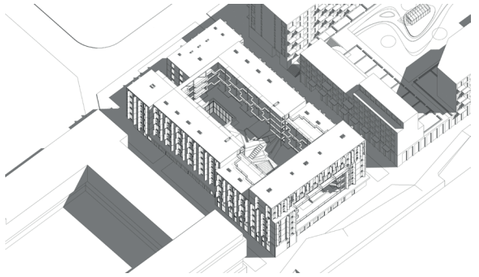
21st of June - 15:00



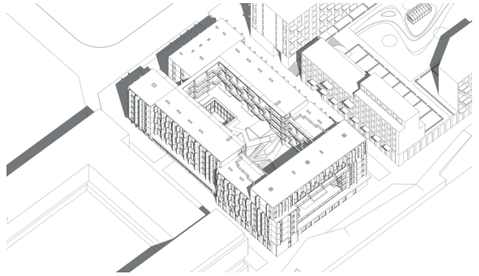
21st of June - 18:00



21st of March - 09:00



21st of June - 09:00



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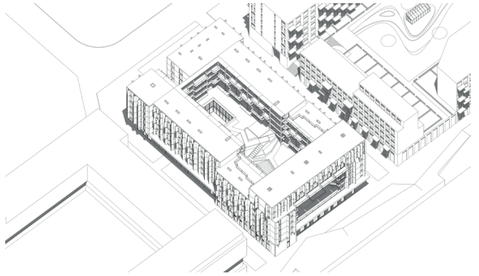
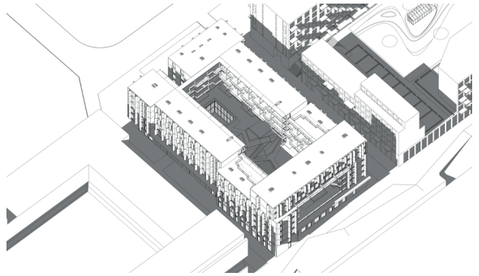
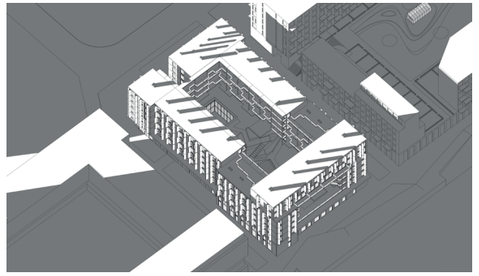


21st of June - 12:00

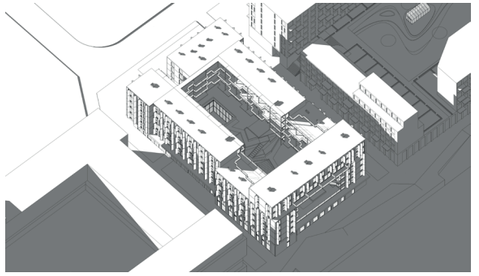


21st of March - 15:00

21st of June - 15:00



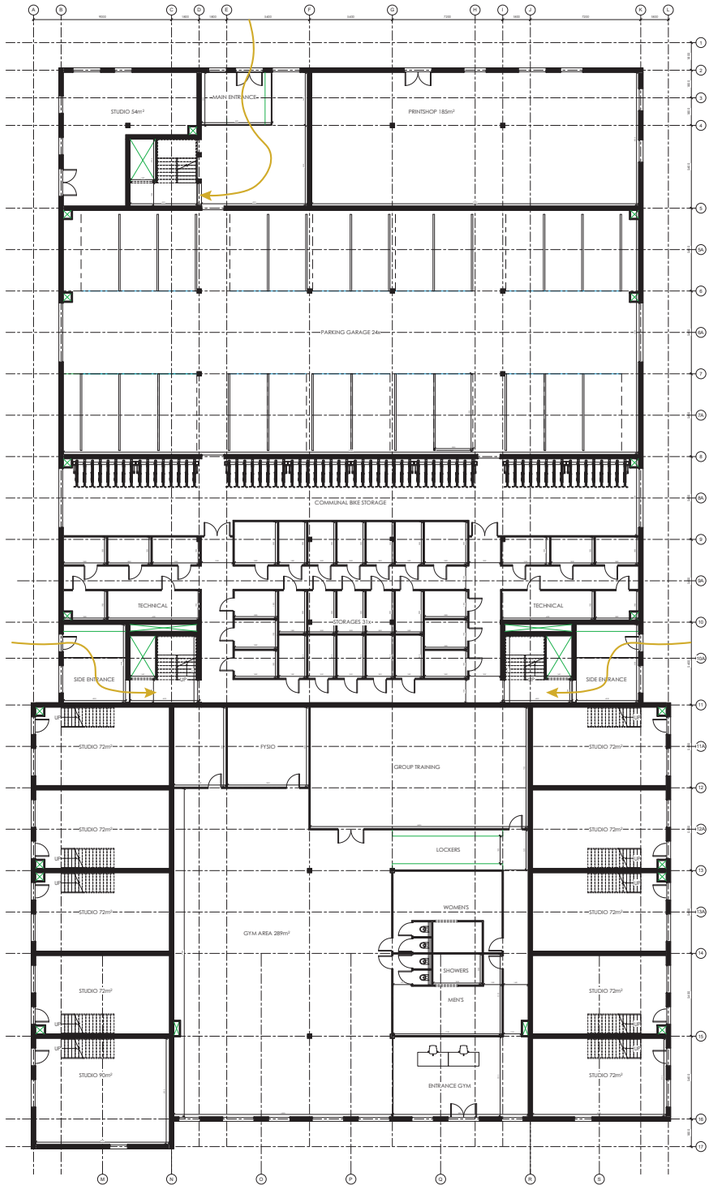
21st of March - 18:00



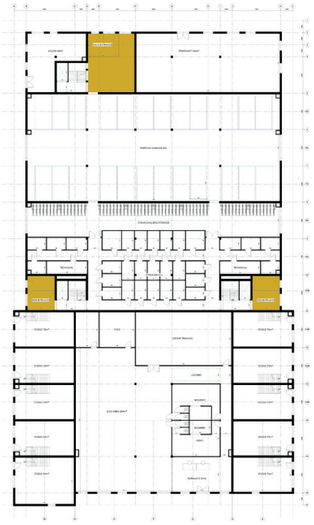
21st of June - 18:00

APPROACH KEILEWEG

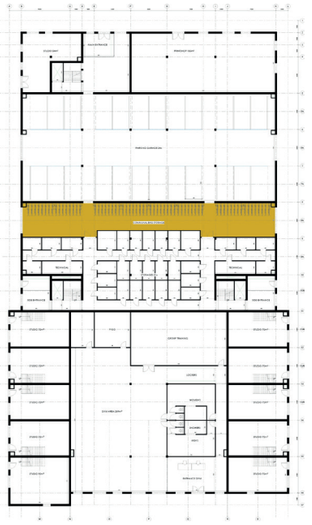
The entrances of the building are highlighted by other materialization of the facade. The streets are meant as low-traffic (NL = autoluw), only cars are allowed when they need to deliv-er goods to the makers in the plinth.



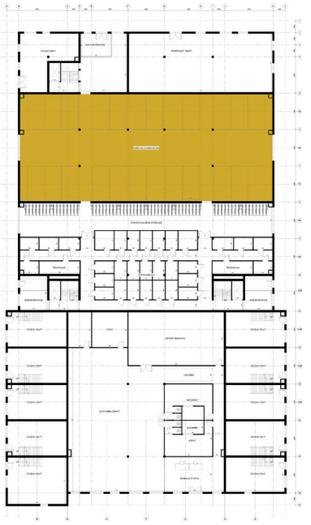
GROUND FLOOR



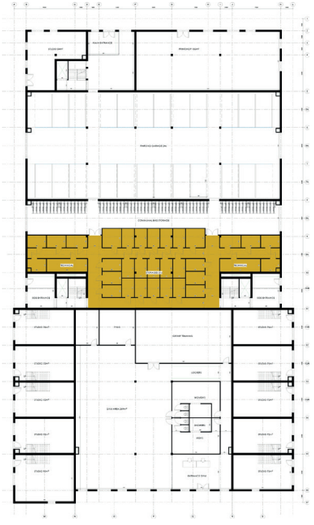
ENTRANCES



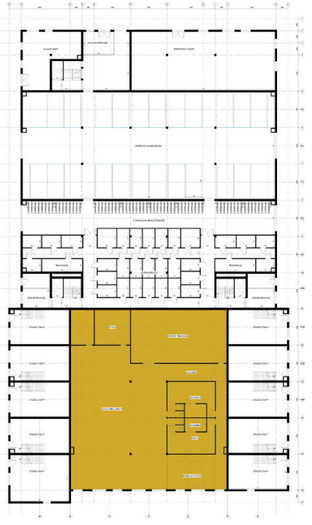
BIKE STORAGE



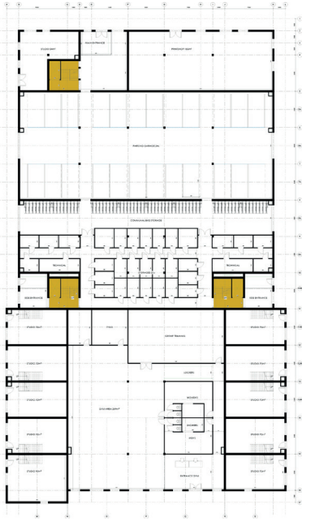
PARKING



STORAGES



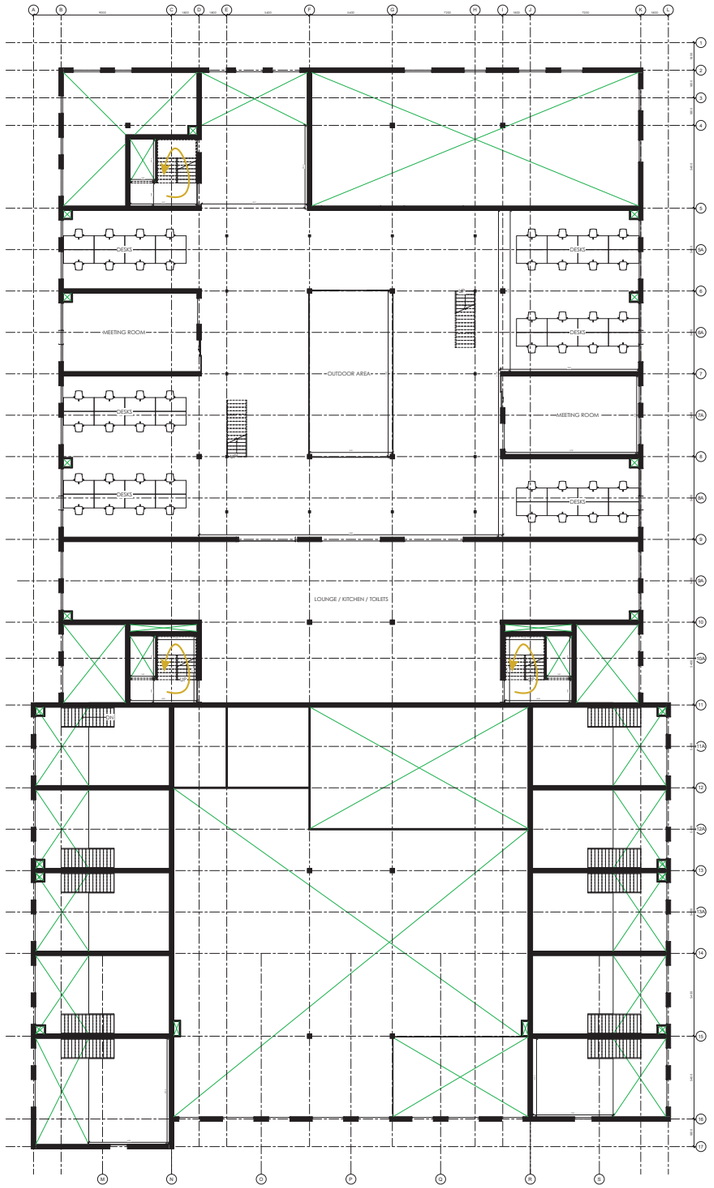
GYM



ELEVATORS & STAIRS

ENTRANCES

The entrances of the building are highlighted by other materialization of the facade. The streets are meant as low-traffic (NL = autoluw), only cars are allowed when they need to deliver goods to the makers in the plinth.



1ST FLOOR

STUDIO'S

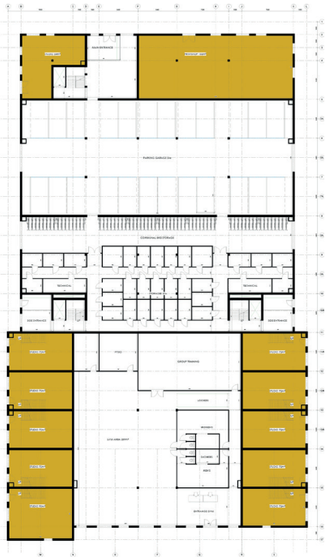
+ 8 Studio's of 72 m^2, 1 of 54m^2 and 1 of 90 m^2
+ Larger printshop on the North
+ Double height for more flexibility
+ Entresol

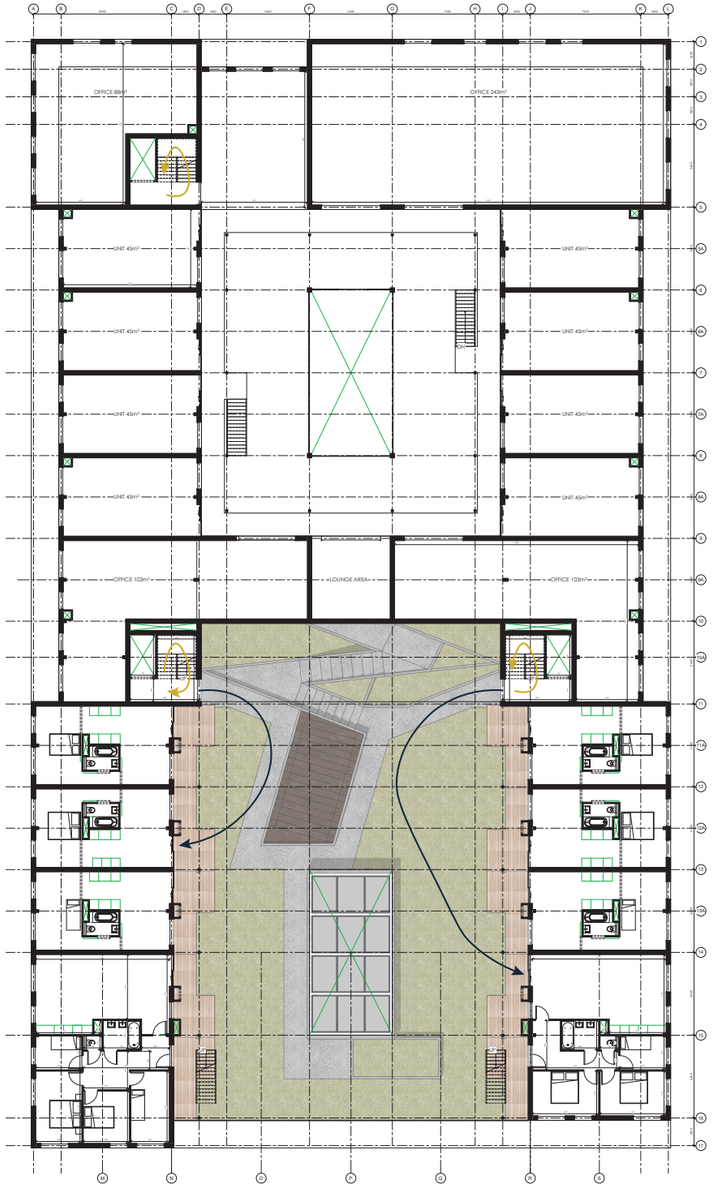
DESKS

+ Own desk incl. services like coffee and internet
+ Meant for freelancers
+ Meeting rooms available

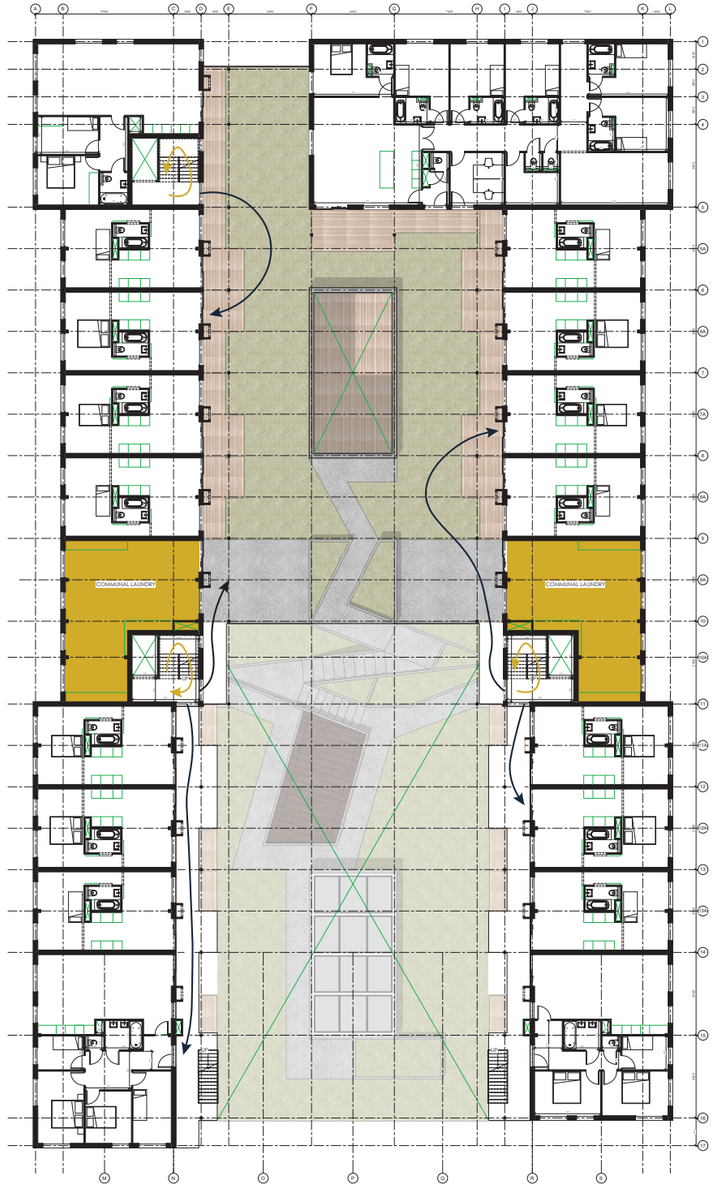
UNITS & OFFICES

+ Open character
+ Different sizes, units (45 m^2), offices (88 - 243 m^2)
+ Large atrium in the middle of the building





2ND FLOOR



3RD FLOOR

COMMUNAL LAUNDRY

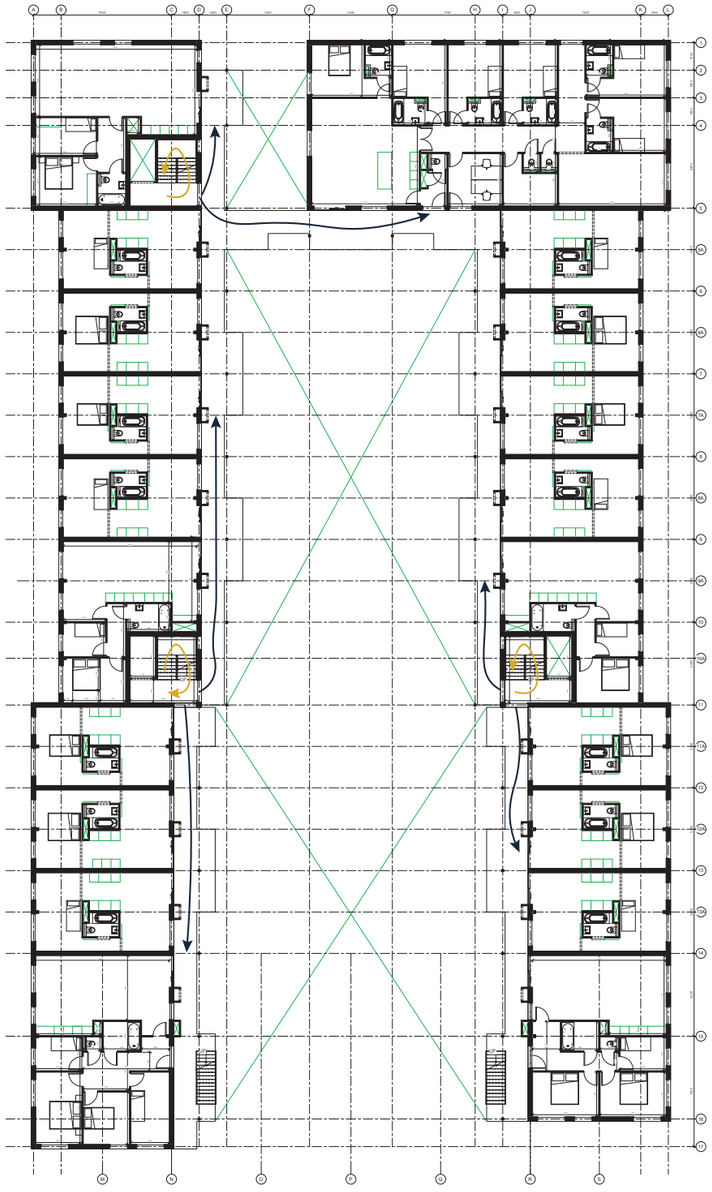
The communal laundry rooms are positioned next to the elevators and stairs, so you can easily reach them and keeping your clothes dry.

These rooms form the opportunity to improve social self-reliance of young people with MID. Here, they can ask others for help when they need it.

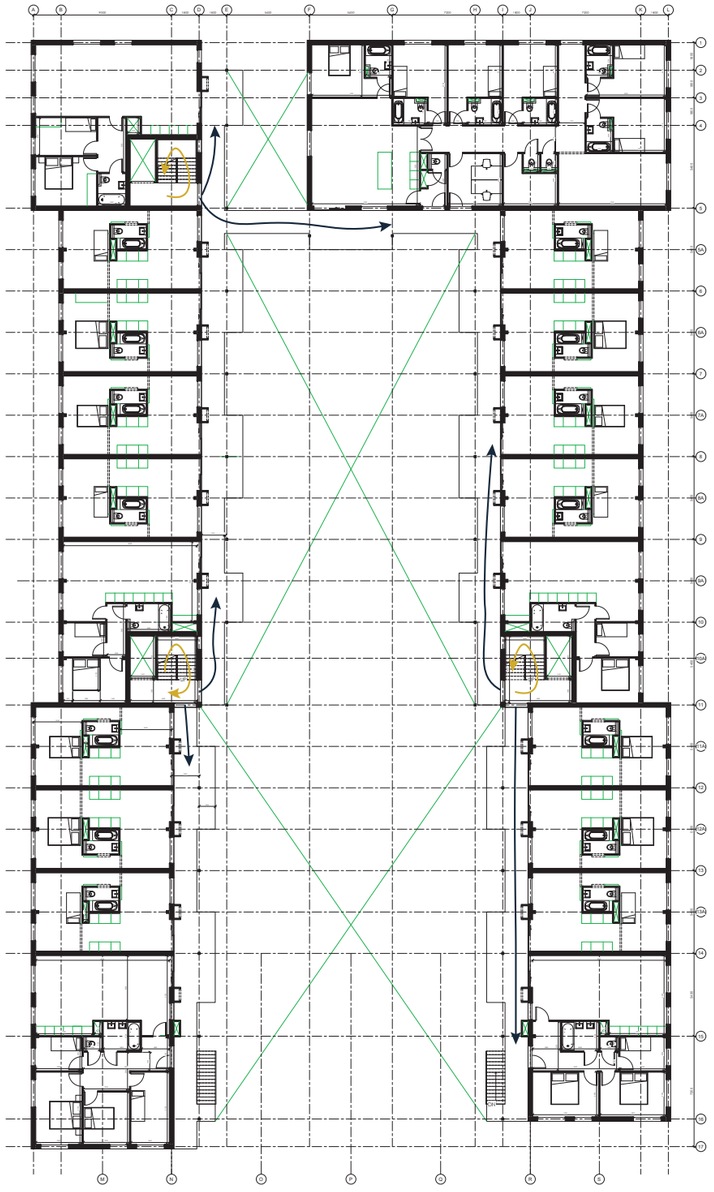
Furthermore, these rooms stimulates social interaction between other user groups. People now have a reason to use the communal rooms, because they need to do their laundry.

