

ONBEPERKT WONEN

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



P5 Presentation, 16th of April 2021 12:45
Martijn van Leeuwen | 4354168

Delft University of Technology
Dutch Housing Graduation Studio 2021

TUTORS
ir. T. Kupers
ir. P.S. van der Putt
ir. F. Adema

DELEGATE
ir. R.J. Nottrot



INTRODUCTION

- + Inclusive live-work environment M4H
- + 'Make It Happen', focus on live-work, creativity, innovation, making together
- + COLLECTIVITY
- + 1M Homes in 2030
- + Inclusive City

M4H

ROTTERDAM



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M4H

ROTTERDAM



Inclusive enough?



Jacoba van Beierenlaan, Delft - © Google Maps (2021)

MILD INTELLECTUAL DISABILITY (MID)

About

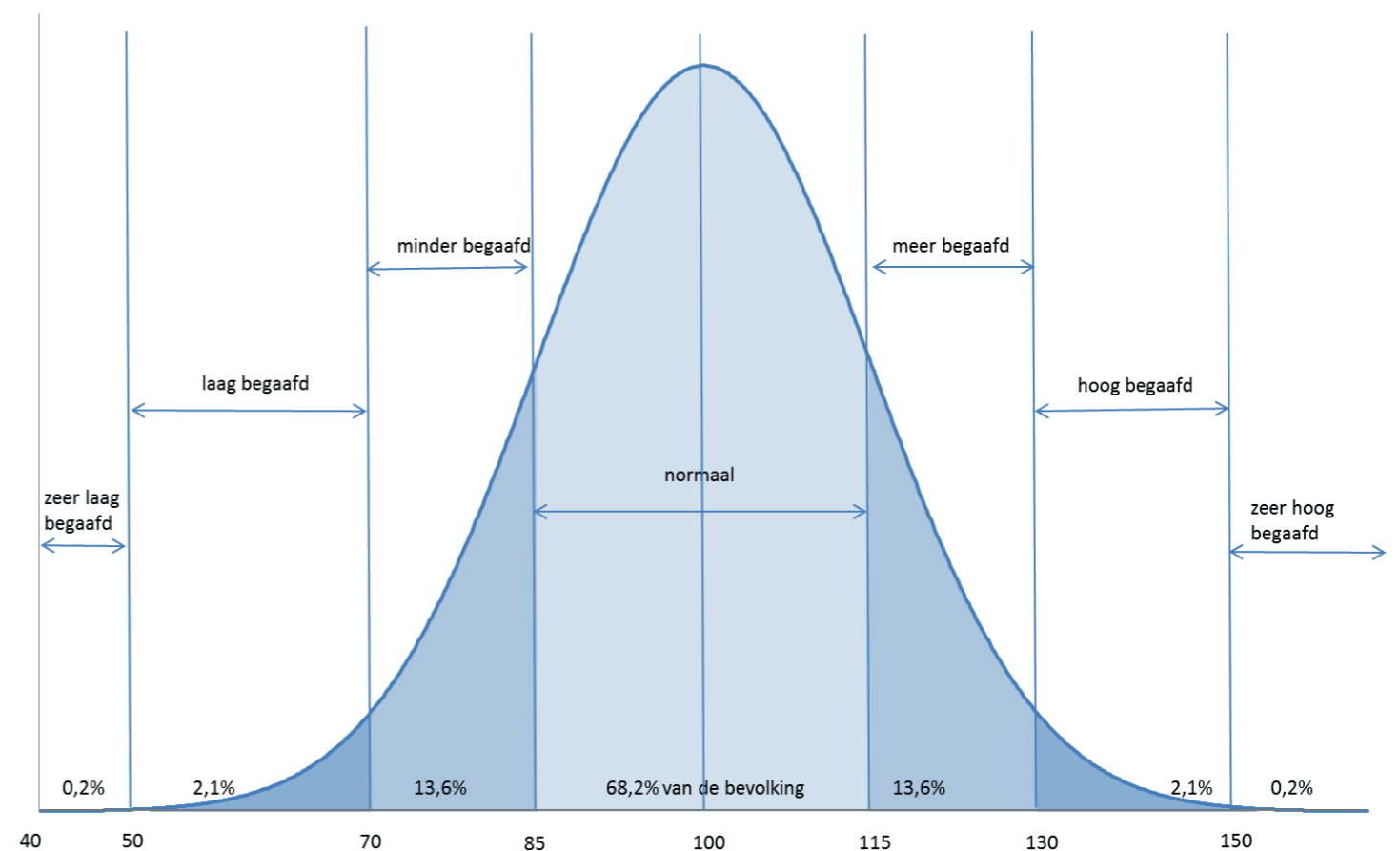
- + 15% of the Dutch population has an IQ between 50 and 85
- + Not directly visible, but often trouble in keeping up with our complex society
- + Problems in social self-reliance; household, work, social contacts