MEETING NEIGHBOURHOOD

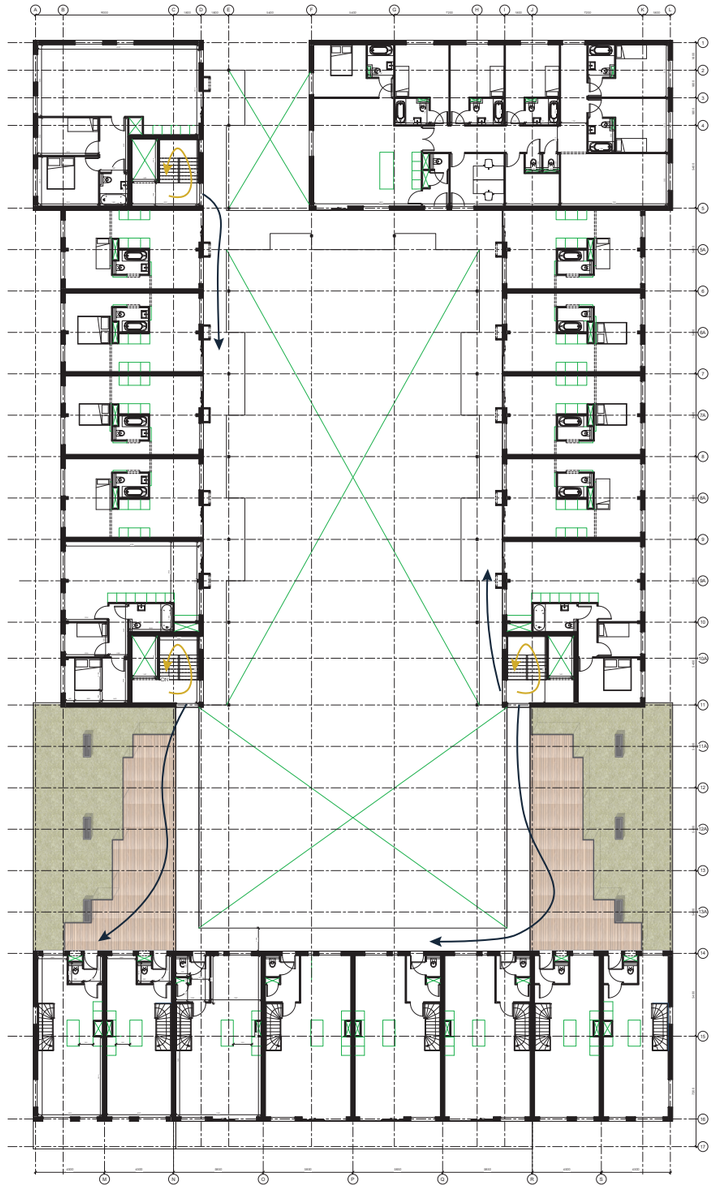
In front of the communal laundry's there are communal terraces in the inner courtyard, where you can make a small talk with your neighbours.



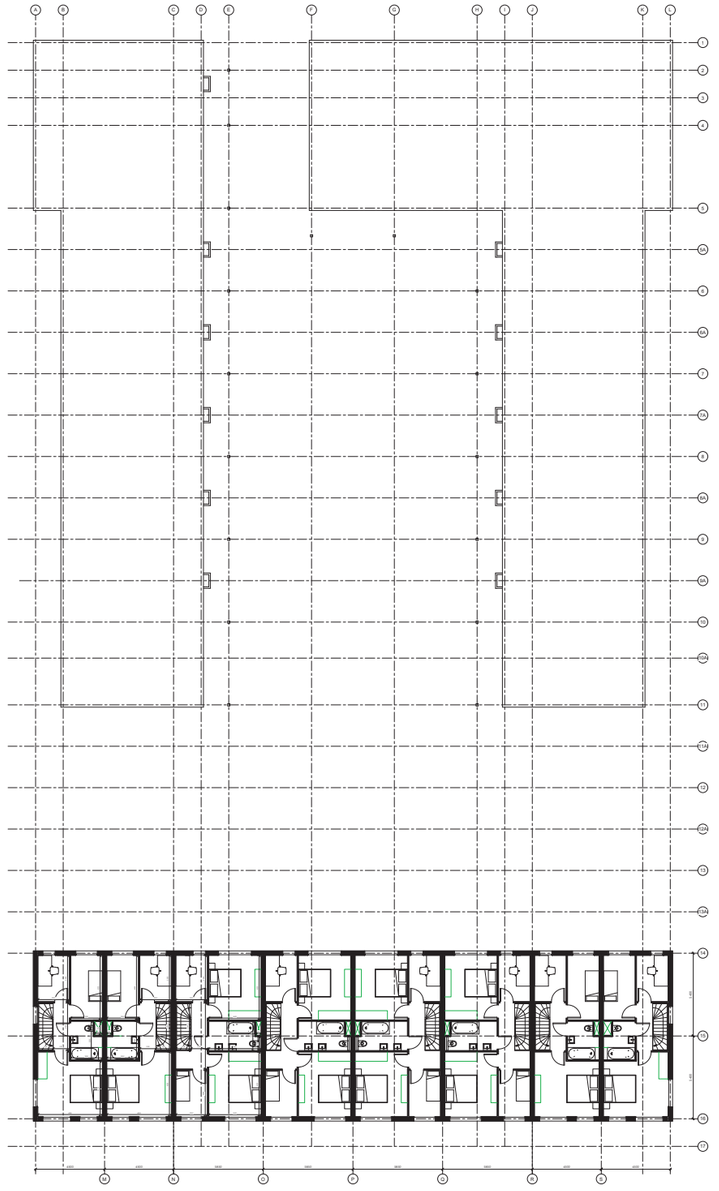
4TH FLOOR



5TH FLOOR



6TH FLOOR



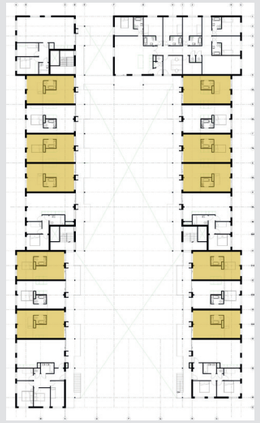
7TH FLOOR

APPROACH KEILEHAVEN

The building opens towards the Keilehaven. The waterside is the place where people come to recreate and forms the attractive route through the whole urban master plan.

STUDIO MID 1:100

Studio for Mild Intellectual Disability

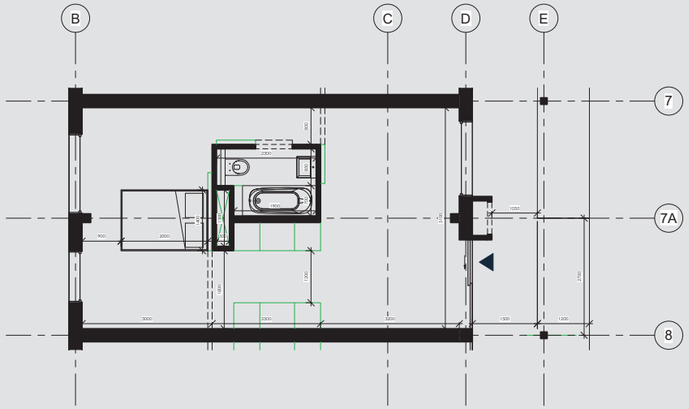


SPECIFICATIONS

Meant for someone with a Mild Intellectual Disability. Mostly one-person-households. Enough space for a bed of 1400 x 2000 or eventually 1800 x 2100.

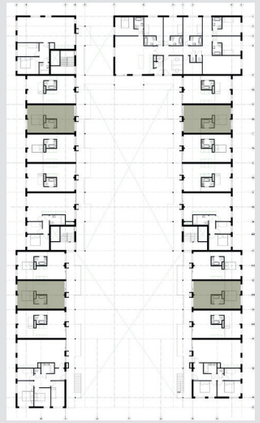
Flexible walls create privacy when the residents receive too much stimuli or if they want to be alone. The facade will also be flexible with shutters. Hereby they can create a total private room.

Total living area	**42,6 m2**
- Living / kitchen / bedroom	39,5 m2
- Bathroom	3,1 m2
Total amount of dwellings	**40 Dwellings**
- 2nd Floor	4 Dwellings
- 3rd Floor	10 Dwellings
- 4th Floor	10 Dwellings
- 5th Floor	10 Dwellings
- 6th Floor	6 Dwellings



STUDIO YOUNG 1:100

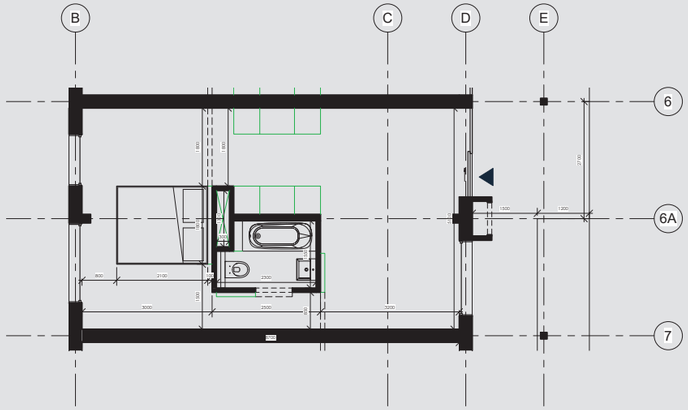
Studio for young people

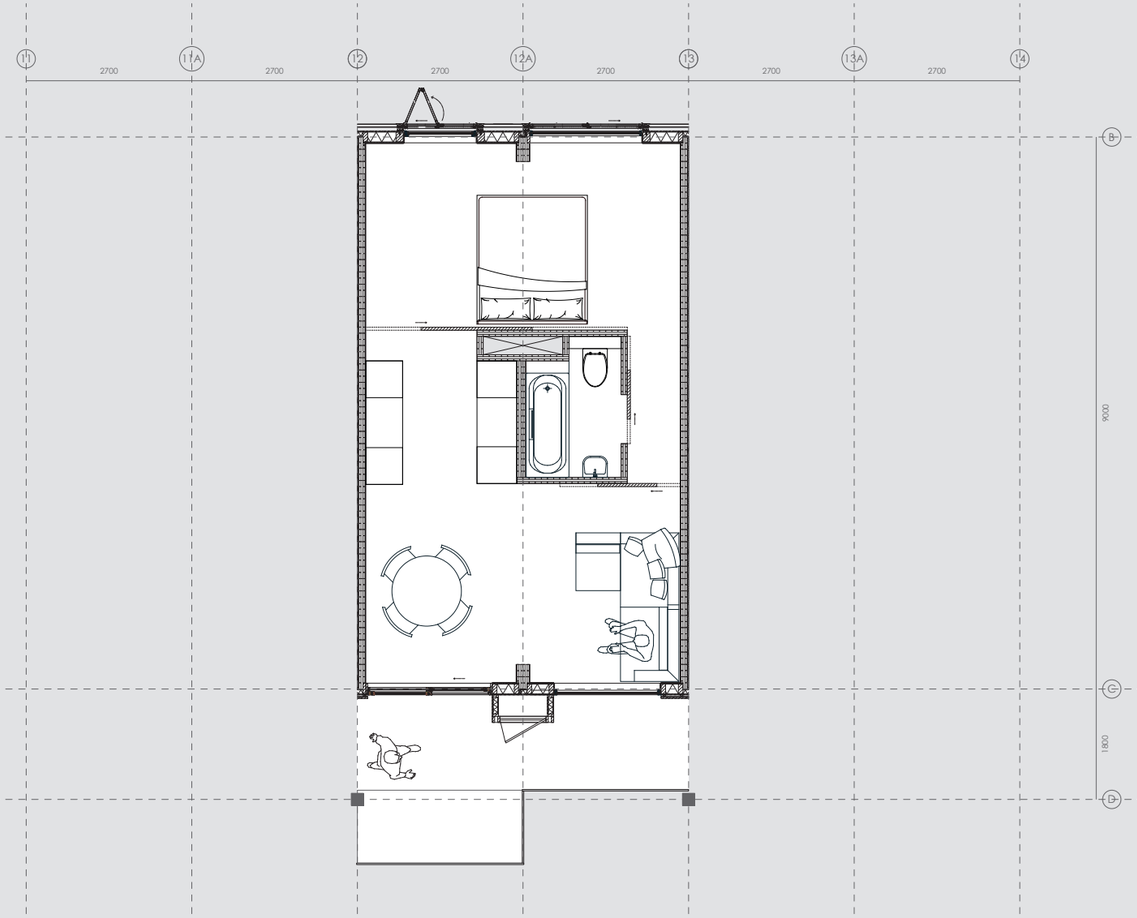


SPECIFICATIONS

Exact same studio as MID. Enough space for a bed of 1400 x 2000 or eventually 1800 x 2100.

Total living area	**42,6 m2**
- Living / kitchen / bedroom	39,5 m2
- Bathroom	3,1 m2
Total amount of dwellings	**16 Dwellings**
- 2nd Floor	2 Dwellings
- 3rd Floor	4 Dwellings
- 4th Floor	4 Dwellings
- 5th Floor	4 Dwellings
- 6th Floor	2 Dwellings




11
11A
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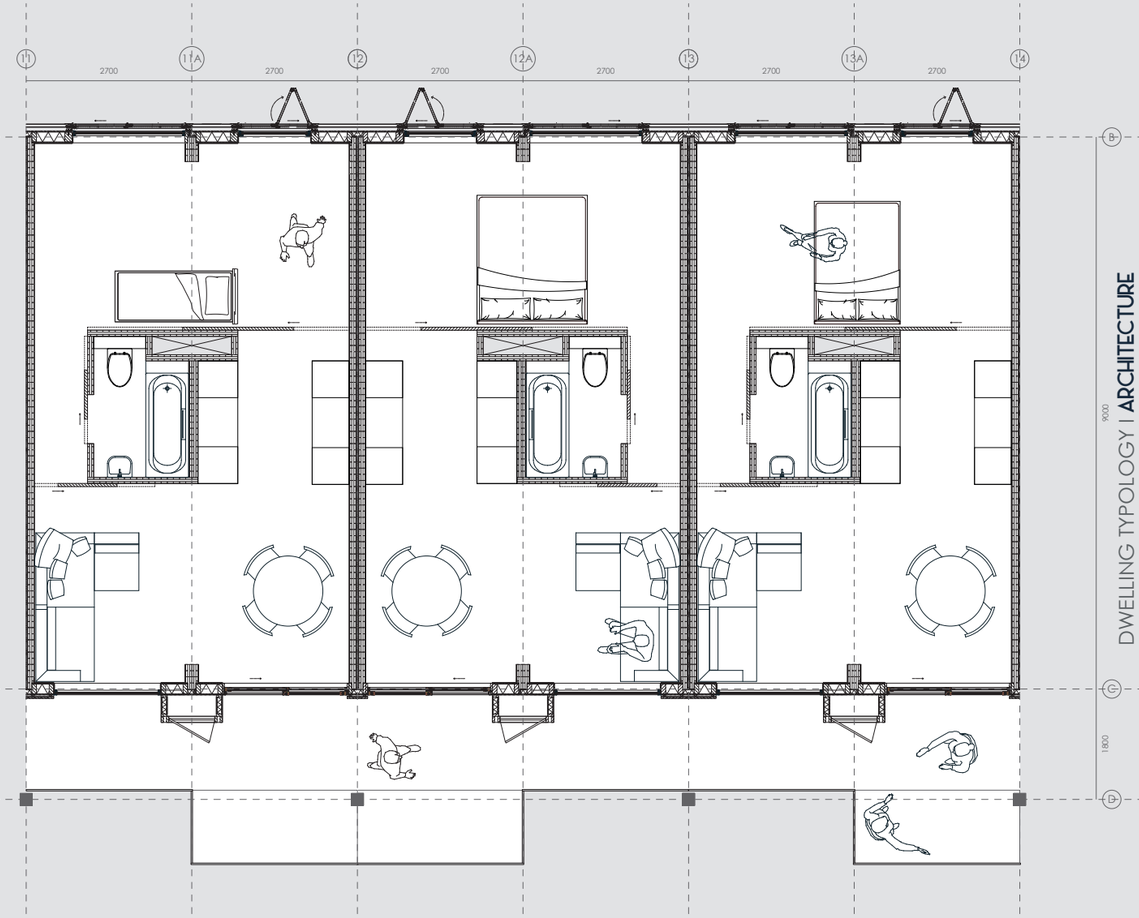
12A
13
13A
14
2700
A
B
C
D
9000
1800


11
11A
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2700
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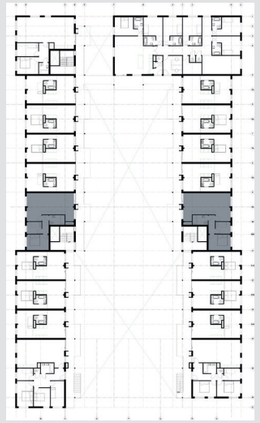
9000
1800

ESSENTIAL A 1:100

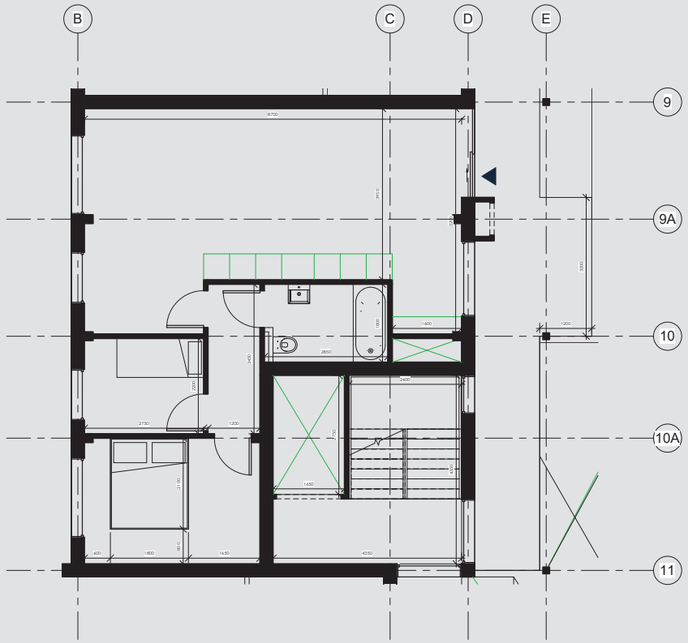
3-Room Apartment



SPECIFICATIONS

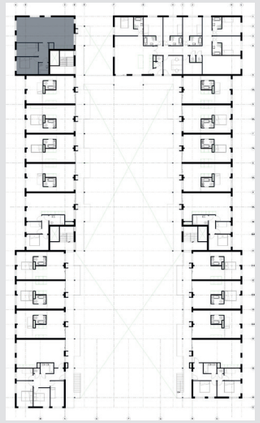
Meant for the essentials. These are the people working at the police, as a teacher, in care or firefighters. One large bedroom and a smaller for a first child. Creating a large living kitchen / room in one.

Total living area	**66,7 m2**
- Living kitchen / room	39,8 m2
- Hallway	4,1 m2
- Bathroom	5,0 m2
- Master bedroom	6,1 m2
- Bedroom 2	11,7 m2
Total amount of dwellings	**6 Dwellings**
- 4th Floor	2 Dwellings
- 5th Floor	2 Dwellings
- 6th Floor	2 Dwellings



ESSENTIAL B 1:100

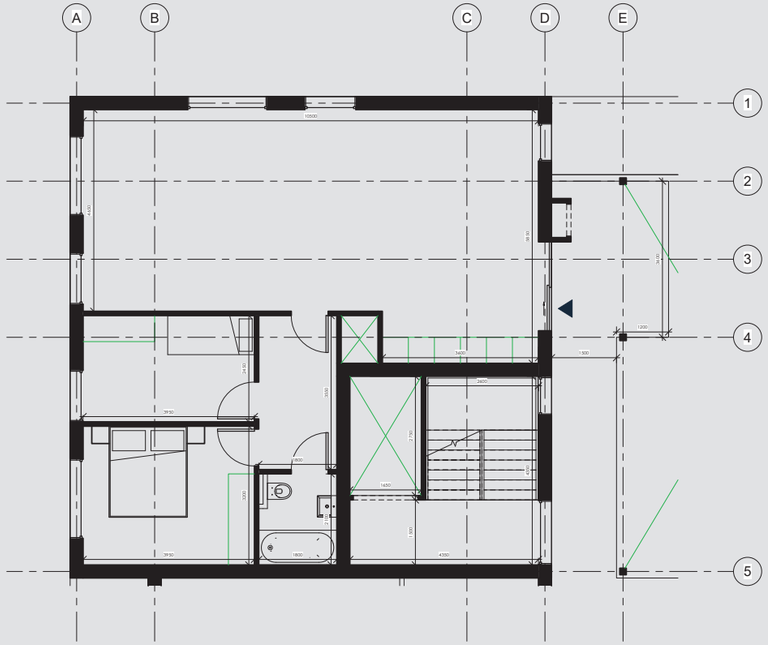
3-Room Apartment



SPECIFICATIONS

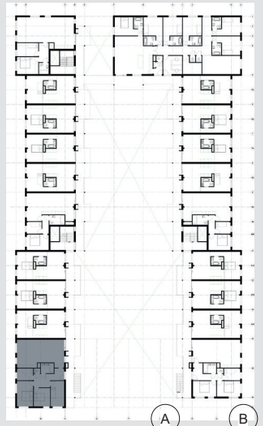
Type B is situated on the corner at the Keileweg.One large bedroom and a smaller for a first child. Creating a large living kitchen / room in one.

Total living area	**85,4 m2**
- Living kitchen / room	53,1 m2
- Hallway	6,4 m2
- Bathroom	3,6 m2
- Master bedroom	12,6 m2
- Bedroom 2	9,7 m2
Total amount of dwellings	**4 Dwellings**
- 3rd Floor	1 Dwelling
- 4th Floor	1 Dwelling
- 5th Floor	1 Dwelling
- 6th Floor	1 Dwelling



ESSENTIAL D 1:100

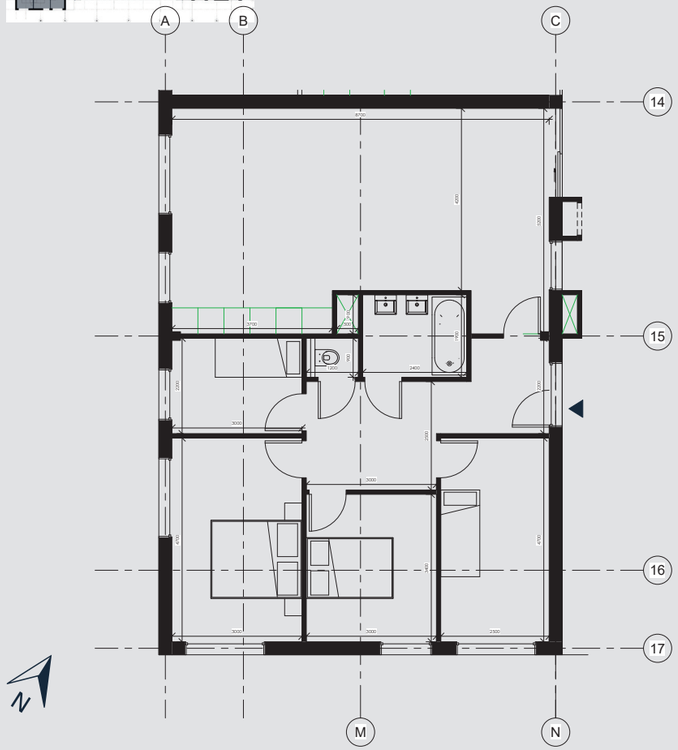
3-Room Apartment



SPECIFICATIONS

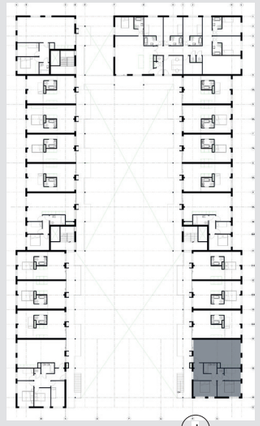
A larger variant of Type C. Because of the slightly bigger dimensions it is possible to create an extra bedroom which could also be used as a study room.