According to the SCP, the definition of MID is:

- People with an IQ between 50 and 70;
- People with an IQ between 70 and 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.



IQ Population, from: Woittiez et al. (2019, pp. 4).

CHANGED POLICY

Wet Maatschappelijke Ondersteuning (2015)

- + No longer apply for housing by healthcare of disabled
- + Changed WMO (Wet Maatschappelijke Ondersteuning) in 2015
- + Follow the regular process, little or no chance to successfully complete
- + Young people stay longer at home



Ons werk Over HandicapNL Help me

ZELFSTANDIG WONEN VAAK PROBLEMATISCH VOOR MENSEN MET EEN BEPERKING

f **t** **in** **e**

Veel mensen met een beperking, een chronische ziekte of psychische aandoening ondervinden problemen bij het zelfstandig wonen. Dit blijkt uit de meldactie wonen van Ieder(in), de Patiëntenfederatie Nederland en Mind/LPGGz (2017). Er zijn te weinig geschikte woningen, eenzaamheid komt veel voor en de brandveiligheid is sterk onvoldoende.



Jongere met een verstandelijke beperking lachend in zijn zelfstandige woonruimte

HandicapNL, 3 Februari 2017



UIT HET NIEUWS

TEKORT AAN GESCHIKTE WOONRUIMTE VOOR MENSEN MET BEPERKING

Januari 12, 2017 Marjolijn Bruurs Nieuws 0 Reacties

Jasmijn Berg (26) zit noodgedwongen in de garage van haar ouders. De overheid heeft gezegd dat zij zelfstandig moet wonen, maar het vinden van een geschikte plek is vreselijk moeilijk. Dit geldt voor bijna de helft van de 4600 mensen met een verstandelijke en/of lichamelijke beperking die door belangenorganisaties Ieder(in), Landelijk Platform GGZ en de Patiëntenfederatie Nederland ondervraagd.

Er is een tekort aan sociale huurwoningen die geschikt zijn voor gehandicapten. Van de ondervraagden heeft hun woning dan ook niet de juiste aanpassingen: deuren die niet openen van buitenaf, gebrekkige toiletten, etc.

Mantelzorgelijk, 12 januari 2017

Mantelzorgelijk, 12 januari 2017



Menu

Creatieve oplossingen gevraagd voor woningnood onder kwetsbare jongeren

Delen: **f** **in** **t** **e**

Artikel

26 november 2018

De woningnood is terug. Onder jongeren in het algemeen en onder kwetsbare jongeren in het bijzonder. Behalve met het vinden van zelfstandige woonruimte, kampen kwetsbare jongeren vaak nog met meerdere andere problemen en lopen daardoor een groter risico op dakloosheid. Dit geldt vooral voor jongeren met een beperking. Met deze complexe problematiek en gebrekkige kennis over de mogelijkheden is een integrale benadering of eerst het meest urgente oplossen nodig.

De meesten zijn voor zelfstandige woonruimte maar de overheid neemt al jaren af. Zij kunnen zich niet vinden in de huidige situatie en krijgen dan vaak te maken met zeer lange wachtlijsten. Het is nog moeilijker voor jongeren om onderdak te vinden dan voor jongeren zonder beperking. Dit geldt vooral voor jongeren met een beperking die inwoners van het dak zijn of die inwoners van het dak zijn van jongeren met een beperking.

De overheid richt zich bij het maken van beleid rond goed wonen voor mensen met een beperking vooral op ouderen. Dit bleek opnieuw bij het debat over de huisvesting van doelgroepen op 2 december. De aandacht moet echter ook uitgaan naar de woonproblemen van jongeren en andere doelgroepen met een beperking.

Movisie, 26 November 2018

Movisie, 26 November 2018

AWBZ

Algemene Wet Bijzondere Ziektekosten

WLZ

Wet Langdurige Zorg

Only when care and supervision is necessary all day long

Housing, personal care, support, transportation

Right on healthcare

WMO

Wet Maatschappelijke Ondersteuning

Only for supportive tasks, needs for MID

Support & guidance

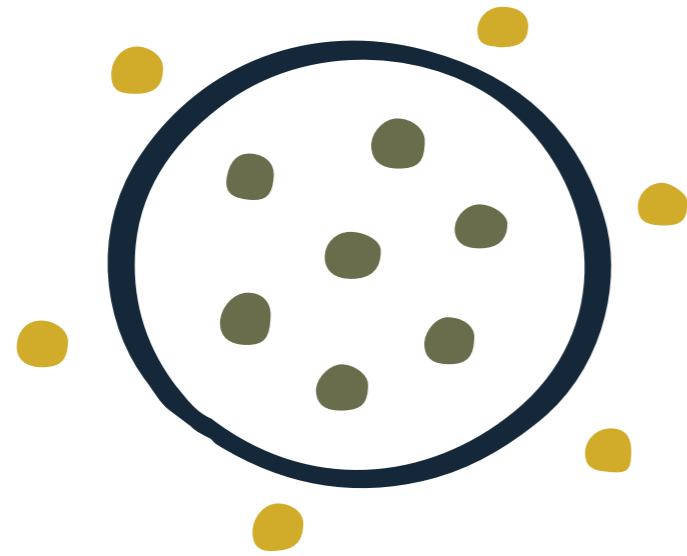
Should be compensated by municipality

Own responsibility
Ask for help first to your own network

Natura or PGB (Persoons Gebonden Budget)

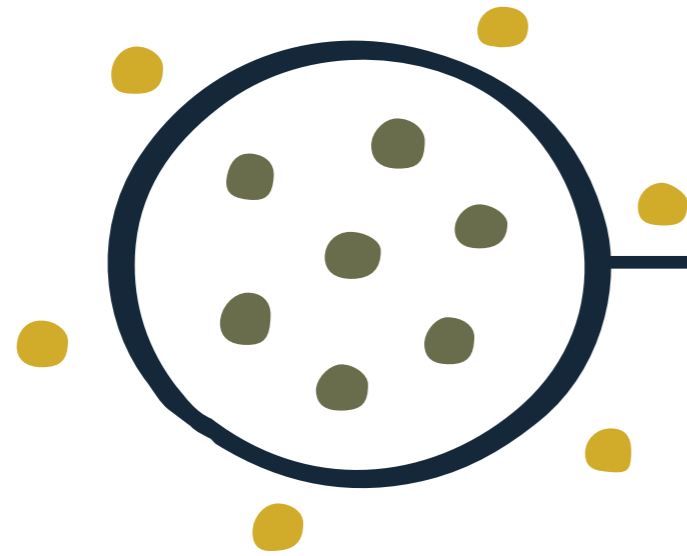
18 C. - 1st HALF 19th C.
Cripple = kreupel