Total living area	**102,8 m2**
- Living kitchen / room	42,0 m2
- Hallway	12,4 m2
- Bathroom	4,6 m2
- Toilet	1,1 m2
- Master bedroom	14,1 m2
- Bedroom 2	10,2 m2
- Bedroom 3	11,8 m2
- Bedroom 3	6,6 m2
Total amount of dwellings	**4 Dwellings**
- 2nd Floor	1 Dwelling
- 3rd Floor	1 Dwelling
- 4th Floor	1 Dwelling
- 5th Floor	1 Dwelling



ESSENTIAL C 1:100

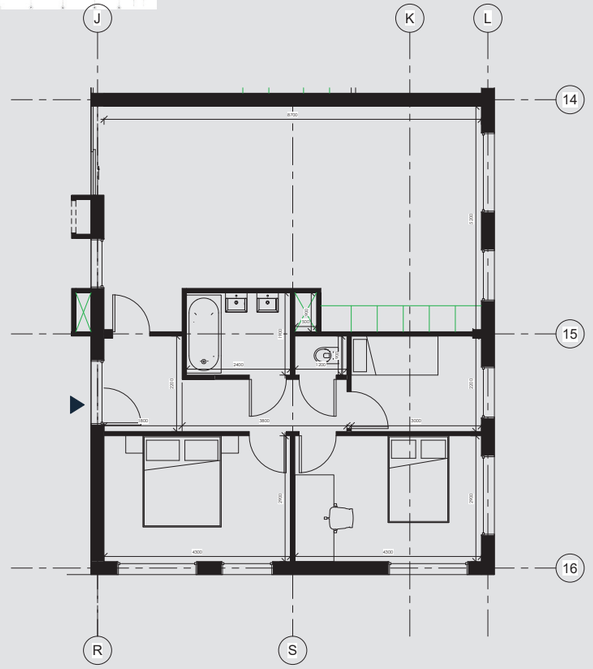
3-Room Apartment



SPECIFICATIONS

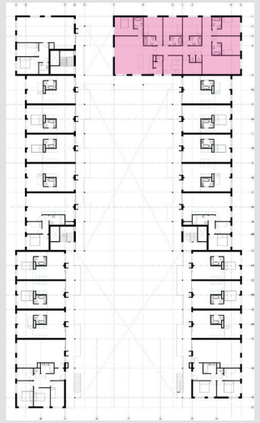
Type C is facing the Keilehaven. A large entrance is giving access to 3 bedrooms and a bathroom and toilet.

Total living area	**87,8 m2**
- Living kitchen / room	42,0 m2
- Hallway	8,5 m2
- Bathroom	4,6 m2
- Toilet	1,1 m2
- Master bedroom	12,5 m2
- Bedroom 2	12,5 m2
- Bedroom 3	6,6 m2
Total amount of dwellings	**4 Dwellings**
- 2nd Floor	1 Dwelling
- 3rd Floor	1 Dwelling
- 4th Floor	1 Dwelling
- 5th Floor	1 Dwelling



ASSISTED LIVING 1:100

Group Dwelling - 5 Young people with MID + 1 Support

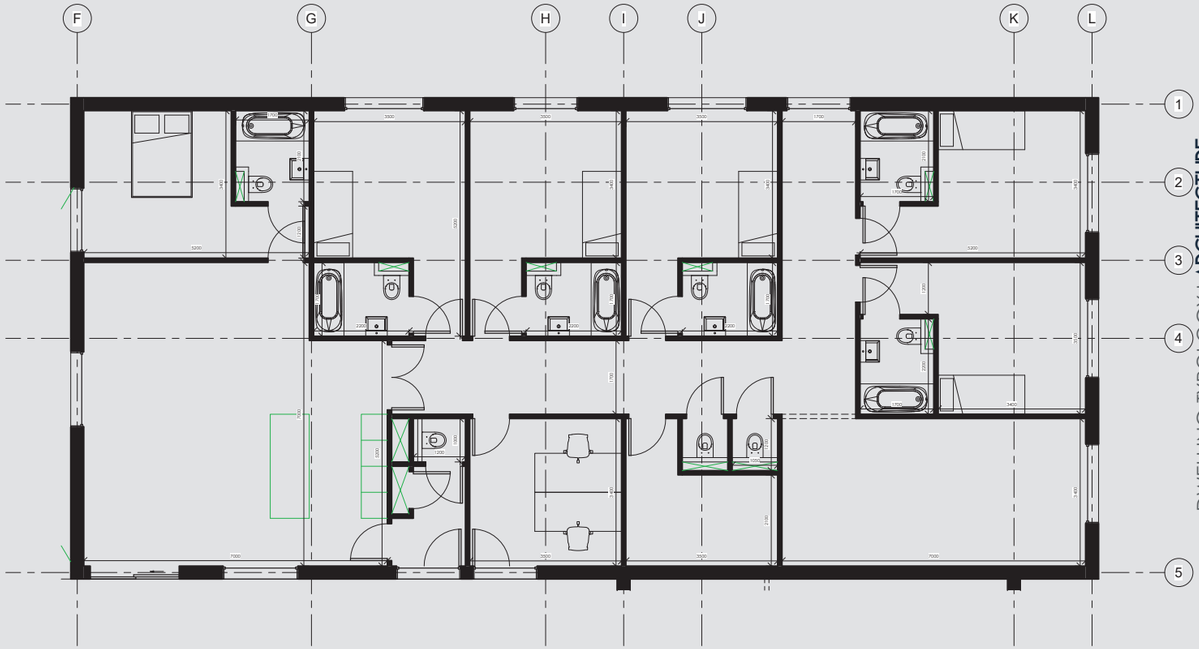


SPECIFICATIONS

Meant for young people with MID who are a step before living independently. They live together in a group of 6 with an own large bedroom and shared facilities like the bathroom, kitchen and living room. They can live together or with some support. One sleep-over room for a parent or a caregiver. This can be very attractive for a parent initiative or care organisation, combining all the budget they get from PGB (WMO) and buying own care support.

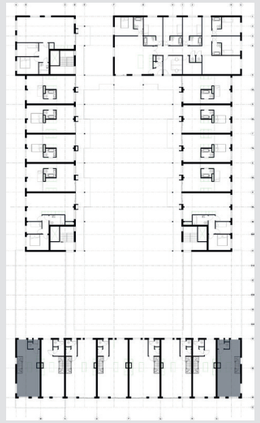
Total living area	**249,8 m2**
- Living kitchen / room	45,8 m2
- Entrance	3,3 m2
- Hallway	20,4 m2
- Toilet	1,2 m2
- Office Caregivers	11,9 m2
- Laundry Room	8,9 m2
- Hallway	51,2 m2
- Extra Toilets	2,5 m2
- Bedroom 1 incl. bathroom	17,6 m2
- Bedroom 2 incl. bathroom	17,6 m2
- Bedroom 3 incl. bathroom	17,6 m2
- Bedroom 4 incl. bathroom	17,6 m2
- Bedroom 5 incl. bathroom	17,1 m2
- Bedroom Sleep-over incl. bathroom	17,1 m2

Total amount of group dwellings	**4 Group dwellings**
- 4th Floor	1 Group dwelling
- 4th Floor	1 Group dwelling
- 5th Floor	1 Group dwelling
- 6th Floor	1 Group dwelling



ESSENTIAL E 1:100

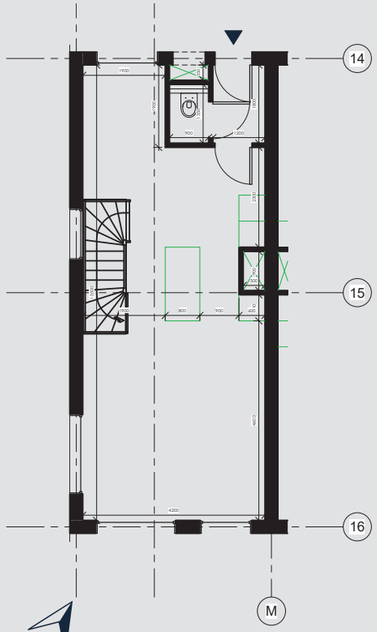
4-Room Maisonette

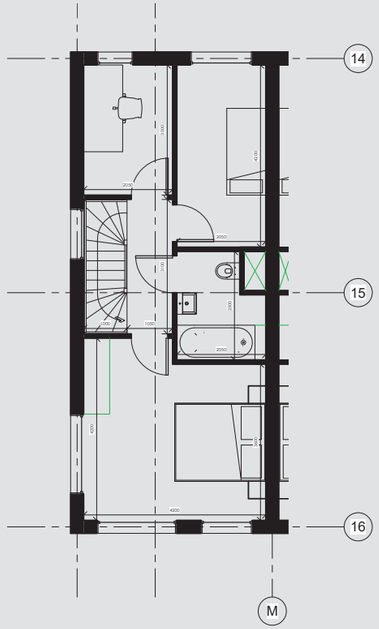


SPECIFICATIONS

These maisonettes are on top of the building at the 6th and 7th floor. Together with Essential F they share the communal roof terrace. They are looking out over the harbour area M4H.

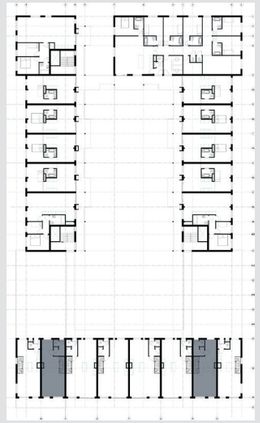
Total living area	**81,5 m2**
- Living kitchen / room	39,1 m2
- Hallway	2,2 m2
- Toilet	1,2 m2
- Hall	3,3 m2
- Bathroom	4,5 m2
- Master bedroom	16,4 m2
- Bedroom 2	8,6 m2
- Study room	6,2 m2
Total amount of dwellings	**2 Dwellings**
- 6th / 7th Floor	2 Dwelling





ESSENTIAL F 1:100

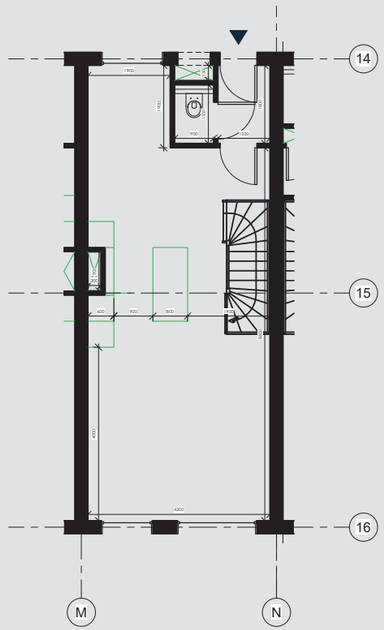
4-Room Maisonette

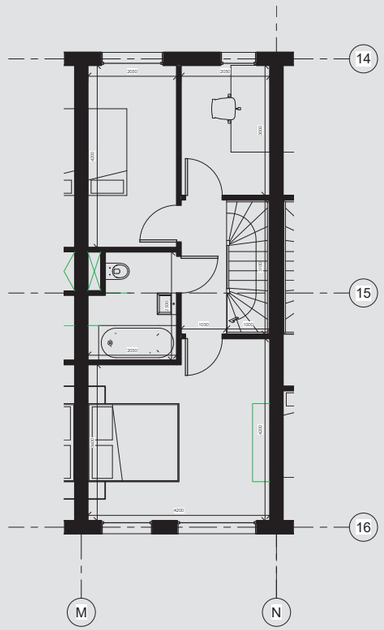


SPECIFICATIONS

These maisonettes are in between E and G. Together with Essential E they share the communal roof terrace. They are looking out over the harbour area M4H.

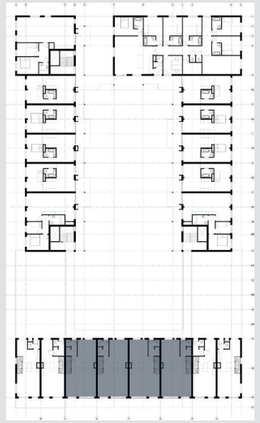
Total living area	**81,5 m2**
- Living kitchen / room	39,1 m2
- Hallway	2,2 m2
- Toilet	1,2 m2
- Hall	3,3 m2
- Bathroom	4,5 m2
- Master bedroom	16,4 m2
- Bedroom 2	8,6 m2
- Study room	6,2 m2
Total amount of dwellings	**2 Dwellings**
- 6th / 7th Floor	2 Dwelling





ESSENTIAL G 1:100

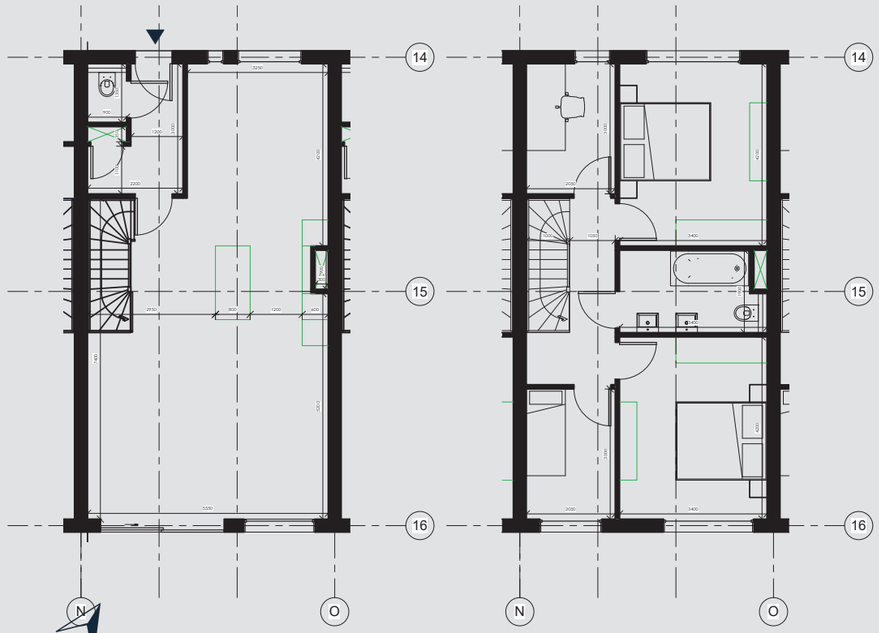
5-Room Maisonette



SPECIFICATIONS

These maisonettes are together with Essential D the largest dwellings of the building. They have 5 rooms and are looking out over de harbour.

Total living area	**109,1 m2**
- Living kitchen / room	50,7 m2
- Hallway	4,7 m2
- Toilet	1,2 m2
- Hall	5,7 m2
- Bathroom	5,9 m2
- Master bedroom	14,2 m2
- Bedroom 2	14,3 m2
- Bedroom 3	6,2 m2
- Study room	6,2 m2
Total amount of dwellings	**4 Dwellings**
- 6th / 7th Floor	4 Dwelling



CUSTOMIZATION

INTEGRATION INTERVIEW
During the research I interviewed a mentor of people with intellectual disabilities. Out of this interview, a few characteristics came forward which are important for these people.

These characteristics are integrated in the plan of the dwelling.

CLARITY & STRUCTURE
A wet core creates a very practical interior, where all wet functions are situated. It's like a box in the apartment, where the kitchen and bathroom are integrated.

LITTLE DISTRACTION
For people with MID it's important they are able to isolates themselves when they get too much incentives.

They need some space where they can focus or take some rest. Therefore flexible walls are integrated. The dwellers can decide how much privacy they need.

When opening the walls, the apartment becomes lighter because of the large windows.

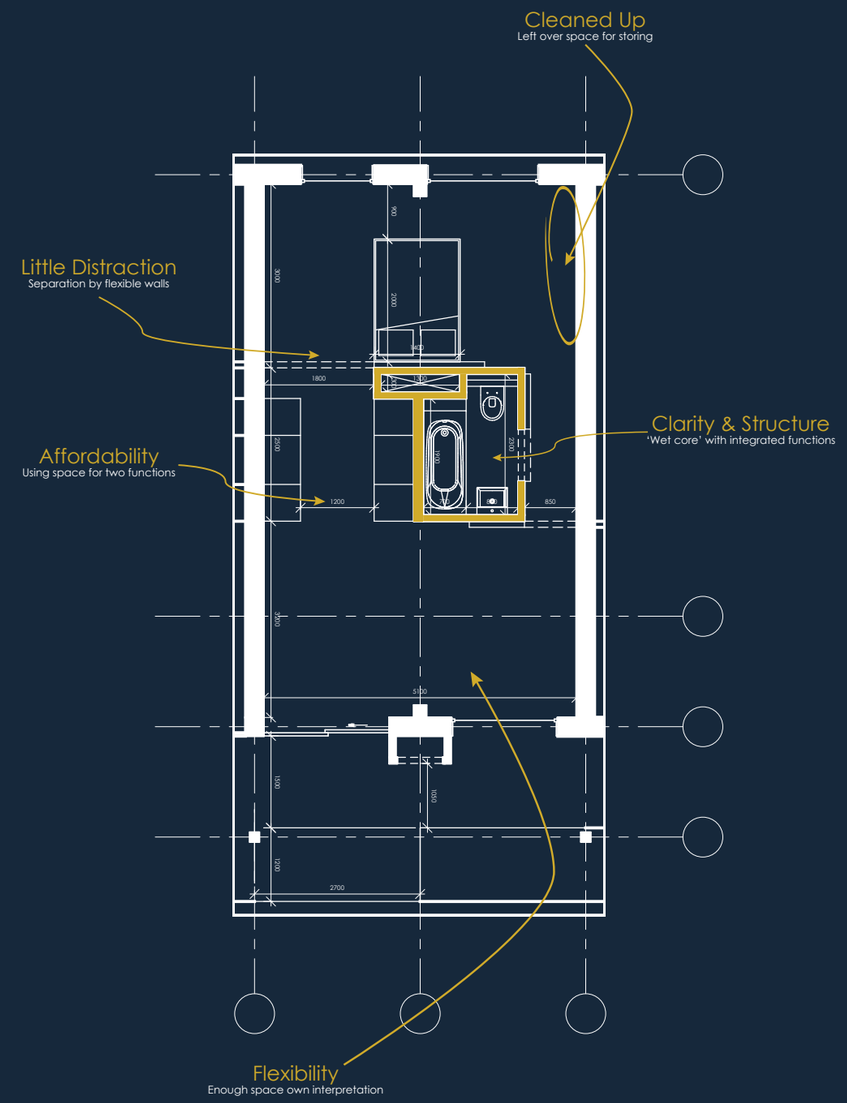
CLEANED UP
A clear apartment means a clear mind. Therefore space is needed to store your stuff. In the corners of the bedroom is 600mm space over to position wallclosets.

AFFORDABILITY
The compact apartments are based on the lower budget of the dwellers. Space is used double, for instance in the kitchen. The kitchen serves as a connection between the living and the bedroom, but also has enough workspace to cook.

FLEXIBILITY & REGONIZABILITY
The bedroom and living are quite large spaces of around 15 m^2 with enough opportunities for your own arrangement of furniture.

The gypsum board on the walls are there for fire safety, but they also provide a function to make it your apartment. The residents can paint their walls to personalise their house.

ELECTRICAL SPACE
Every apartment needs an electrical space in 3 meters from your entrance. Because people with MID can have trouble in social contact and the apartment is a private domain, the electrical spaces are on the outside of the apartments.

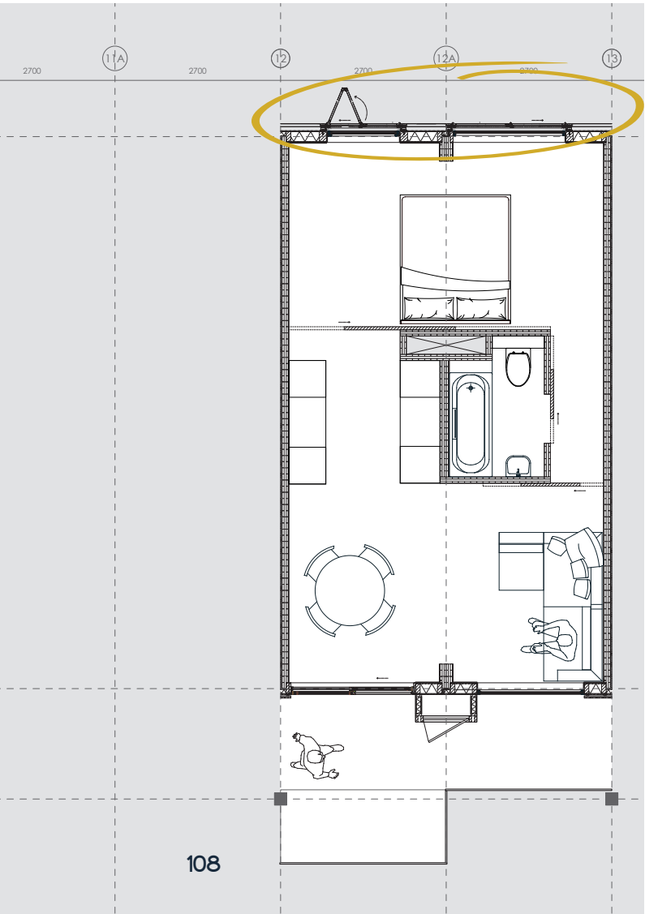


CREATING PRIVACY

Creating privacy when getting too much incentives is necessary. Therefore the flexible can close inside the apartments. Also moveable shutters are integrated in the facade. Each dweller can manually controll these bi-fold shutters, so they can determine their own degree of privacy.

These shutters are made from perforated alumium by MetaDecor. At the same time, they serve as sunscreens.

Because every shutter is manually controlled by its own resident, the facade will be dynamic and never have the same appearance.



VEERLE (22)

Veerle loves her cats and is not afraid to lean new things. She is living on the 3rd floor, so her cats have easily access to the communal inner courtyard.

She want to improve her cooking skills. The kitchen provides enough space to cook on one side and cut the vegetables on the other side. Hereby she has enough overview, which is important to her.

Veerle - © Linnele Deunk (2020)

SANNE (21)

Sanne needs a place where she has some rest. Too much incentives are causing distraction for her. By closing the flexible walls, she can create some extra privacy in her bedroom.

In the corner next to the openable window she has a seating where she can read a small book.

Sanne - © Linnéa Deunk, 2020

SANDER (24)

Sander has a slightly smaller bed, which is placed next to the windows. His major hobby is creating vlogs where he shows his daily life. For Sander it is important he can take some video's in his room and edit them on his computer.

To block the sun on his computer screen, he can close the foldable shutters on the facade.

Sander - © Linnelé Deunk (2020)

Shutters Closed - 21/06/2020 17:00

NORTH FACADE ELEVATION 1:200

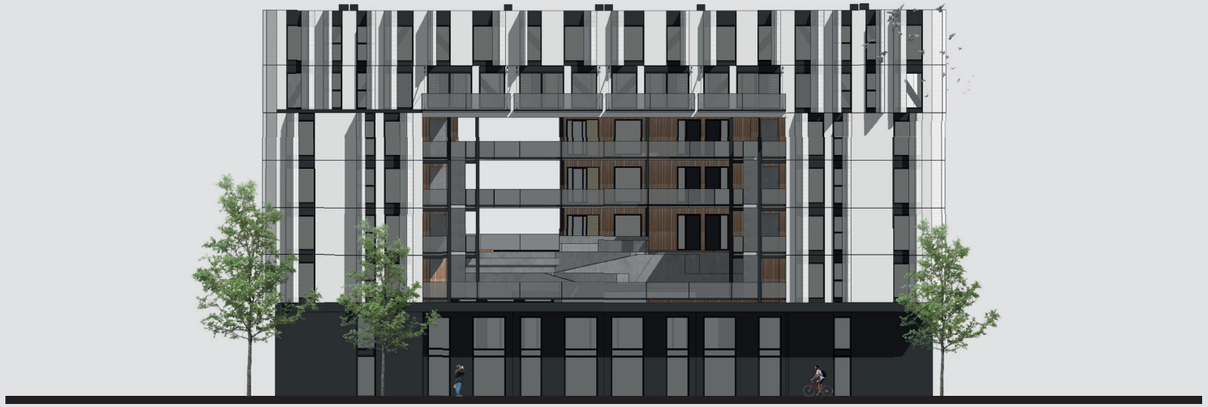
Shutters Open - 21/06/2020 17:00

Shutters Closed - 21/06/2021 09:00

EAST FACADE ELEVATION 1:200

Shutters Open - 21/06/2021 09:00

Shutters Closed - 21/06/2021 09:00



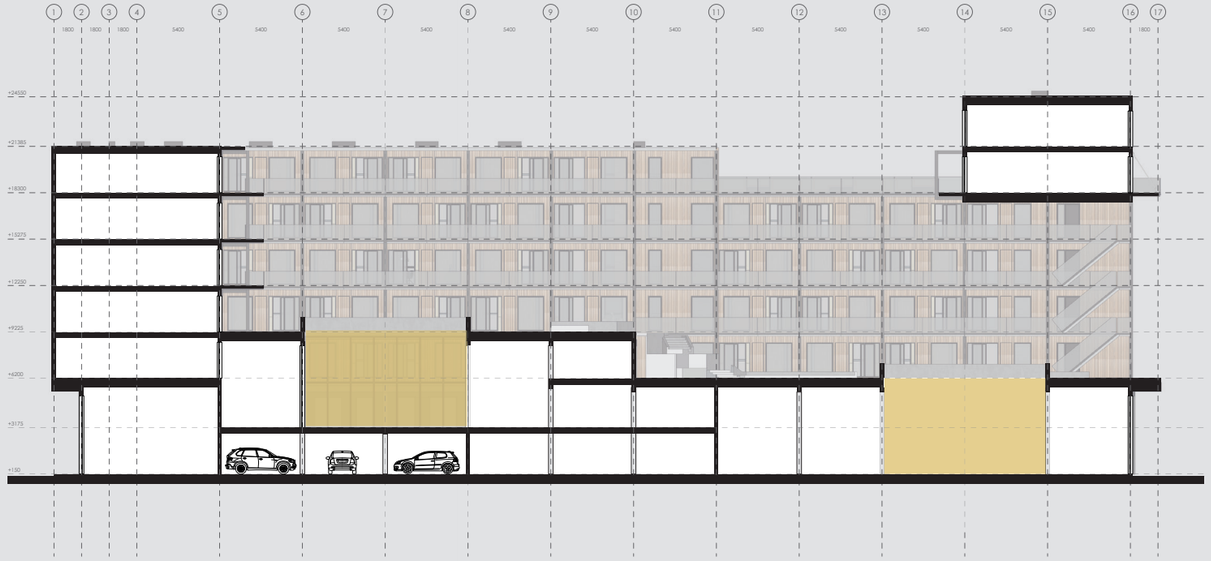
SOUTH FACADE ELEVATION 1:200

Shutters Open - 21/06/2021 09:00

Shutters Closed - 21/03/2021 13:00

WEST FACADE ELEVATION 1:200

Shutters Open - 21/03/2021 13:00

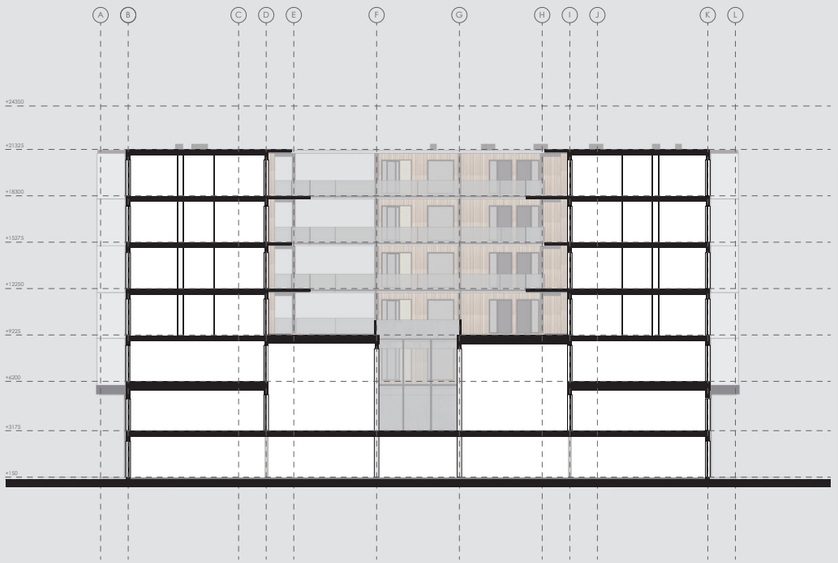


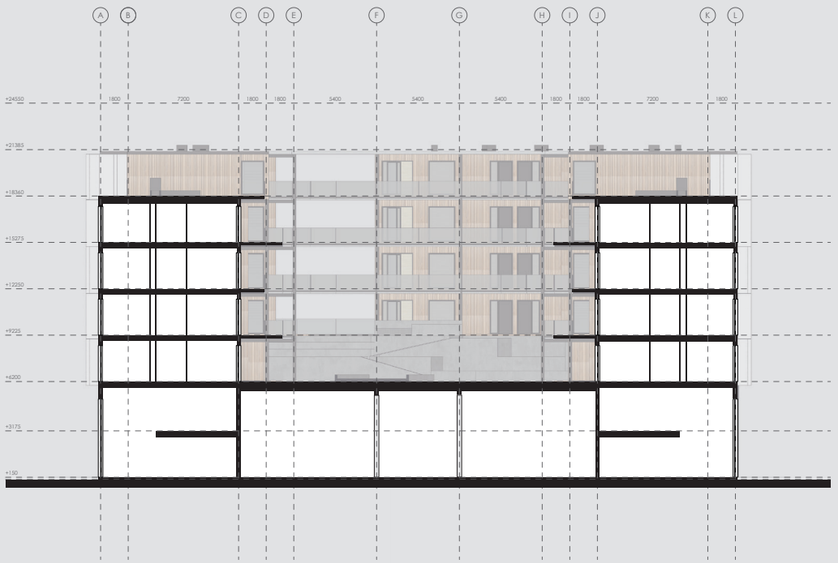
SECTIONS

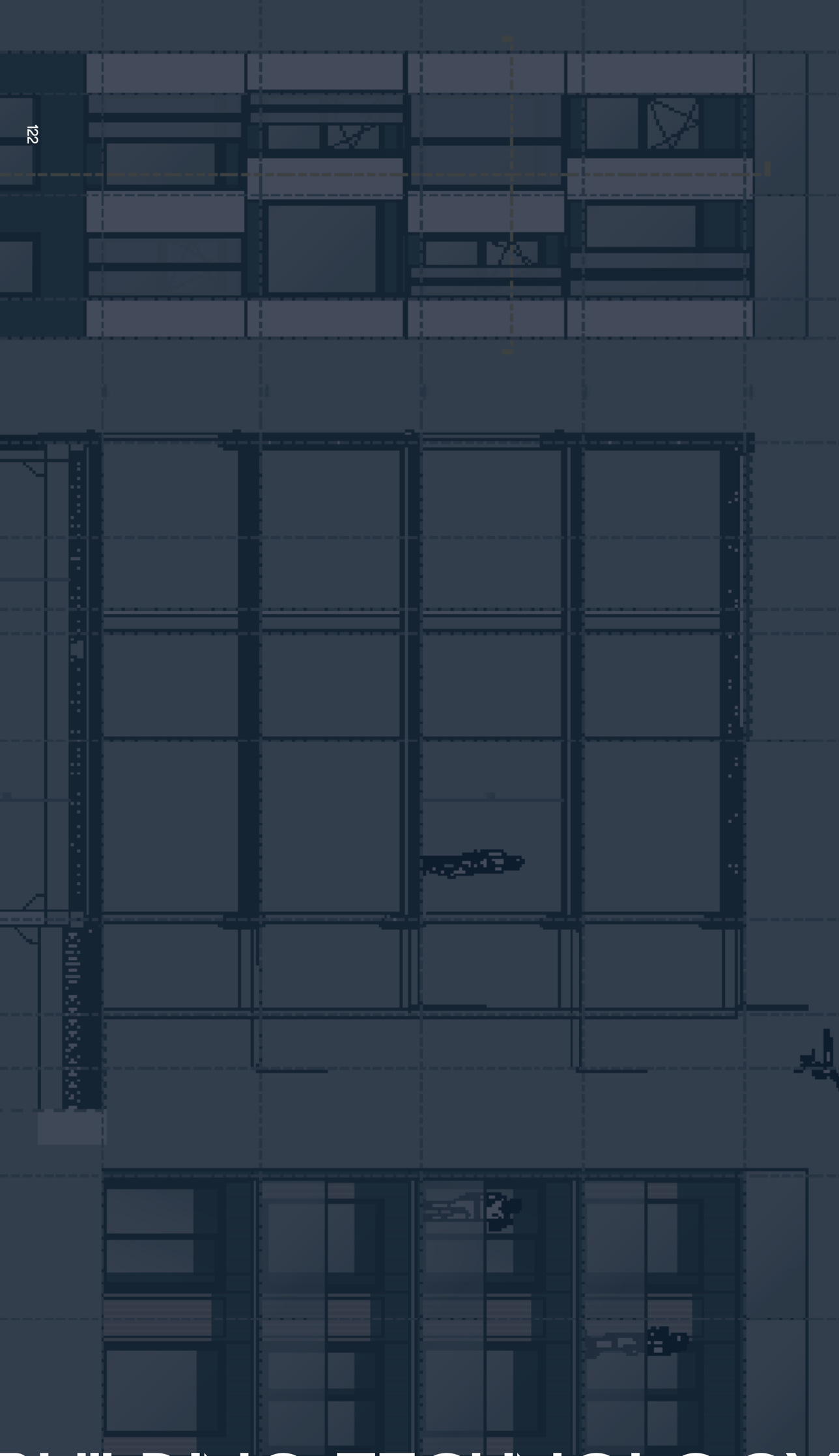
ATRIUMS

To provide enough daylight in the building below the inner courtyard, two atriums bring extra light.

The atrium in the workspace can be used as an outdoor lounge to relax or have a phone call.







BUILDING TECHNOLOGY

BUILDING WITH CLT

CROSS LAMINATED TIMBER
The building existst out of CLT (= Cross Laminated Timber). CLT Panels are prefabricated, where wooden strokes are laminated together to form one larger panel. Wood is a very durable building material. CLT has the same strength as concrete, which makes it a very interesting alternative.

CO_2 STORAGE
One of the most major reasons to use CLT is that it contributes to solving our worldwide CO_2-problem. Where concrete is responsible for 4 - 8% of the worldwide CO_2-emissions, wood has a positive effect (INBO, 2021). When growing forests, wood will absorb CO_2 out of the air, storaged in the wood.

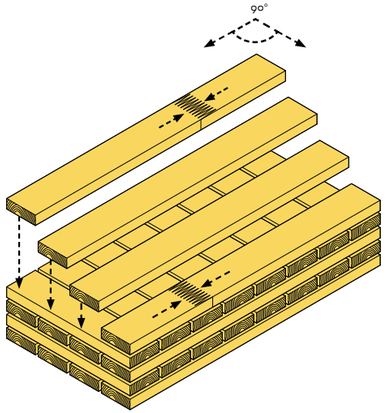
When a tree dies or burns, he is giving back CO_2 to the atmosphere. But when getting cut, it stays storaged in the wood. Building with wood means a permanent CO_2 storage.

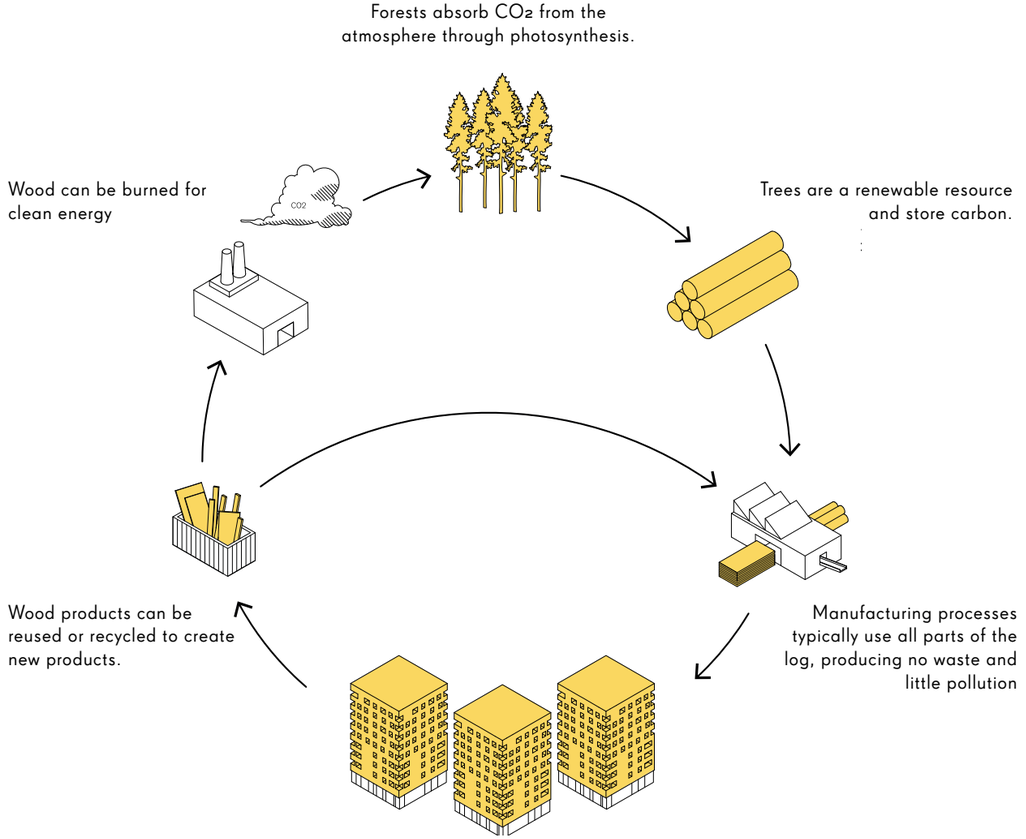
RENEWABLE
Wood is a renewable material, it can always grow back. We can work towards a fossil-free generation, where we don't exhaust the earth. One condition is that we don't use more wood on a yearly basis then there will grow in one year.

REUSABLE
Wood is easy to reuse or recycle. It can be cutted and demounted, where it can serve other functions.

LOWER EMISSIONS
Wood is a very light building material, which means less heavy cranes are needed for transportation. Building in wood helps in solving the problem according to carbon and nitrogen.

ESTHETICAL VALUE
Besides the durable benefits, wood has a high esthetical value. Especially with CLT, no finishing is needed.





MODULAR ELEMENTS

1M HOMES
Together with the demand for durable buildings we are facing a huge challenge in the Netherlands: we have to build up to '*1 Million Homes*' by 2030. This asks a lot of our building rate and efficiency. We need to build faster to meet this challenge.

Therefore, I focus with my building on a faster and more efficient building process. The building exists out of all prefabricated modular clt elements. "*Modular construction can increase the number of new homes by 40 percent to 81.500 homes per year compared to the average 58.200 built in the past four years." (ABN Amro, 2019, pp. 1).*

EFFICIENCY
All modular elements are prefabricated and finished incl. kitchen and bathroom. Because of the high amount of prefabrication elements, the building is faster built. The high repetition of same apartments in the building makes it affordable to prefabricate this building. After prefabrication, all elements are transported to the building site where all modules are stacked. This transforms the building site into a mounting location (ABN Amro, 2019).

REDUCING COSTS
Due to more prefabrication, less construction site workers are needed. This means lower costs on site. Prefabrication means more accuracy, thats why less budget has to be reserved for unforseen expenses (INBO, 2021).

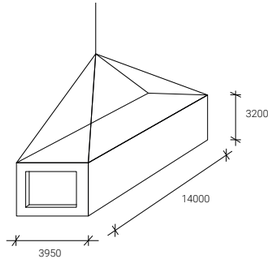
LOWER EMISSIONS
Because all modules are completely finished, less materials have to be transporterd to the building site.

HIGHER RESTVALUE
Building modular means the building can be demounted and used again, which makes it a circular building. This represents a higher restvalue then with demolition of the building.

TRANSPORTATION
The dimensions of the modular elements are limited by the transport requirements. It depends on the country and dispensation to which dimensions the load is limited.

In the Netherlands you can transport without dispensation to a maximum of the width of the trailer, which is mostly 2750mm. With a yearly dispensation it is possible to transport up to 3500mm width. In general the transport is limited to 3,9m width, 3,2m heigh and 14m in length (INBO, 2021).

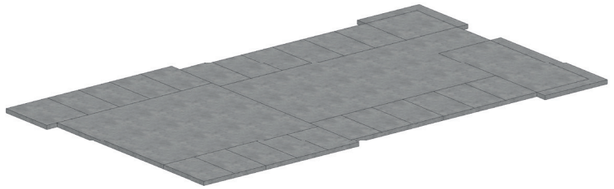
Too meet this requirements, the modular elements are set to a width of 2700mm, height of 3025mm and length of 9000mm.



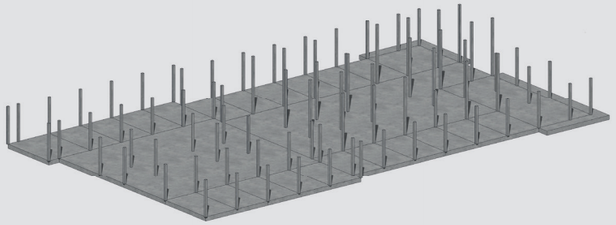
Maximum transport dimensions, from: INBO (2021).

CONSTRUCTION

FOUNDATION
+ Concrete foundation

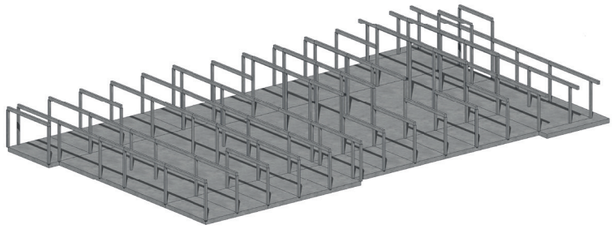


COLUMNS
+ Concrete columns of 6 or 9 meters high
+ Around 300 x 300mm
+ Grid of 5400 mm
+ Less columns in the middle for more flexibility, double span of 10800 mm



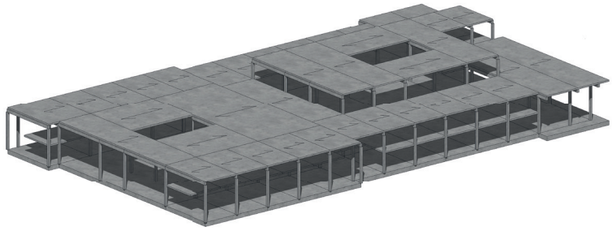
BEAMS
+ Concrete beams with max. span of 10800 mm
+ Grid of 5400 mm
+ Around 450 x 300 mm

+ Secundair grid of 2700mm for CLT Modules



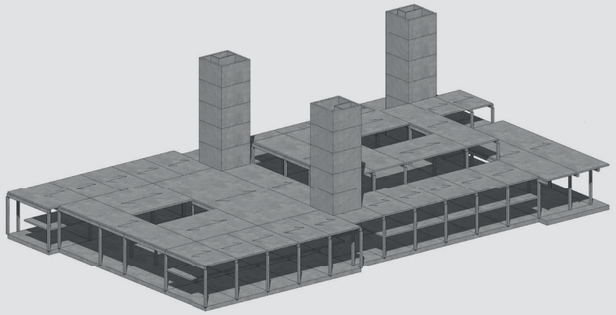
FLOORS

+ Hollow core slab floors
+ Max. span of 10800 mm (320 VBI) in the middle and 5400 mm (200 VBI) in the plinth
+ Openings in the middle for daylight



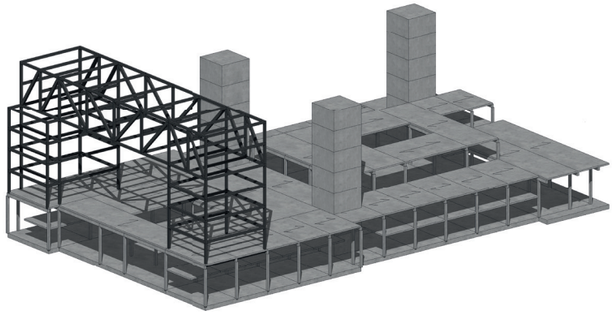
STABILITY

+ Concrete elevator cores creating stability
+ Elevators & stairs on 3 central spots



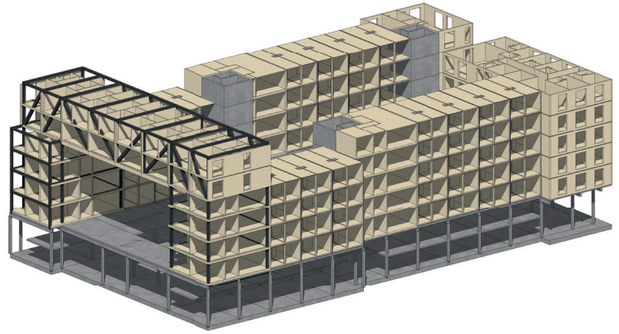
STEEL SPAN

+ Steel framework construction for span of 19800 mm
+ Providing a construction for maisonettes
+ Will be hidden behind facade elements



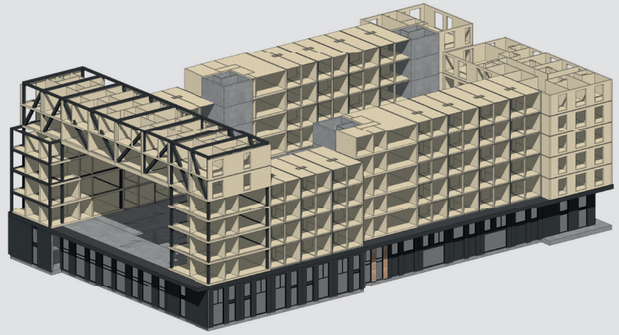
CLT MODULES

+ Prefab CLT Modules of 9000 x 2700 mm
+ 2 Modules = 1 Dwelling of 5400mm width
+ Fully prefabricated incl. bathroom and kitchen
+ Not higher than 3100mm because of transport



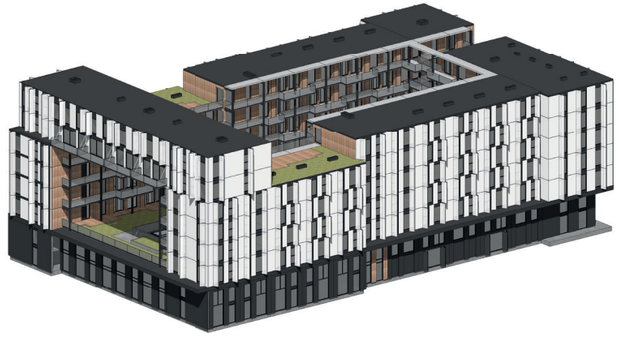
PLINTH

+ Concrete plinth with large industrial windows
+ Prefab elements of concrete with insulation
+ Entrances highlighted with wood instead of concrete



ON SITE

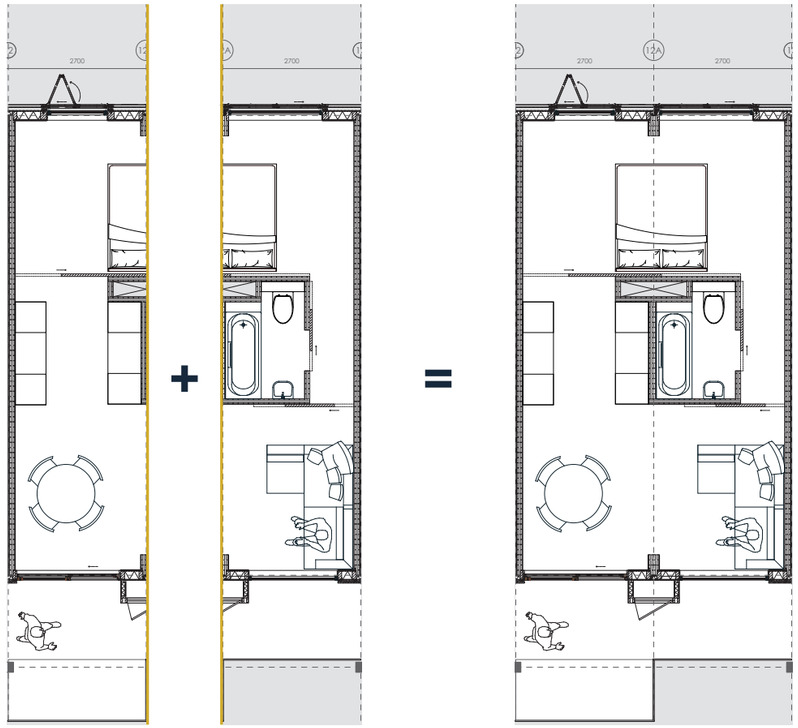
+ The facade will be mounted on site, including the foldable perforated shutters

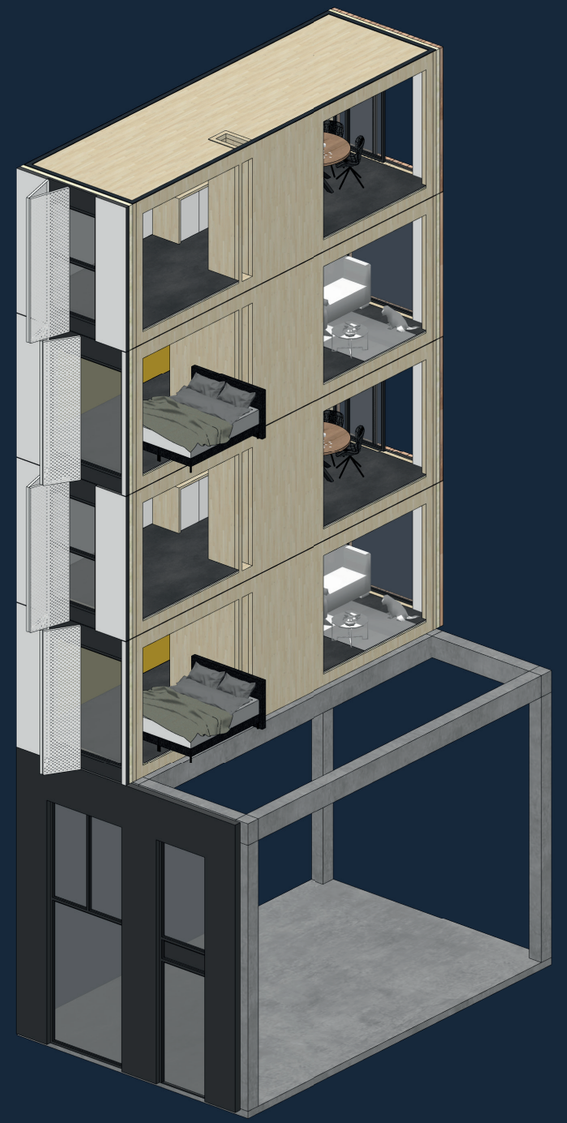


STACKING MODULES

Each studio exists out of 2 modular elements of 2700mm, which are stacked together. Together they create an apartment of 5400mm.