EXCLUSION



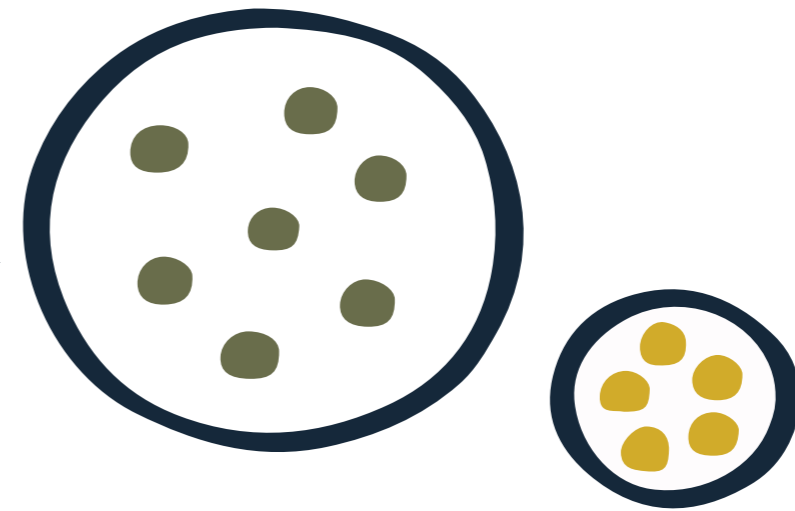
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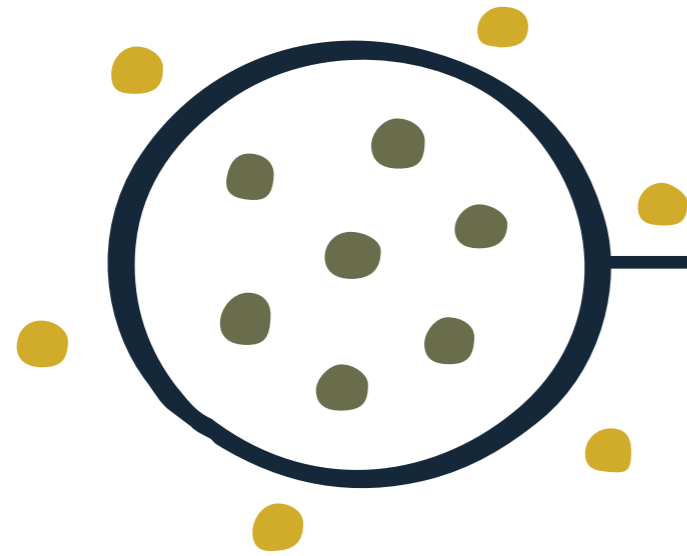
2nd HALF 19th C. - 60's
Patients with disabilities