The dividing line is on the wall and beam of the kitchen and bathroom, which means they are already finished during prefabrication.

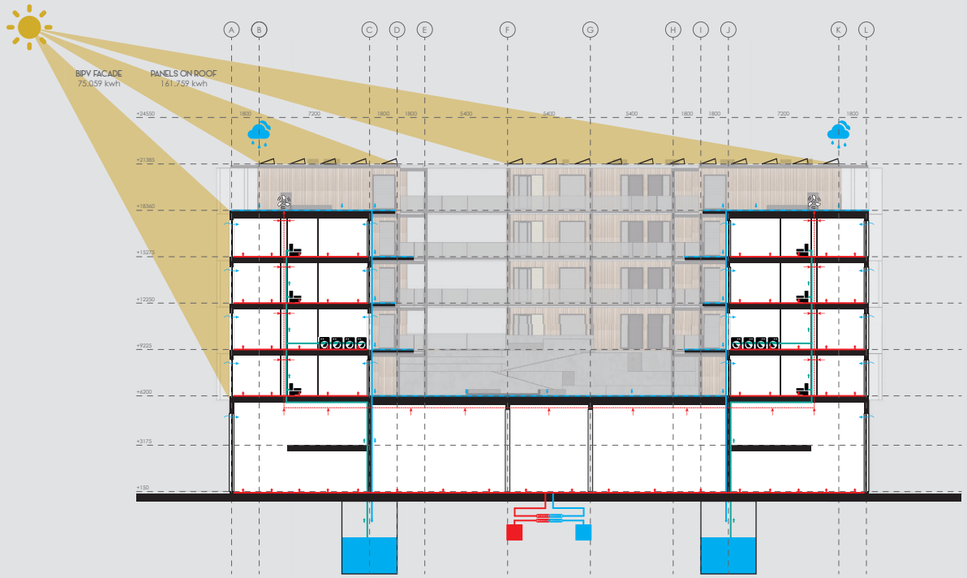




CLIMATE CONCEPT

With my climate concept I want to contribute to a durable residential environment and create awareness of the tasks that has to be done when living independently.

Where it is possible, the building will support the dwellers in terms of automatically controlled ventilation grilles.



SOLAR ENERGY
Solar panels will be integrated in the facade on a traditional siding system. These panels can produce 75.059 kwh per year. Together with the solar panels on top of the roofs they produce 236.818 kwh.

This will be enough for the energy consumption of the dwellings with a total of 222.880 kwh.

HEATING
The floor heating is connected with a heatpump and hot-and-cold storage below the surface.

VENTILATION SYSTEM
Type C. Self-regulating grilles from Duco will automatically open and close based on CO2. They will also pre-heat the air.

WATER SYSTEM
Rainwater from the roofs will be collected and re-used for flushing the toilets and the communal laundry rooms.

VENTILATION

SYSTEM C
Ventilation is based on System C; natural supply & mechanically discharge of air. Because of the fact that the toilet is placed inside the bathroom, the ventilation capacity is limited to the kitchen and bathroom.

Ventilation Requirements	**42 dm3/s**
- Kitchen	21dm3/s
- Bathroom	14 dm3/s
- Toiet	7 dm3/s

Minimum = (39,5 + 3,1m2) x 0,9 dm3/s = 38,3 dm3/s

Chosen is for a preheated ventilation grille from DUCO, which will be set on top of the alumium window frames. This grill will electronically regulate the incoming air, with optimal comfort and lower energycosts as a result. In this way people with MID don't need to worry about the indoor climate when they forget to ventilate.

DUCO ClimaTop 60

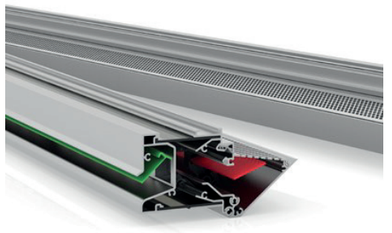
- Ventilation Capacity	12 dm3/s/m

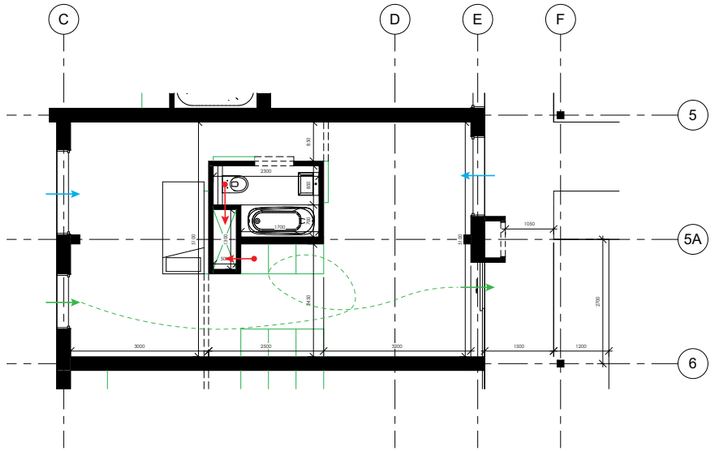
The large windows on both side of the apartments will have the ventilation grill with a total width of 1850 + 1750 = ***3600 mm***, which will be enough to ventilate.

Needed Ventilation Width = 42 / 12 = 3,5 m

SPUI VENTILATION
Although the air-supply is regulated by the self-regulating preheated grilles, I want to adress the fact that ventilation is needed. Especially for people with MID I see this as an important element to create awareness when they are going to live independently.

Furthermore, opening up some windows is needed for spui ventilation. In case of heavily polluted air, for instance when something is burned in the kitchen, it is possible to ventilate quickly. Therefore the smaller window of the bedroom will tilt. Together with the sliding door on the gallery it is possbile to ventilate.





SOLAR PANELS

BIPV

The largest part of the solar panels are integrated in the facade. These are Building Integrated Photovoltic Panels (=BIPV). These are thin-film solar panels, mounted on traditional siding systems, like the bedhook-system.

They are made by a Swiss company, called Solaxess, which is a company specialised in the high tech solar sector. The panels reflects visible light and transmit infrared rays.

+ Output of 110 Wp/m2 by Standard White

All facades are covered with these integrated panels, which have an output of 75.059 kWh.

TOTAL OUTPUT

Together with the panels on the roof the total output of solar energy will be **236.818 kWh.** This will be enough to meet the energy consumption of all 88 households in the building, with a total of **222.880 kWh.**

SOLAXESS
white solar technology

SOLAR PANELS

Output & Requested Energy

TYPE PANEL		
SOLAXESS BIPV THIN FILM		
OUTPUT PANEL		
WHITE NCS S 1005-R80B	110	WP/M2
ROOF PANEL	250	WP/M2
SOUTH WEST FACADE		
ORIENTATION	57.6	SW
TOTAL SURFACE	500.6	M2
OUTPUT WP	55066	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	65%	
OUTPUT AFTER LOSS	30424	KWH
SOUTH EAST FACADE		
ORIENTATION	32.4	SE
TOTAL SURFACE	173.3	M2
OUTPUT WP	19063	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	69%	
OUTPUT AFTER LOSS	11180	KWH
NORTH EAST FACADE		
ORIENTATION	57.6	NE
TOTAL SURFACE	501.62	M2
OUTPUT WP	55178	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	45%	
OUTPUT AFTER LOSS	21106	KWH
NORTH WEST FACADE		
ORIENTATION	32.4	NW
TOTAL SURFACE	377.35	M2
OUTPUT WP	41509	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	35%	
OUTPUT AFTER LOSS	12349	KWH
PANELS ON ROOF		
ORIENTATION	57.6	SW
TOTAL SURFACE	818.51	M2
OUTPUT WP	204629	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	93%	
OUTPUT AFTER LOSS	161759	KWH
TOTAL OUTPUT	236818	KWH

MID		
AMOUNT OF DWELLINGS	40	
PERSONS IN HOUSEHOLD	1	PERS.
ENERGY CONSUMPTION	1850	KWH
REQUESTED ENERGY	74000	KWH
YOUNG		
AMOUNT OF DWELLINGS	16	
PERSONS IN HOUSEHOLD	1	PERS.
ENERGY CONSUMPTION	1850	KWH
REQUESTED ENERGY	29600	KWH
ESSENTIAL A		
AMOUNT OF DWELLINGS	8	
PERSONS IN HOUSEHOLD	3	PERS.
ENERGY CONSUMPTION	3400	KWH
REQUESTED ENERGY	27200	KWH
ESSENTIAL B		
AMOUNT OF DWELLINGS	4	
PERSONS IN HOUSEHOLD	3	PERS.
ENERGY CONSUMPTION	3400	KWH
REQUESTED ENERGY	13600	KWH
ESSENTIAL C		
AMOUNT OF DWELLINGS	4	
PERSONS IN HOUSEHOLD	4	PERS.
ENERGY CONSUMPTION	3930	KWH
REQUESTED ENERGY	15720	KWH
ESSENTIAL D		
AMOUNT OF DWELLINGS	4	
PERSONS IN HOUSEHOLD	5	PERS.
ENERGY CONSUMPTION	4180	KWH
REQUESTED ENERGY	16720	KWH
ESSENTIAL E		
AMOUNT OF DWELLINGS	2	
PERSONS IN HOUSEHOLD	3	PERS.
ENERGY CONSUMPTION	3400	KWH
REQUESTED ENERGY	6800	KWH
ESSENTIAL F		
AMOUNT OF DWELLINGS	2	
PERSONS IN HOUSEHOLD	3	PERS.
ENERGY CONSUMPTION	3400	KWH
REQUESTED ENERGY	6800	KWH
ESSENTIAL G		
AMOUNT OF DWELLINGS	4	
PERSONS IN HOUSEHOLD	4	PERS.
ENERGY CONSUMPTION	3930	KWH
REQUESTED ENERGY	15720	KWH
ASSISTED LIVING		
AMOUNT OF DWELLINGS	4	
PERSONS IN HOUSEHOLD	6	PERS.
ENERGY CONSUMPTION	4180	KWH
REQUESTED ENERGY	16720	KWH
TOTAL		
AMOUNT OF DWELLINGS	88	
PERSONS IN BUILDING	180	PERS.
REQUESTED ENERGY	222880	KWH

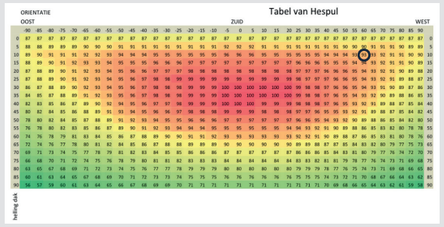
SOLAR PANELS
Panels on Roof

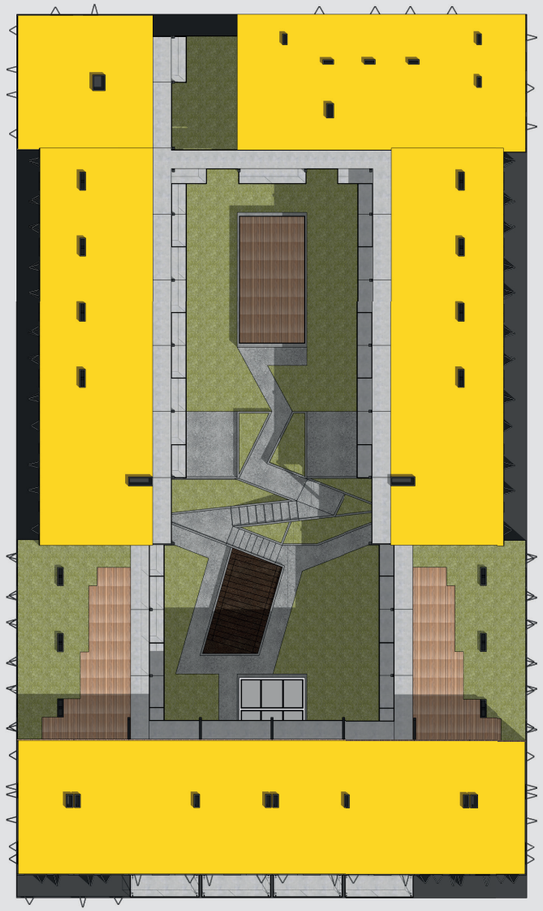
PANELS ON ROOF		
ORIENTATION	57.6	SW
TOTAL SURFACE	818.51	M2
OUTPUT WP	204629	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	93%	
OUTPUT AFTER LOSS	161759	KWH

SPECIFICATIONS

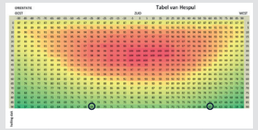
Dimensions Solar Panels	1,00 x 1,65 m
Orientation Roof	57,6° SW
Available Roof Surface	1364 m²
Inclination Angle	15°
Losing factor incilation	50%
Output	250 Wp/m²

An inclination of 20° means that between every row of panels there must be 0,70 meters of space for shadowing. Therefore there is a losing factor of 40%. The available surface for panels will be 1362 x 60% = 818,52 m².





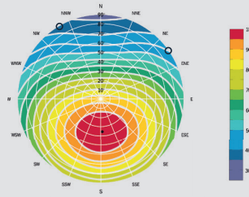
SOLAR PANELS
BIPV Solaxess - South Facades



SOUTH EAST FACADE		
ORIENTATION	32.4	SE
TOTAL SURFACE	173.3	M2
OUTPUT WP	19063	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	69%	
OUTPUT AFTER LOSS	11180	KWH

SOUTH WEST FACADE		
ORIENTATION	57.6	SW
TOTAL SURFACE	500.6	M2
OUTPUT WP	55066	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	65%	
OUTPUT AFTER LOSS	30424	KWH

SOLAR PANELS
BIPV Solaxess - North Facades



NORTH WEST FACADE		
ORIENTATION	32.4	NW
TOTAL SURFACE	377.35	M2
OUTPUT WP	41509	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	35%	
OUTPUT AFTER LOSS	12349	KWH

NORTH EAST FACADE		
ORIENTATION	57.6	NE
TOTAL SURFACE	501.62	M2
OUTPUT WP	55178	WP
IRRADIANCE FACTOR	85%	
LOSS FACTOR	45%	
OUTPUT AFTER LOSS	21106	KWH

MATERIALIZATION

Sustainability and suitability for the community were two important values in choosing materials.

CROSS LAMINATED TIMBER

All modular elements are fabricated out of CLT, this is renewable, reusable, represents lower emissions and contributes to solving our CO_2-problem.

ISOVLAS

The prefab HSB elements are filled with Isovlas insulation, a biobased innovation, which is a natural product. Like wood, it storages CO_2 and it is a renewable building material.

MARMOLEUM

The floors of the studio's are made out of marmoleum. Marmoleum gives the apartments a modern look, but is a natural and CO_2-neutral floor. This floor is impact and scratch resistant.

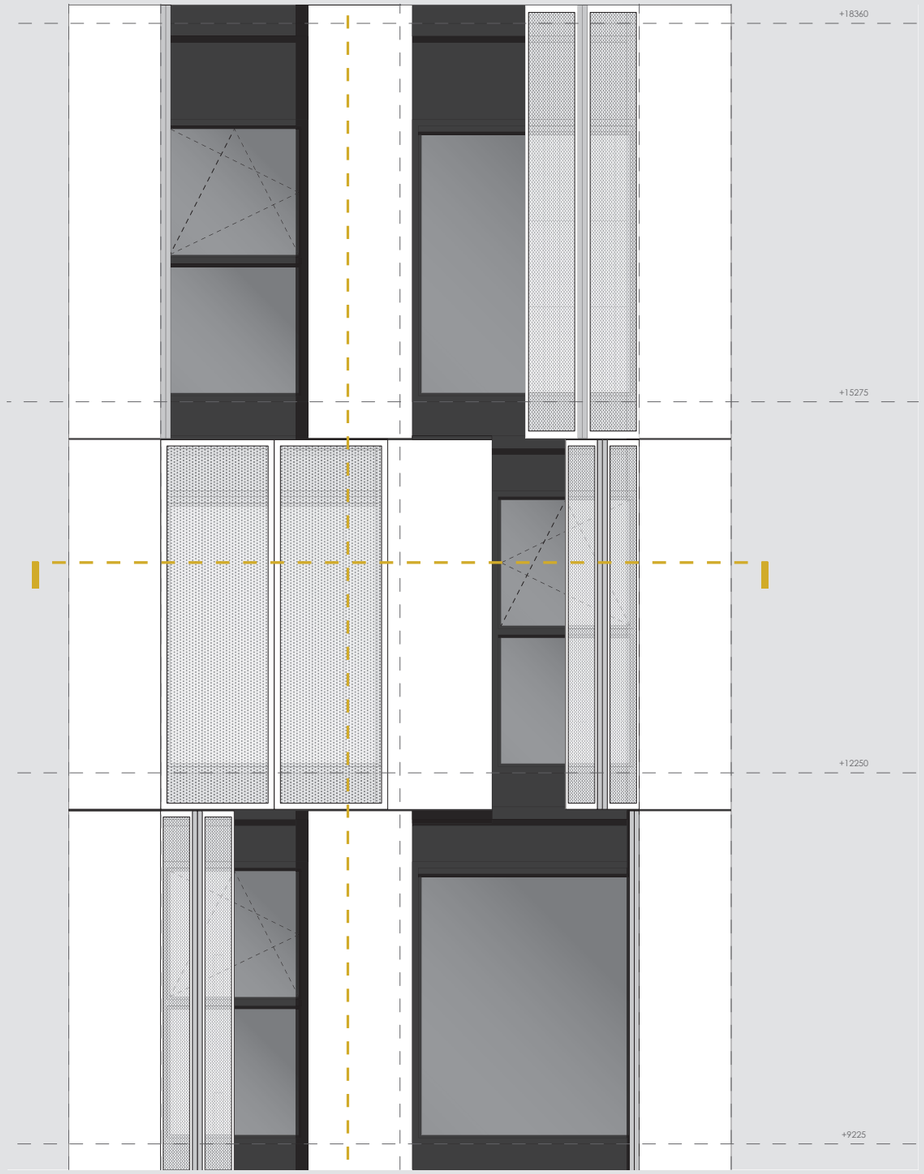
This will not damage the floor, when my user group unexpectedly drops something in the kitchen.

NOBELWOOD

For the finishing of the facades at the inside of the building, nobelwood is used. The fastest growing coniferous wood in the world is modified by means of an innovative technique with biobased chemistry. This gives it the appearance and lifespan of tropical hardwood. It gives the inner courtyard a pleasant appearance.

SECTION

Modular Elements with Facades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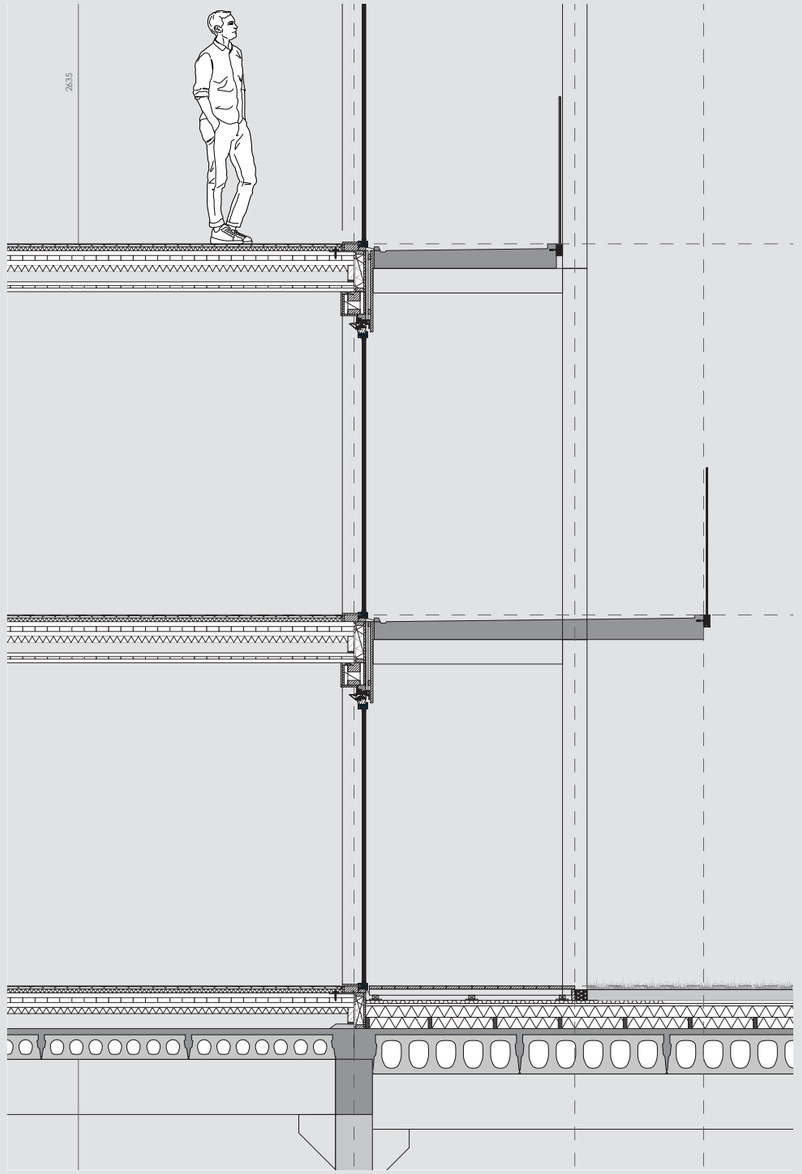
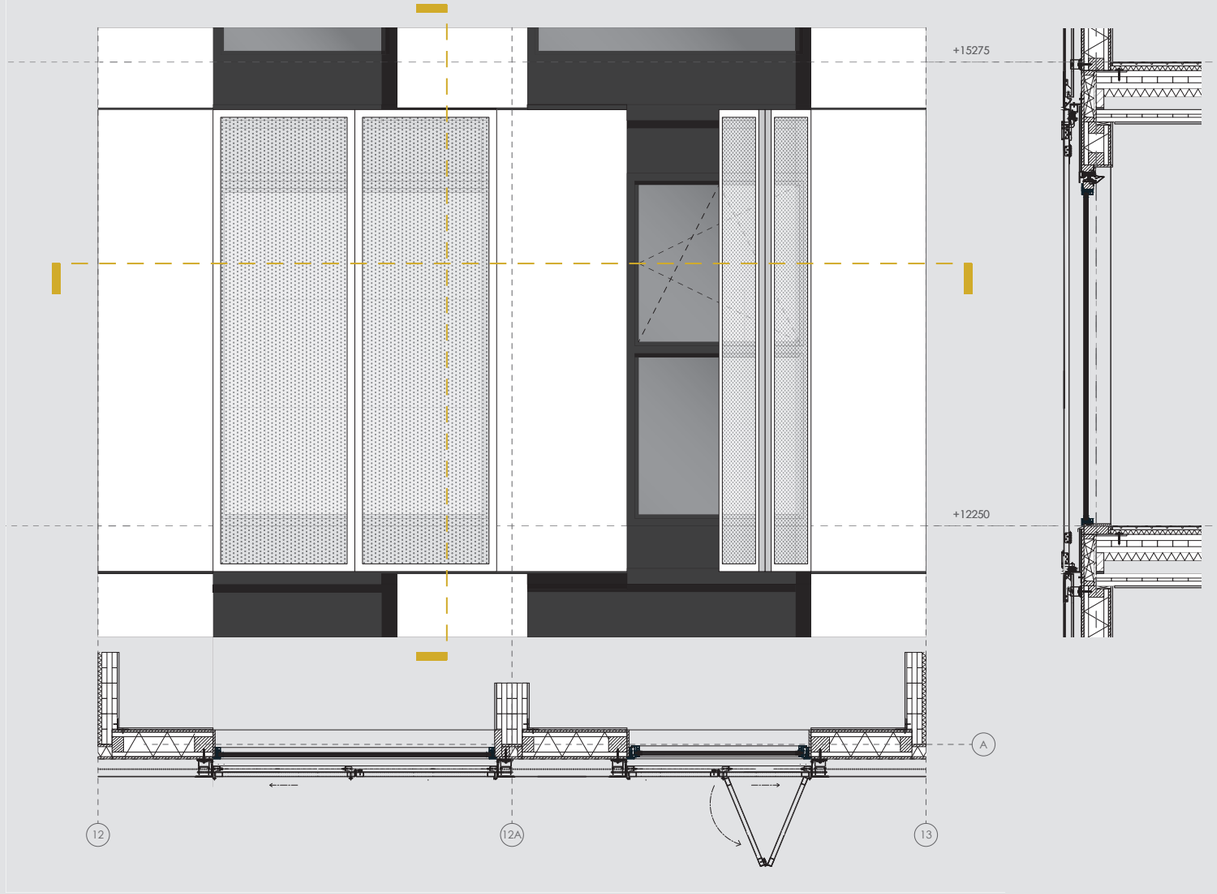

2635

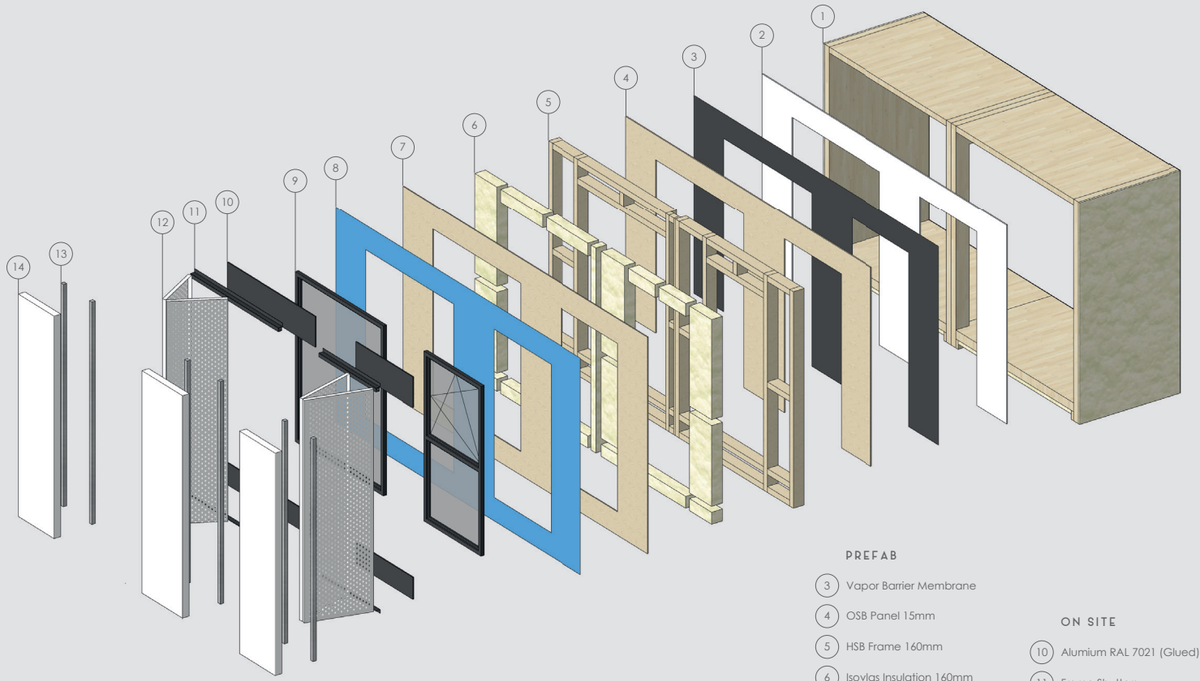
FACADE FRAGMENT

Elevation, Horizontal & Vertical Section



FACADE ASSEMBLY

Exploded View



PREFAB

3 Vapor Barrier Membrane
4 OSB Panel 15mm
5 HSB Frame 160mm
6 Isovlas Insulation 160mm
7 OSB Panel 15mm
8 Waterproof Vapor-Open Membrane
9 Alumium Window RAL 7021 with HR+++ Glass

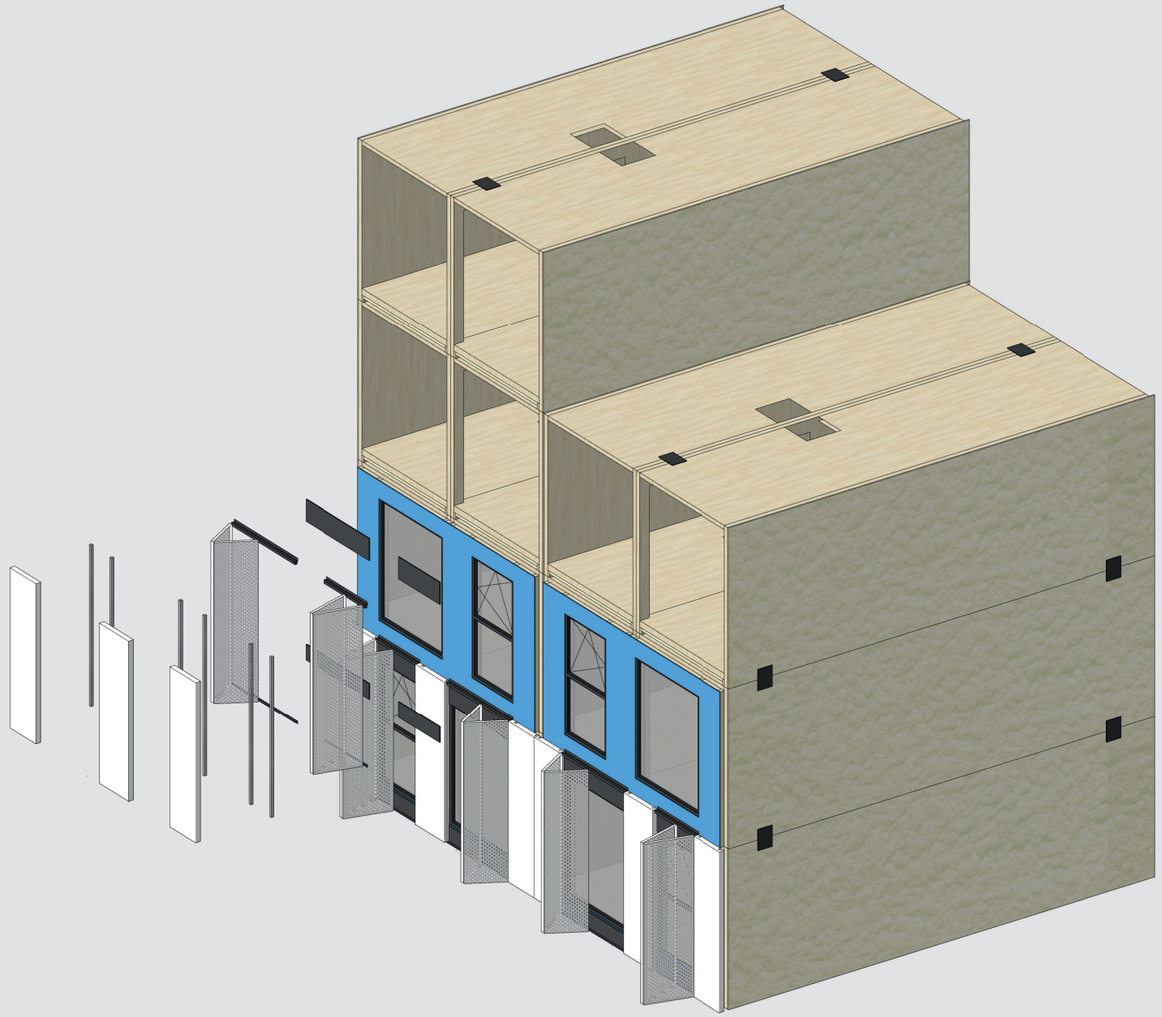
ON SITE

10 Alumium RAL 7021 (Glued)
11 Frame Shutters
12 Alumium Perforated Shutters Bi-Fold MetaDecor
13 Isovlas Insulation 160mm
14 OSB Panel 15mm

1 CLT-Module
2 Gypsum Board 12,5mm

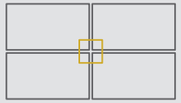
STACKING MODULES

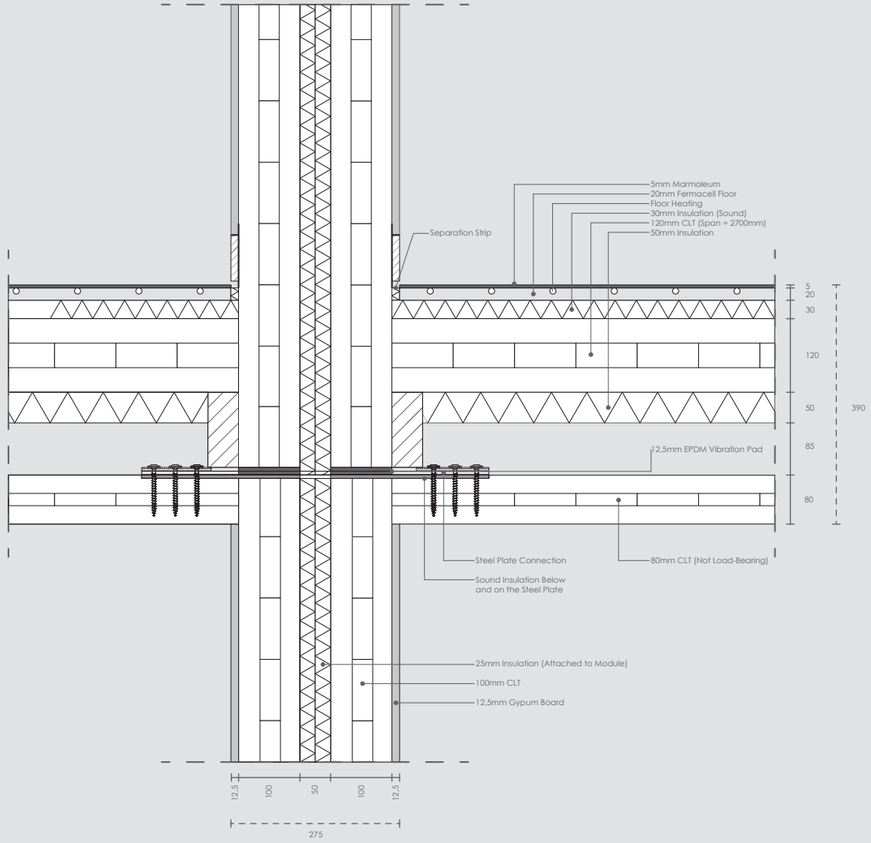
Exploded View



INTERSECTION DETAIL 1:5

Intermediate Floor to Partition Wall CLT





SPECIFICATIONS

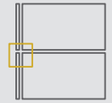
The buildings exists of all prefabricated clt modular elements. This means each element has its own floor and ceiling and walls. EPDM rubbers in between the elements will take care of sound reduction.

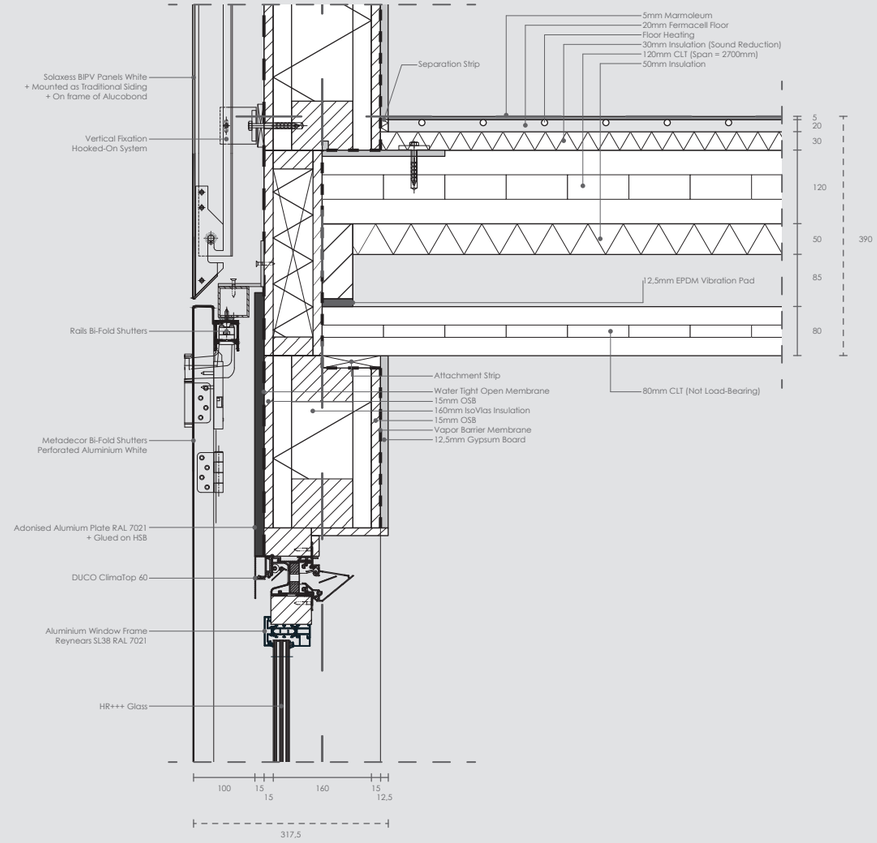
The modular elements will be connected with steel plates and screws horizontal and vertical.

In order to get a tight interior, the plinth will be integrated in the wall with an aluminium profile. It will look like the plinth is part of the wall.

FACADE DETAIL 1:5

Exterior Facade Top Window Frame



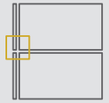


CALCULATIONS

INSIDE	λ		Rd
Rsi	-		0,13
Gypsum Board 12,5mm	0,52	W/mK	0,024
Vapor Barrier Membrane	-		-
Multiplex 15mm	0,09	W/mK	0,167
Isovlas Insulation 160mm	0,038	W/mK	4,210
Multiplex 15mm	0,09	W/mK	0,167
Water T. Open Layer	-		-
Ventilated Cassette System	-		-
Rse	-		0,04
OUTSIDE			
Rc-Value	**4,7 m2K/W**		

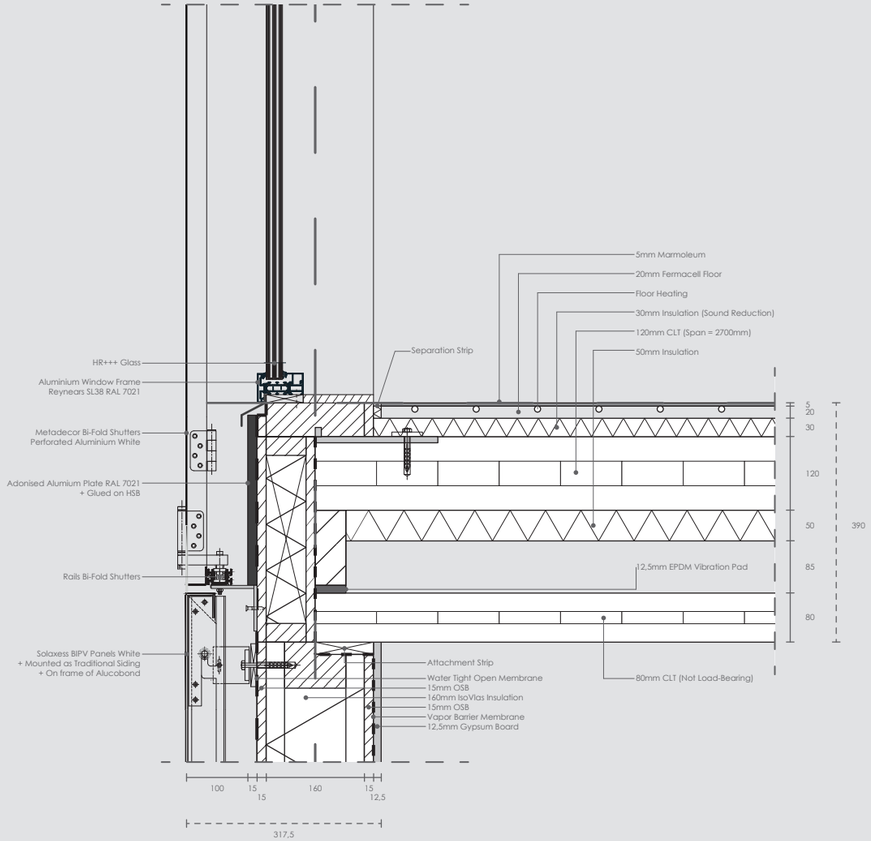
FACADE DETAIL 1:5

Exterior Facade Bottom Window Frame



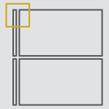
CALCULATIONS

INSIDE			Rd
Rsi		-	0,13
Gypsum Board 12,5mm	0,52	W/mK	0,024
Vapor Barrier Membrane	-		-
Multiplex 15mm	0,09	W/mK	0,167
IsoVlas Insulation 160mm	0,038	W/mK	4,210
Multiplex 15mm	0,09	W/mK	0,167
Water T. Open Membrane	-		-
Ventilated Cassette System	-		-
Rse	-		0,04
OUTSIDE			
Rc-Value	**4,7 m2K/W**		



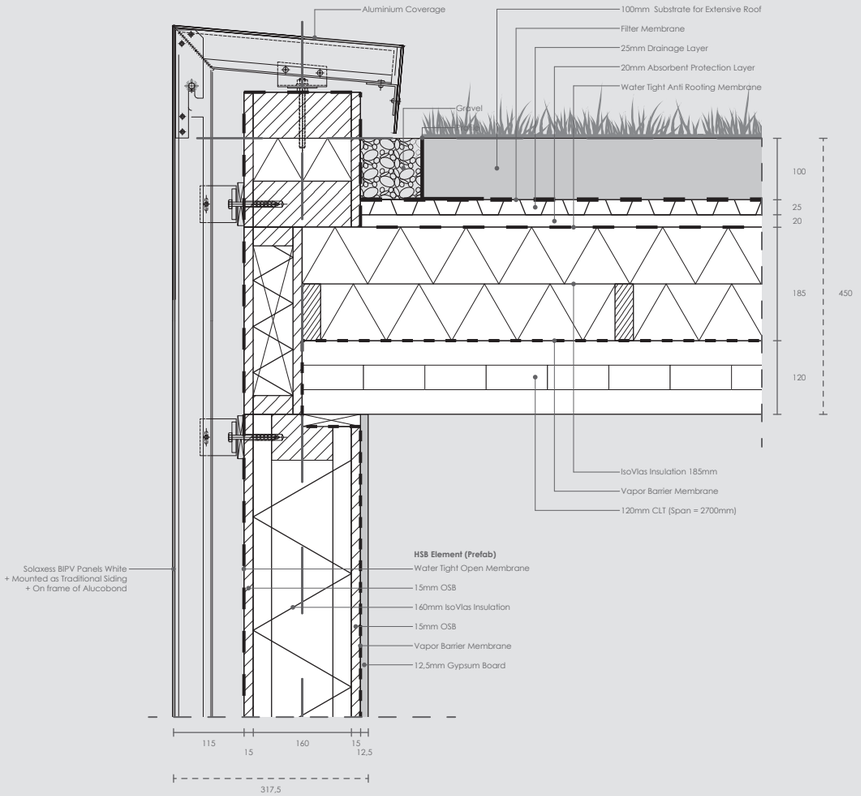
ROOF DETAIL 1:5

Intersection Facade w/ Roof



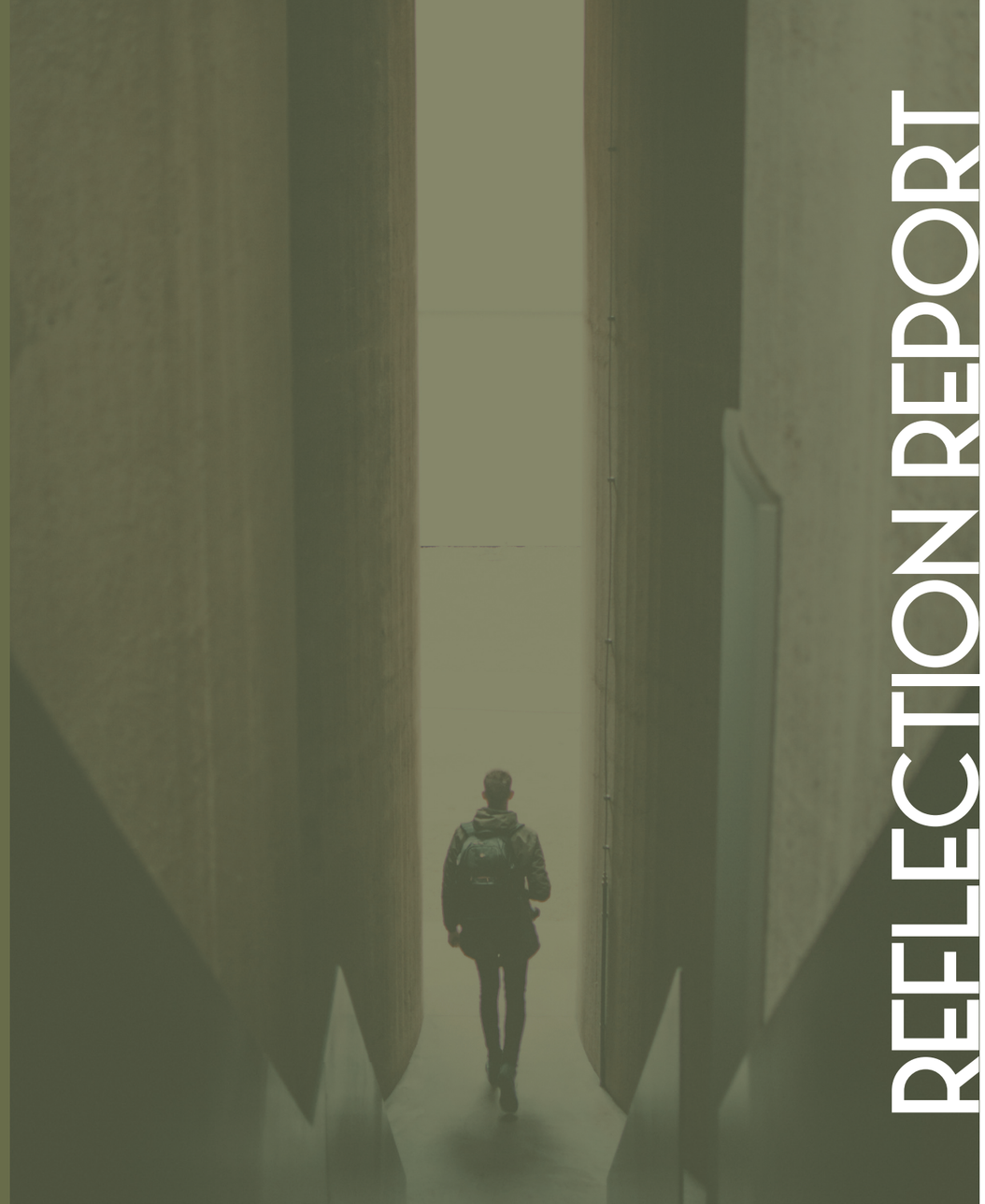
CALCULATIONS

INSIDE			Rd
Rsi		-	0,13
CLT 120mm	0,11	W/mK	1,091
Vapor Barrier Membrane	-		-
IsoVlas Insulation 185mm	0,038	W/mK	4,868
Water T. Open Membrane	-		-
Absorbent P. Layer 20mm	-		-
Drainage Layer 25mm	0,4	W/mK	0,063
Filter Membrane	-		-
Substrate Extensive 100mm	2,0	W/mK	0,050
Rse	-		0,04
OUTSIDE			
Rc-Value	**6,3 m2K/W**		




"Je ziet niks aan de buitenkant, maar.. als je naar de binnenkant gaat, dan zie je van alles."

BUILDING FOR EVERYONE,
NOW & IN THE FUTURE



REFLECTION REPORT

Reflection Report
Martijn van Leeuwen | 4354168

Delft University of Technology
Dutch Housing Graduation Studio 2021
Theo Kupers | Pierijn van der Putt | Ferry Adema

ONBEPERKT WONEN

Living independently in a stimulating residential environment for young people with a mild intellectual disability

PREFACE

This report serves as a reflection on the Dutch Housing Graduation Studio *In search of a Humane Metropolis - The future of metropolitan housing in the Netherlands.* The overarching theme is collectiveness as the basis for circularity.

In my graduation project 'Onbeperkt Wonen' I am questioning in which way the design of the residential environment can contribute to the social self-reliance of young people with a mild intellectual disability.

Research and design are inseparable connected in this process. During the process I have used various ways of doing research which all influenced upon the design process and the design itself.

This report will reflect on the relationship between research and design in my graduation project, the research methods and tools that I have used, their implications for the process and what I could have done differently.

It is interesting to look back at the graduation process, because this process took much longer than the average studio. Being aware of my own process is essential for my future career as an architect.

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INTRODUCTION

Writing down this introduction means I have arrived at the last part of my graduation process. But also at the end of a long journey at university.

This journey has been difficult to me, because I have always struggled with my positioning during university.
I feel not always related to the way in which university looks at the architectural profession. My approach in the architectural field has always been creating what people really need, more practice based than related to the art of design.

Especially my interest in villa architecture evokes contradiction at university, cause it seems this assignment does not have a social dimension and it is all about the money. But for me this field gives the architect the possibility to communicate with and design for the people who are going to live there; the actual dwellers.

The course 'Lecture Series Research Methods'(AR3A160) opened my eyes in positioning myself in the architectural field. The lecture about Praxeology from Marieke Berkers showed me that this is actually the closest relationship an architect can have with his client. And that is exactly what intrigues me the most.

In her lecture Berkers refers to Jane Jacobs, who advocates the bottom-up approach (Sennett, 2018). Thinking about my research process, this approach is widely adopted.

My research process already started in February of 2020 with the investigation of the location and defining a guiding theme and a community. This research is bundled in the 'Research Report', handed in before P2.

The last part of my graduation process exists out of two final elements: the design proposal and a reflection.

In this reflection report I will discuss the relationship between research and design. I will reflect on the research methods I have used in my graduation process and how they influenced my design process.

Research and reflection is always outstanding in the education of the TU Delft. Design will not work without decent research. Reflecting on this process makes the designer aware of his decisions. This is essential to know in his carreer to become a professional architect.

The first chapter will describe what my graduation project is about and how this led to my research question. This relates to the methods I have used for my research. My specific target group asks for a specific approach.

The research methods I have used in line with this approach during the graduation process are discussed in the second chapter. This framework of methods is based on 'Research Methods for Architecture', written by Ray Lucas (2016).

In the third chapter I will discuss the relationship between research and design in my graduation process. Especially how the research influenced my design decisions will be discussed. Also a reflection will take place on what I could have done differently.

During the previous chapters I will reflect on the relationship between research and design in my process. The fourth chapter consists of reflections on the other aspects which are still not treated. It also provides a glimpse in the road towards P5.

Finally, I will end this reflection report with my first struggles in my journey at university and how that changed my position in the architectural workfield. My journey at university ends here, but my personal trip continues.

GRADUATION THEME

The Dutch Housing Graduation studio of 2020 is called *'In Search of a Humane Metropolis - The future of metroplitan housing in the Netherlands'*. The greatest challenges in this studio are a high-density and inclusive city.

Inclusive means to me 'for everyone'. Another challenge we are currently facing in the Netherlands is the one of *'1 Million Homes'* by 2030. But such a huge assignment raises the question if those dwelling will be inclusive enough for all different users.

In my research report I am stating the problem that the standard dwelling is not suitable for everyone. Therefore I focus on a specific group of people; young people with a mild intellectual disability (MID).

Since the entrance of the 'Wet maatschappelijke ondersteuning' (Wmo) in 2015 these people can no longer aplly for their housing via the care for disabled people. They have to follow the regular route just like others. But because of their cognitive and also financial disabilities they have often little or none perspectieve on a own dwelling (Architectuur Lokaal, 2016). Furthermore, they need a living environment which stimulates them on developing their social skills.

This leads to my research question:
"In which way can the design of the residential environment contribute to the social self-reliance of young people with a mild intellectual disability?"

During the research process it is essential to understand the way of working as part of validating your end result (Lucas, 2016). Without this it is not possible to critically reflect on the research process. Therefore the researches has to be aware of his point of view.

Lucas relates to the well-known objective and subjective approach and compares that to the definition of Kenneth Pikes definition of the epic and the emic account. My interest in dwelling arises from the desire to know how the future residents eventually will use the building. Therefore it is essential to know their way of living, which is a very emic approach. Answering the research question asks for the same approach.

The research focusses on studying the needs of a specific group of people: young people with a mild intellectual disability. Without understanding the situation they live now, it will not be possible to design a new residential environent for them. In order to answer the research question, subquestions are raised to get a deeper understanding of the community and their needs for their residential environment.

The part of the research question which says "contribute to the social self-reliance" asks for a deeper understanding of their disability. This research lies in the field of the architectural social sciences, where social sciences helps us to understand how people actually live (Lucas, 2016)

This very subjective kind of approaching is an aspect of qualitative research (Lucas, 2016). The complexity in this field comes with the personal engagement of the architect. *"Fuller immersion in a culture avoids detachment from the facts on the ground, and a more immediate engagement with people and their lives."* (Lucas, 2016, pp. 10). It's the profession of the architect ot be involved in a emic way, but still be able to create solutions and make decisions on an ethic level.

Social sciences can help architects to make these decisions. *"The social sciences consider the contemporary context in detail, and encourage us to make fewer assumptions about the nature of our occupation of space."* (Lucas, 2016, pp. 15) Methodologies rising from the social sciences can help us to find out more about the actual use of space and how it is used in everyday life.

It gives us some grip on how people actually live, instead of how we think they should live. This reflects exactly my criticism on education in architecture nowadays. I think we focus too much on the imagined dwellers instead of where we are designing for - real people -, the actual dwellers.

"An architectural social science can offer an understanding of architecture as a set of practices." (Lucas, 2016, pp. 15). The architect will be able to create a design which meet the needs of clients and users.

RESEARCH METHODS

One of the methodologies which is used during the research process is creating a more in-depth overview of the specific target group by observing. According to Linda Groat this is one of the most characterizing methods of data collection in the ethnographic methodology (Groat & Wang, 2013).

The ethnographic approach in architecture emerged form its anthropological and social roots in the early 20th century (Groat & Wang, 2013). Observing was a way to find out how people actually lived in their dwelling.

Ethnographic research is closely related to fieldwork and is a subjective and longitudinal study (Lucas, 2013). One of the key elements in ethnographic research is the length of time, the research process can take up from a few months to several years; the ethnographer is taking part of the lives and lifestyle of people and observing them at the same time.

But because of the limited time in the research process of the graduation studio it is not possible to spend time with people of the target group, where the outcome is enhanced by the length of time (Lucas, 2016). Furthermore, the ongoing corona pandemic made it not really possible to interact or closely observe my community. Therefore is chosen to approach the same outcome in a different way.

DOCUMENTARY

A general representation of the target group is formed by a Dutch documentary series about six young people with a mild intellectual disability. The series 'Net ff anders' consists of six episodes which the problematique of these people and the willingness to live on their own.

Especially this series gave me a broader view into the problematics where young people with a mild intellectual disability have to deal with in everyday life. Also about the view our society has on vulnerable people. I really liked how Sanne (right on the picture) was saying this in words:

"Je ziet niks aan de buitenkant, maar.. als je naar de binnenkant gaat, dan zie je van alles."
(Sanne - KRO-NCRV, 2020).

Criticism can be given on the fact that this way of observation only shows what the cameras have recorded. The cameraman is here the observer who frames the impression of the people. Although it is an journalistic program and gives a good overview of six persons with comparable problems in social self-reliance.

I used this documentary series to get an overview of the actual dwellers of my building. This is also the way I write this down in my research report. I see them literaly living and working in my building. Therefore I am introducing them with pictures. Hereby I am giving my community a real 'face' instead of an illustration with characteristics of them.

This specific approach also illustrates my criticism on education at university. We do a lot of literature research to create an image of the future residents, but not always have an idea of who these people are as a person. Something that seems essential in this research. My research is focussing on providing customization, which asks for a more antropological approach.

I think we should also integrate this more in education. At the end we are designing for real people, but we don't have always contact with the people we are designing for. It should be interesting when we also learn more about and really having conversations with your client in order to transfer their ideas into a real design.

Net ff anders - © Linnele Deunk (2020)

LITERATURE STUDIES

The general representation besides the documentary series is furthermore enhanced by using literature about young people with a mild intellectual disability.

Especially in the beginning of the research process it was necessary to define the term 'mild intellectual disability'. What makes it difficult too is that countries all over the world have a different definition of mild intellectual disabilities (MID). Therefore I used the definition used by Dutch health organisations, coming from the Social Cultural Planning Agency (SCP).

They have the most reliable facts and numbers of the population with MID, based on their research out of 2019.

After defining the characteristics of the community I did a lot of research towards the policy around MID. The reason why my projects seems to be that relevant, is diverging from the changed policy around MID. Since the introduction of a new law in 2015 – Wet Maatschappelijke Ondersteuning (WMO) – people with MID could no longer rely on the care of the disabled for their housing.

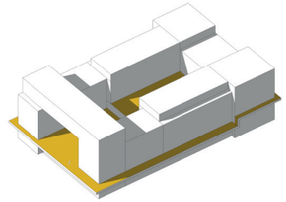
This change already let to a progressive initiative in 2015, from the think-tank 'De Olifantenkooi' from Architectuur Lokaal. In five meetings they discussed the problematic around the changed WMO and did research towards alternative living opportunies for young people with MID. They bundled their research in a document, called 'Wonen in een Kelderbox?', by Architectuur Lokaal (2016).

This literature gave me a lot of input for my own research. It gives a lot of background information into the problematique around MID, but also conduct interviews with professionals and young people. Brian and Soumaya are two people with MID, who tell more about their lives and their dwelling requirements. Dwelling requirements in this field are hard to define, because the user group is that specific that all the requirements are that too. Although in the publication of Architectuur Lokaal people with MID name what is important for them according to their disabilites.

Off course, these dwelling requirements are very subjective and may not be applicable to all other young people with MID. But I think this is also the interesting field in the ethnographic approach; researching on a more subjective level in order to make decisions on an objective level.

Already in the early phases of the design process I wanted to create housing above the ground, as in line with the urban plan. This choice was invigorated by one of the interviewees of Architectuur Lokaal. Soumaya about her dream apartment: "*Boven wonen voelt veiliger.*" (Soumaya - Architectuur Lokaal, 2016, pp. 28).

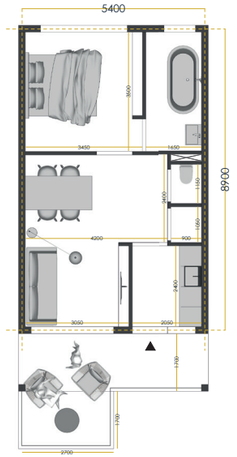
One of my principles was to create a safe residential environment. With the words of Soumaya I decided that the plinth of the building will be totally meant for the makers and the housing will start from the 2nd floor. The shed of the plinth forms a concrete section between private & public.



Dwellings on top of the plinth, makers in the plinth.

Furthermore, the other interviewee says something about the layout of his apartment: "*Het is wel belangrijk dat er een aparte slaapkamer komt en dat het geen kippenhok wordt... Mensen moeten allemaal een eigen plek hebben waar ze zich rustig voelen.*" (Brian - Architectuur Lokaal, 2016, pp. 24).

With his toughts in mind I started drawing the first plans of the apartments towards P2. Here, I created all seperated rooms, where the dwellers can isolate themselves.



Separated rooms in the concept dwelling plan at P2.

Another influential literature was that of Christopher Alexander (1977). In terms of an inclusive neighbourhoud, stimulating social contacts are essential. The concept block is created on the base of 'A Pattern Language' (1977), where Alexander comes up with a set of patterns to create an human environment. These patterns form the basis of the concept.

I tried to literaly adopt these patterns in an early stage of the design phase. I will describe shortly how they are integrated in the design. Further elaboration on this can be found in the research report on pp. 74 - 75.

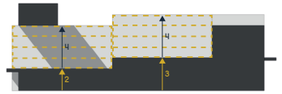
BUILDING BLOCKS

Identifiable Blocks in Building Complex

"*A building cannot be a human building unless it is a complex of still smaller buildings or smaller parts which manifest its own social facts.*" (Alexander, 1977, pp. 469).

I wanted to create a human building, by creating separated blocks which differ in size and shape. This is the main raison why a setback of 1800mm is given to some blocks.

FOUR STORY LIMIT



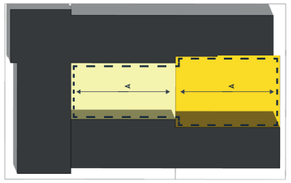
Building not too High in Four Story Limit

"In any urban area, no matter how dense, keep the majority of the buildings four stories high or less. It is possible that certain buildings should exceed this limit, but they should never be buildings for human habitation." (Alexander, 1977, pp. 163).

With a maximum of 4 stories of housing, people still have the connection with the inner courtyard, what is essential in my community. But if every block was 4 stories high, the block would be too monolithic, which would nullify the previous pattern.

I have chosen to lift one part of the building with one story, so there is a difference in height of the block. But the housing is not higher than 4 stories in relation to the inner courtyard.

POSITIVE OUTDOOR SPACE



"Outdoor space is negative when it is shapeless... An outdoorspace is positive when it has a distinct and definite shape." (Alexander, 1977, pp. 518)

This principle is used in shaping the building block. The inner courtyard exists out of a smaller and larger space, with one story difference. Both are definite spaces with the same depth, but differ in width.

Having a Back in Positive Outdoor Space

Enclosure of spaces also has to deal with having a back. When we have a back, nothing can happen behind us. Because of the lifted inner courtyard every space gets its own back to feel safe.

HIERARCHY OF OPEN SPACES

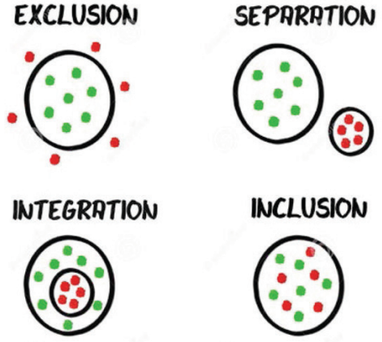
The last of the four patterns I used in my building illustrates the most what I want to achieve with my design.

"Whatever space you are shaping... First, make at least one smaller space, which looks into it and forms a natural back for it. Second, place it, and its openings, so that it looks into at least one larger space." (Alexander, 1977, pp. 559).

The building forms the safe environment with the increased inner courtyard, from where these people have the possibilities to fully participate in society. They are literally looking out over our society, stimulating them to get the best out of them!

The patterns are used to create an human and safe environment in the building, which is that much relevant for my community.

The community doesn't just consists of people with MID, that's exactly not the aim of my building.

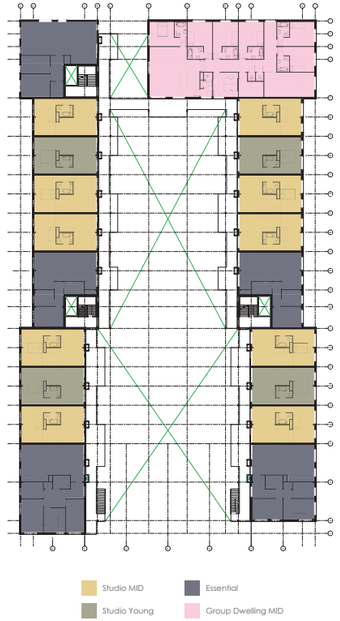


Four Ways to deal with vulnerable people, from Dannenberg (2016)

According to Dannenberg (2016) there are four different scenario's about how the society can deal with vulnerable people. Nowadays our focus is on inclusion. So is my building. The vulnerable people are really part of my community and live with other target groups.

Therefore I have chosen for two specific groups: young people and essentials. Young people / starters are in the same stage of life and are facing the same challenges. Because they are dealing or already dealt with this age, they can provide tools to handle in difficult situations. Other valuable people are those who already deal with inclusiveness, called the 'Essentials'.

These people have already a feeling for an inclusive society from their profession and are unconsciously working with this.



Mixed Typology for Inclusion

The typology is the same on each floor, which means every MID is next to at least one younger person or an essential. One exception is when two MID's are next to each other, but they still have also an other target group next to them. By organising the typology in this way, I create the maximum amount of MID dwellings on a floor, including 10 independent dwellings and 1 group dwelling.

INTERVIEWING

The ultimate goal is to find out who these people are, what their problems are, how they live, what they need and eventually how the design of their residential environment can contribute to their social self-reliance. Besides the interviews from Architectuur Lokaal (2016) I have interviewd some professionals who take care of these people, to gain in-sight information on a more objective level.

Interviewing is a crucial way of gaining research information from all the people who are involved in projects (Lucas, 2016). Because my research is so specific and the policy around MID is that much complex, I found it really valuable to interview some professionals who already know the ins and outs of this problematique.

Therefore I used my own network and have contacted Waterweg Wonen, a social housing corporation in Vlaardingen. They have contacts with organisations in the field of intellecutal disabilities. In the beginning of my research process, I struggled a lot with defining the specific group and finding a way of validating the policy around mild intellectual disabilities.

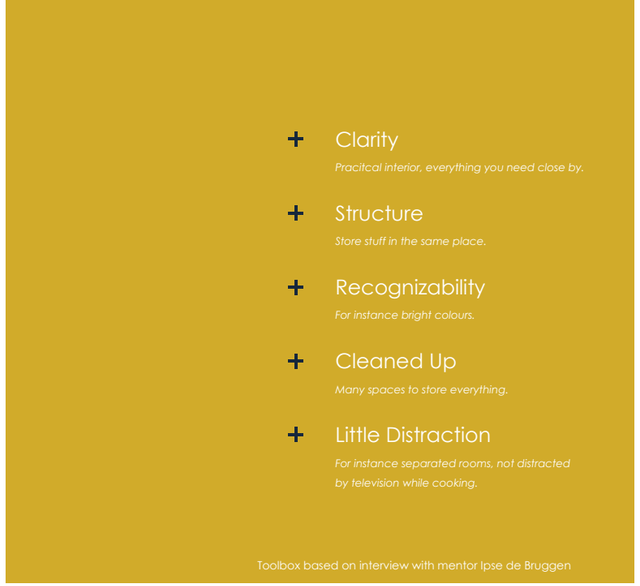
I interviewed a policy officer from Waterweg Wonen, where my main focus was on gaining more information around the complexity and policy. We had a phone call, where she emphasized imporant aspects. The things she told about the policy, were in line with my literature, what was a good way of validating the reliability of the interview.

For the interview I prepared some questions, but we also had a talk on the challenges of social housing corporations according this topic. For instance, because of the specific dwelling requirements, it can be hard for the corporation to resell the apartments. Flexibility of the plan hereby became an important element in my design approach. Futhermore, she adviced to design the apartments not too large. Young people between the age of 18 and 23 can receive housing benefits if the rental does not exceed €431,52. This rental price rises with the amount of square meters. Therefore the apartments will be based on a minimum of square meters for one person.

Waterweg Wonen works together with instances for intellectual disabilities, among which Ipse de Bruggen and Philadelphia. They got me in touch with someone who is a mentor of people with intellectual disabilites for Ipse de Bruggen.

This gave me the opportunity to gain information about the problematique around MID, how these people live and what they need in their residential environment.

We also had a phone call, which is included in the appendix of the research report. Out of that interview I created a toolbox with a few characteristics which are important for the interior of the dwelling. Again, this is very specific and detailed information. But I tried to translate this into more general design principles.



I used this toolbox together with the aspects from the other interview to design my dwelling, next page shows how I have interpreted these aspects.

The mentor also spoke about parent-initiatives. Here, parents of young people with intellectual disabilities or autism join their forces to create a residential environment which suits the best to their children. They put all the compensation together, which they receive out of the PGB, to arrange care and support.

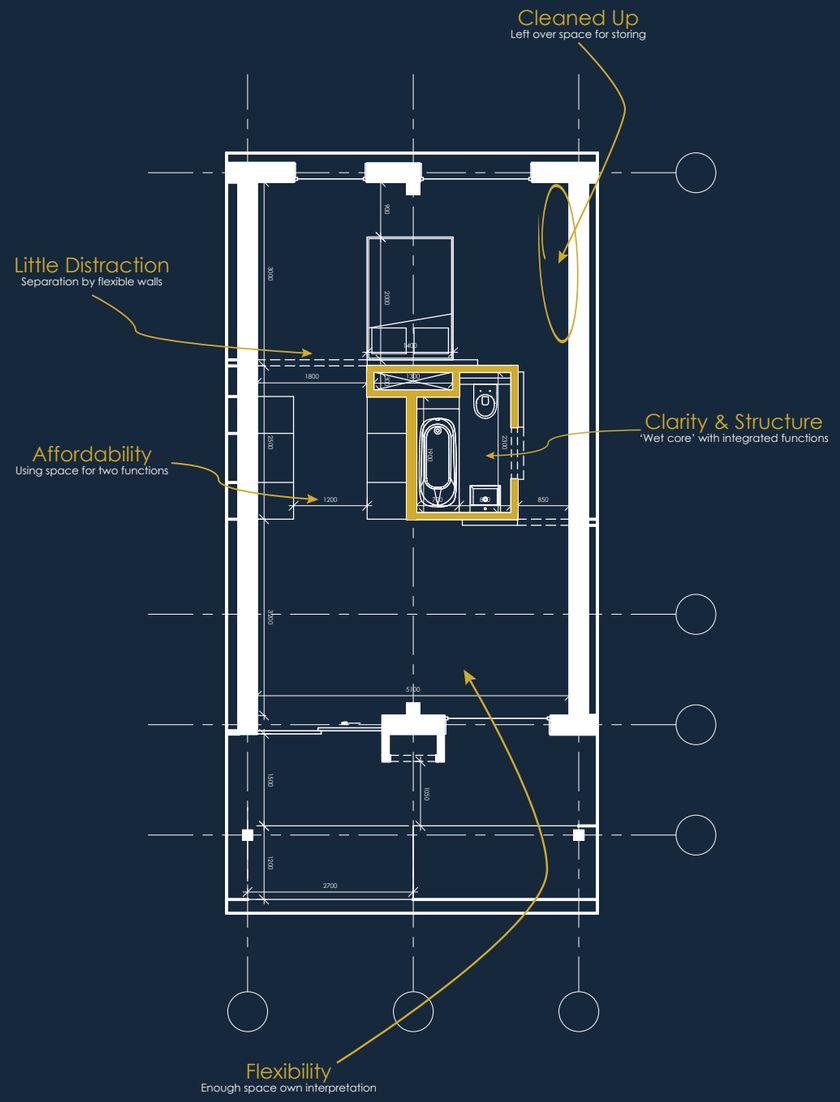
I contacted a parent-initiative of autism, which was housed in apartments of Waterweg Wonen. Despite my explanation of my research, there was no willingness to participate or help me further. This because of the sensitivity of this topic, what is about the problematique around their kids.

One parent mailed me afterwards, who was interested and had the willingness to answer some questions. So, we also had a interview by phone where I mainly asked how something as a parent-initiative could be working and was financed. Furthermore I asked him if the design of the apartments was based on the residents. But he told me it were just standard social apartments. He even talked with his son if it was possible to interview him. But he found it difficult to talk with others and especially to allow others into his personal space.

I think this illustrates the sensitivity of my research quite well. For my ethnographic approach it would have been nice if I could have more contact with my community. But the problematique makes it hard to communicate and I am not sure if this even is the workfield of an architect.

Although this interview gave me a lot of valuable information about parent initiatives, I also had to be critical. "*Anthropology is, by nature, an extremely personal and subjective experience... Context is too often erased from modernist approaches to design and research..*" (Lucas, 2016, pp. 167).

This parent initiative was not about MID, but in the autism spectrum. For that reason I didn't integrate my findings out of this interview literaly in my dwelling apartments, but the opportunity for one or more parent initiatives in my building became much more feasible.



CASE STUDIES

In all education at Delft University of Technology, analyzing case studies forms a major component to get familiar with other projects. Also in the Dutch housing graduation studio this is a relevant way of researching.

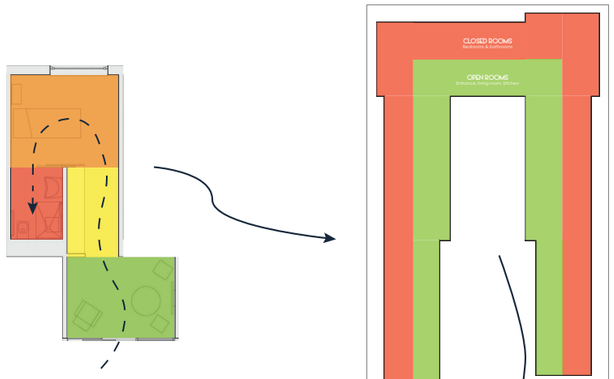
Some difficulties in finding case studies occured, because it seems the research question is that much relevant there are almost no reference projects. Most of the projects for people with MID focusses on supported living, separated from other user groups. Although it looks like this is a good starting point, it's more a kind of integration instead of inclusion. But sometimes the word 'inclusion' is wrongly used to identify these projects. Some other projects were selected on the base of MID, other disabilities or how to focus on inclusiveness.

Early in the process towards P2 we worked as a group on projects and analyzed them. The one I found really interesting was OCMW in Nevele, housing with healthcare meant for elderly. Although the community is not comparable, I was inspired by the transition of public to private space in the plans and how they used the hallway as a social component.

The open spaces, like the living room, were near the hallway. The private spaces like bedroom and bathroom were situated far from the hallway. The privacy of the space will increase by walking further in the apartments. Together with the need of privacy I interpreted this analysis in my design where the 'open rooms' are situated at the gallery and the 'closed rooms' on the outside of the building.

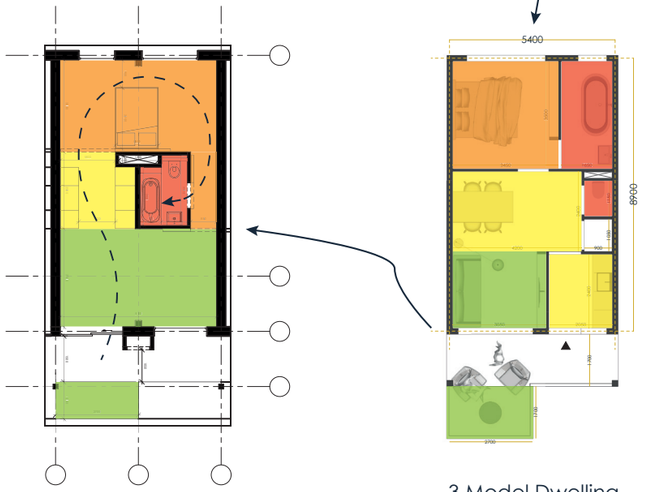
Routing OCMW Nevele

Private spaces in OCMW Nevele



1.OCMW Nevele
Transition in privacy

2.Concept
'Open' vs 'Closed' at P2

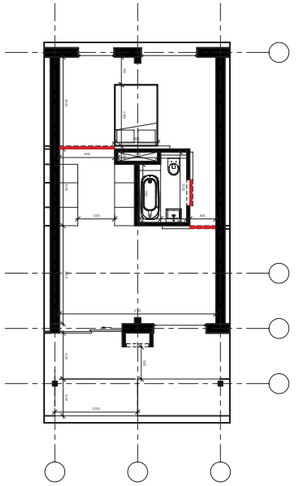


4.Final Plan
Circulair transition in privacy at P4

3.Model Dwelling
Lineair transition in privacy, based on conept

Creating privacy in my design became a major focus point. This already appeared out of the interviews and together with the case studies, this gave me insight in how this can be doen. At the concept at P2, bedrooms and bathrooms were all on the outside. But in the end at P4, the bathroom moved to the middle of the apartment.

I consider the bathroom as the space with the greatest vulnerability. Privacy is the most important in space where you get naked. By situating it in the middle of the plan, the residents are protected from views from the outside. With the use of flexible walls, people can isolate themselves when they got too much incentives. This is also applicable in OCMW.



Flexible walls to control own privacy

Besides this case study coming from the groupwork, I have contacted a recently new project in Amsterdam, 'Kamers met Kansen'. They project is meant for young people between 18 and 23 years who have the willingness to live and work independently, but need a little support. This project is the most closely related existing project to the research, but it is a step before independent living.

Also the design is not based on the target group, but it is integrated in a social housing complex. Anyway, I learned something about the width of the apartments. In my design I wanted the entrance and the living room at one side. The project showed that a width of 5345mm was enough to integrate this.

But I learned the most from the mail-contact with this instance. They were able to tell me more about the problems in dwelling that appear when two people live together. Speaking with professionals out of this field was the most valuable for my research.

In this project they also have a dwelling where three people live together with one mentor. This kind of assisted living was also the core in an other case study; Westkaap from Waterweg Wonen. I combined these projects as input for the design of my assisted living apartments, where 5 people with MID live together, assisted by one mentor or parent.

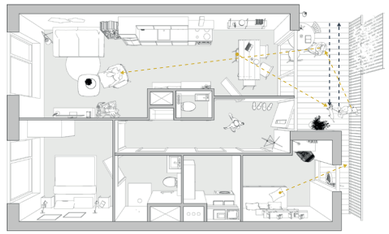
The last case study I want to adress is the Kramatweg in Amsterdam. For my community it is important there is enough social control. One way to stimulate social control is maximalizing the social interactions. At the Kramatweg the gallery forms an interesting connection between private and collective. Deepened balcony's provide a transition between the gallery and dwelling and also stimulate social interaction with all the neighbours on the same level.

When neighbours are walking by, people can easily make social contact. From the dining room large windows are looking out on the gallery, which stimulates social control.

I used this principle in connecting the neighbours in my building. Here, all the three different target groups are connected. The gallery with the balconies forms the social space where people meet.

Furthermore, the plan of the dwelling is designed in a way that more private rooms are on the site of the streets, where more open rooms are close to the gallery.

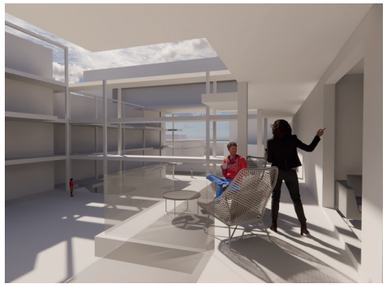
The case study projects helped me a lot in filling in my program. Although they aren't always specified for the same community, they still contain lots of valuable information.



Social Control Kramatweg

Concept Social Contact

Impression Gallery Kramatweg - © ANA (2020)



Impression Gallery 'Onbeperk Wonen' - © Martijn van Leeuwen

PHOTOGRAPHY

Besides the previous methods I think photography is extremely usefull as a tool for researching too. Especially in the beginning of my research process it was a valuable way of documenting my fieldwork.

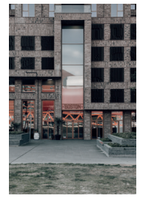
The ethnographic approach is closely related to fieldwork, where photography is used a a tool for analyzing projects (Lucas, 2016). That's exactly how I used this tool. With the site visits to Wijngemen and M4H I took my camera with me to document the built environment.

In the design process I was doubting about the max. height of my plinth. Therefore I took some shots of Boston & Seattle in Rotterdam. The plinth felt to have the right dimensions. That made my decide to set the height of the plinth to max. 2 stories.

Photography as a tool to observe can also be extremely valuable (Lucas, 2016). For instance, at CIAM in 1953, Peter and Alison Anderson presented a series of photographs which showed the life on the streets in London (Berkers, 2020).

But where I am a professional photographer too, I think it depends on the gear you use when a photograph becomes observational material. People start to act differently when they see a photographer. Fot spontaneous shots a longer lens is necessary. This critic also applies to interviewing as a tool. People will say what they prefer to do instead of what they actually do. That's exactly the aim of the ethnographic approach; cutting through the differences between wat people say and what they actually do (Lucas, 2016).

BOSTON & SEATTLE
Kop van Zuid, Rotterdam



MODELLING

I think previous methods really are ways of using research in your design and relate to the ethnographic approach. But the last two methods are more based on research by design. I mean this is research when you are already designing. And you learn by what you are doing, more a practical way of doing research.

During my design processes in my whole study carreer I mostly used SketchUp to shape the concept volumes. I also tried various ways of modelmaking, like building maquettes. But I think SketchUp fits the most to my perfectionism. This means I already work in millimeters from the beginning of the project.

Something that always is important to me is the context. With SketchUp I am able to literaly create my building volume from the context with the help of existing drawings. I create a lot of variations and combine some elements to one model. I did this for instance with defining the rough volume of the building, where Version D2.2 and D2.4 are combined to D2.7.

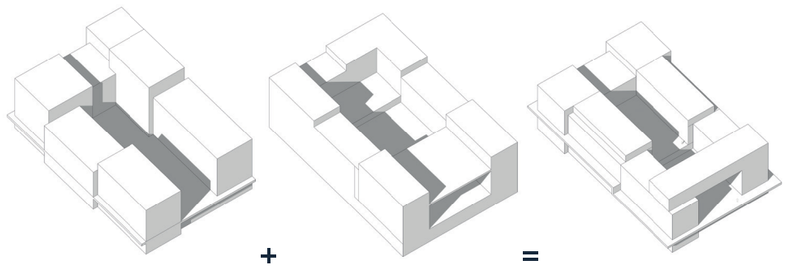
Although it is good to be precise, sometimes this keeps me from thinking out of the box. Once I made a decision, it is difficult to release it for something else.

This problem occured a few times during my process, where I got stuck in my own framework of rules.

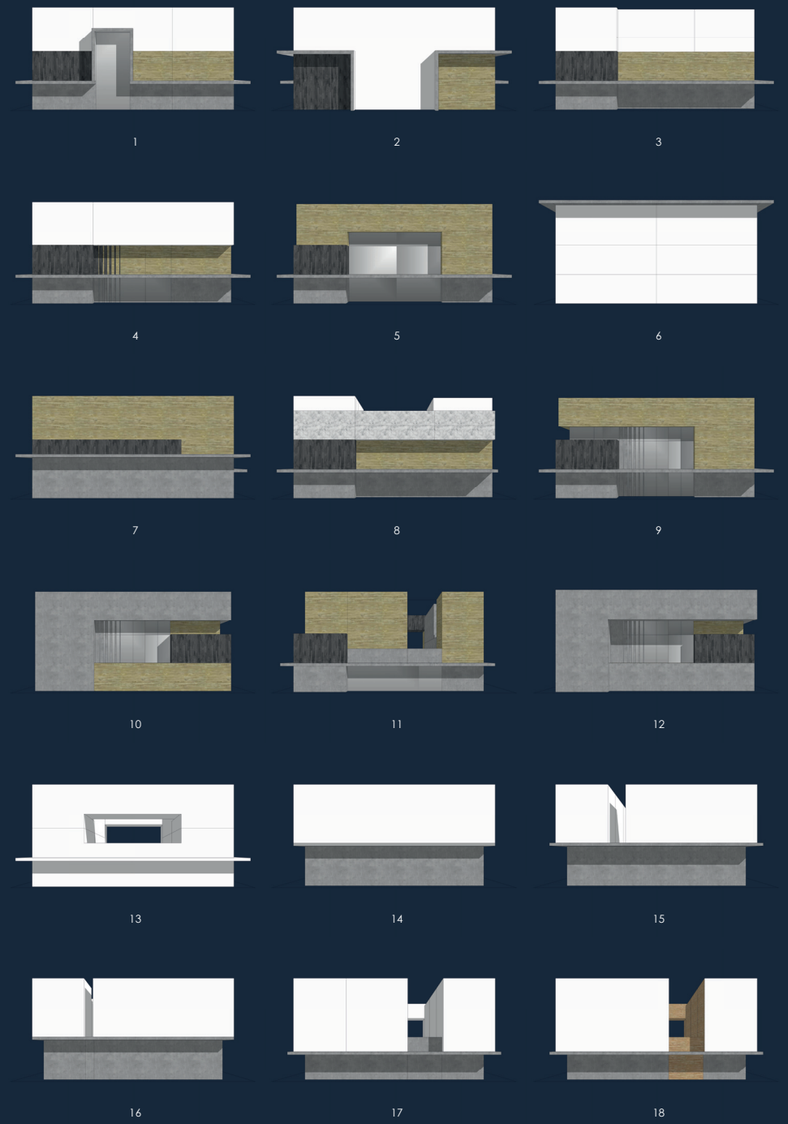
For example, I based my whole building on a grid of 5400mm. But I took it so far, that eventually mostly all of my dimensions are based on a multiple times 300mm. For example:

- Depth Apartment = 29 x 300
- Width Apartment = 18 x 300
- Gallery = 5 x 300
- Balconies = 4 x 300
- Setbacks = 6 x 300
- Windows 5 x 300 or 6 x 300
- Shed = 3 x 300 or 9 x 300

Between P2 and P3 I got stuck with the North facing facade. I used SketchUp to combine materialization with my set of rules. This resulted in an endless series of model variations with sometimes only slight differences.



Version D2.2 + Version D2.4 = Version D2.7



VIRTUAL REALITY

Simultaneously with modelling in SketchUp, VR helped me in making decisions according to the right dimensions of the volume. Especially in the graduation studio, VR has become an interesting tool.

It helped me a lot with defining my building volume, especially to define the human scale. The problem with SketchUp mostly is, that you are not aware of the true sizes and what kind of feeling you get by walking through your model. I was impressed by what virtual reality does to your perception.

Still, this way of researching through design is very subjective. The only person who carried the VR-Goggle was me. I didn't let others walk around in my model. Not only because of our difficult situation around corona, but also because of the fact that perception is already very subjective.

Version D2.7

PRO TIP!

Scan de QR-code with you smartphone & use your Google Cardboard or Samsung Gear VR to experience the model in Virtual Reality!

So, I mostly used it as an design tool. To control if the desicions I made in SketchUp felt right to me. This was very helpfull in designing the interior of the apartments for instance. The render software Enscape won't let you walk further in the model if the dimensions are too small.

Experiencing Virtual Reality in the Apartments

RESEARCH & DESIGN

My research started with a very personal motivation for my graduation project; the way I was wondering how my aunt and uncle are dealing with their intellectual disabilities in their residential environment. That personal approach has become the guideline for my overall research & design process.

Working from a more social / anthropological view is also represented in my research methods. The design decisions I made are based on my research, but also on research by design. This kind of research, where you are already designing, is more a practical way to find out what works. Design methods like SketchUp and Virtual Reality helped me a lot in this.

The documentary series created a general representation of the target group for me. During my process I was constantly questioning myself how the persons of the series would live in my building. They formed a kind of framework.

Literature helped me a lot with defining the problem, but also gave me some concrete tools for my design. 'A Pattern Language' formed a huge role in shaping my building block. These rules helped me creating a social and safe residential environent. Also I tried to transfer the focus on inclusiveness to my building. The mixed typology arises from this.

Where literature directly influenced my design in a concrete way, I think this differs with interviewing and the case studies.

For instance, the flexible walls of OCMW Nevele were already analyzed before P2, but weren't in the concept dwelling at P2.

I integrated this feature when I struggled with the darkness of the apartments. Flexible walls were a solution to create an open space with enough daylight, but still create privacy when needed. The need for privacy arose from the literature and interviews as well. And so, more of my design decisions are based on several research components.

This clearly shows that research & design can't be seen as a lineair process. It is an circular process, where the research will constantly influence the design and the design raises new questions to research.

Maybe for my ethnographic approach it would have been nice when I had more the opportunity to also meet the actual dwellers. Due to corona and the limited time, I tried to approach the same outcome in a different way.

Living with the user group and observating simultaneously would of course totally fit into the ethnographic approach and should have strengthen the outcome of my research. But I am also wondering if this would be really the role for an architect? I think this is more the approach of other researchers like sociologists. Involving these researchers in the process, would already create a more anthropological outcome.

REFLECTIONS

2. GRADUATION TOPIC IN PERSPECTIVE

The Dutch Housing Graduation studio of 2020 is called *'In Search of a Humane Metropolis - The future of metroplitan housing in the Netherlands'*. Together with the 1M Homes question, we can asks ourselves if we are building inclusive enough?

With my graduation project I am aiming for an inclusive an inclusive neighbourhood, where people help each other. I think this fits very well to the challenges of the studio.

My project literaly rises from our changed view according to inclusiveness, the main topic of the studio. Here I see the residential environment as the opportunity to bring people together. Stimulating social contact is something I try to achieve with my architecture. Eventually this contact is essential to contribute to the social self-reliance of young people with a mild intellectual disability.

With the design of my apartments I try to create the ideal dwelling for my user group, which includes the need of privacy at home. The mixed typology and spaces for social interactions are the ingredients for an inclusive neighbourhoud, where people with MID live together with other people. That's wat my inclusiveness is about.

3. RESEARCH METHODS & APPROACH

My user group asks for a personal approach, which are reflected in my mostly ethnographic based research. Most of the research methods follows the line of the graduation studio.

The general approach of the studio is mostly on analyzing case studies. Although this seems to be a very signifcance way of studying (Lucas, 2016), the results are still based on the imagined dwellers. We have to fill in how we think people live there on the base of information we found; floorplans, sections and pictures.

I think we need to go in dialogue with the people who actually live in the building. Observation tools can help us understand how people experience the building. It should be good to actually go there, observe and map how people approach their dwelling. The methodological is maybe not only missing in the graduation studio, but during the whole bachelor and master as well.

4. WIDER FRAMEWORK

My research towards case studies made me aware of the relevance of my project. I couldn't find that much related projects. I think this is has to do with the recently changed WMO. Researching the problematique and policy around MID made clear the instances involved are really in need of a solution according this theme.

Last year I invested a lot in getting familiar with my user group and the problems. Although I choose for this direction in my graduation project, the real world didn't and our society is actually dealing with this situation.

I definitely hope my research could be an inspirational case study for social housing corporations and health instances who are dealing with this.

5. ETHICAL DILEMMAS

In doing my research I was wondered about the complexity of the policy around MID. Sometimes I get still confused too. Especially the terms of protected and assisted living are widely and sometimes wrongly used. Furthermore people may have an other definition of MID than others. This makes it difficult to orientate in this complex field.

The ethical dilemmas I have encountered were about how other people think about this topic. For instance, in the beginning someone asked me: *"Why should people with intellectual disabilities live in the city, aren't they better off outside the city?"* I think this is the wrong mindset, what makes inclusiveness such an important theme. The question should be: *"Who are we to decide who has the right to live in the city and who not?"* That is the beginning of our inclusive society. We are all equal and do not to have to earn a place in society, we are already part of it.

The '1M Homes' questions asks a lot of our capacity to build faster. But I think it is important we should build for everyone and that providing customization for different user groups won't be lost.

I tried to cover this question with a building where most of it is prefabricated. What if we work towards a faster system, so eventually we can build faster? Building in modular elements made it possible to reach this speed and still provide customization.

Building faster and more precise, also means less materials are wasted and we can win in costs on the construction site. Because of the high prefabricated system, the eventual building costs of the building are lower too. This benefits the affordability of the user groups, which mostly has lower or none income.

An other ethical dilemma where we are always dealing with in is of course sustainability. Inclusiveness is not only about our current generation, but also related to our future generations and the impact of our acts on the environment. Because of the fully modulair elements, my building can be demounted in the future and used again. Furthermore my focus was on building in mostly natural materials or with a long durability and the possibility to recycle them. This makes my building prepared for the future.

Combining these dilemmas in one design can be very challenging. And sometimes I didn't know which decisions I had to made. In the end the quality of living helped me to make the right choices for my users.

WITHDRAWN P4

Especially last year was different then previous years. Not only because of graduating, but even more due to the ongoing worldwide pandemic. It took me some extra effort to switch to online conservations and became quite challenging on a mental level. But also physical, where the virus caught me near the end of October.

Besides studying I was also organizing and training for a marathon in November, which actually should have taken place in April 2020. Although this was a personal goal and we raised almost €10.000,- for charity, I realised afterwards this took too much time of my process.

Last week before P4 in December I concluded I was not content with my design at that moment. I think this is partly coming from my perfectionism together with postponing important choices in the design process. That made my withdraw for my P4.

POSITIONING

I started this reflection report with my struggles in architecture. It was a long journey that already started at elementary school. I was always sketching facades and plans of villas where I dreamed of, resulting in paper models I built in the weekends. This was the starting point of the willingness to become an architect.

That view never changed, neither during high school. Although I had to overcome a few difficult periods, I made it ot the end of my graduation in Architecture & Dwelling.

Towards the end of my bachelor and the starting with of my master, I struggled more and more with my position in architecture. It felt like my interest in villa architecture was contradictory to the philosophy at university. During the process of the graduation studio I became aware that it isn't just the market which attracts me, but the relation with your client.

This field gives me the opportunity to communicate with and design for the actual dweller. And that is what intrigues me the most. There is a direct link and personal approach.

That's exactly where my journey will continue after graduation. This doesn't have to be the private housing market. As long as there is direct / personal contact with the actual user of the building.

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ONBEPERKT WONEN

The Dutch Housing Graduation Studio is called 'In Search of a Humane Metropolis - The future of metropolitan housing in the Netherlands'. The greatest challenges in this studio are a high-density and inclusive city.

Inclusive means to me *'for everyone'*. We are currently facing an other challenge in the Netherlands: we have to build up to *'1 Million Homes'* by 2030. But such a huge assignment raises the question if those new dwellings will be inclusive enough for all different users?

Aren't we losing our eye for the actual dweller? We have to pay some extra attention to the smaller groups of our society.

This booklet contains my graduation project & process on '*Independently living for young people with a mild intellectual disability*'.

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