SEPARATION



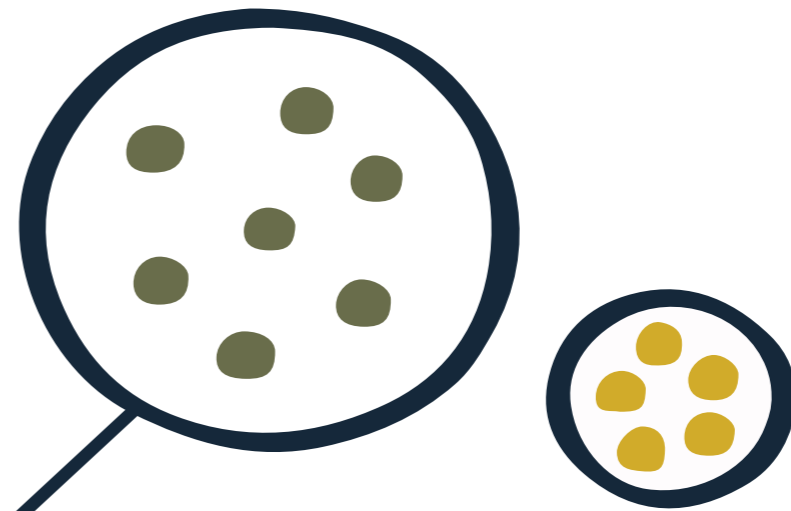
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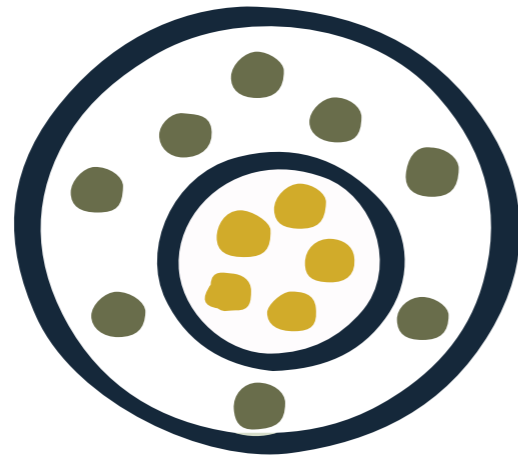
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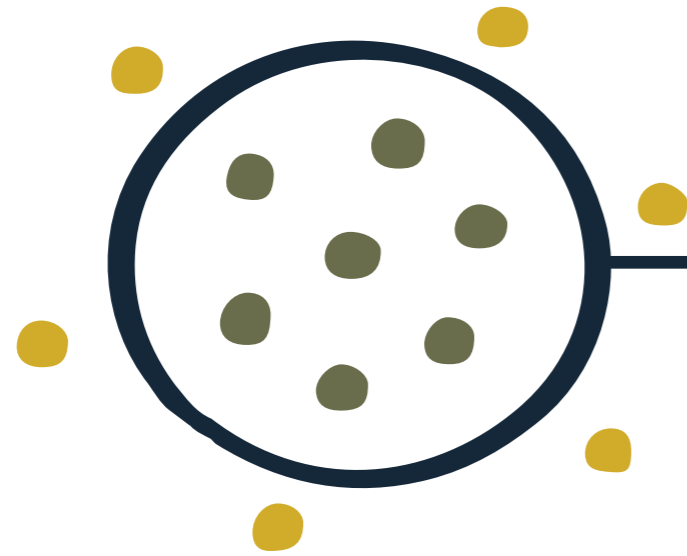
60's - 90's
Possibilities

INTEGRATION



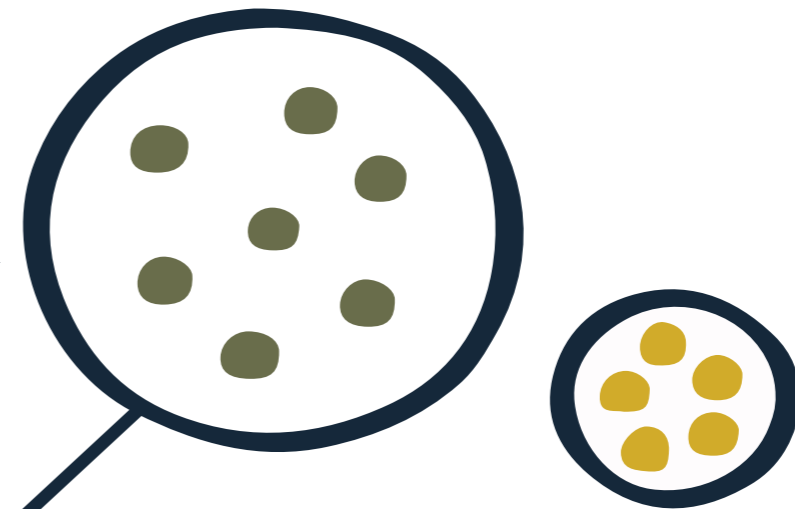
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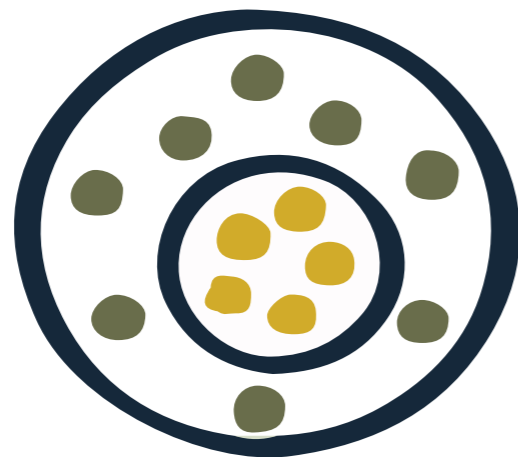
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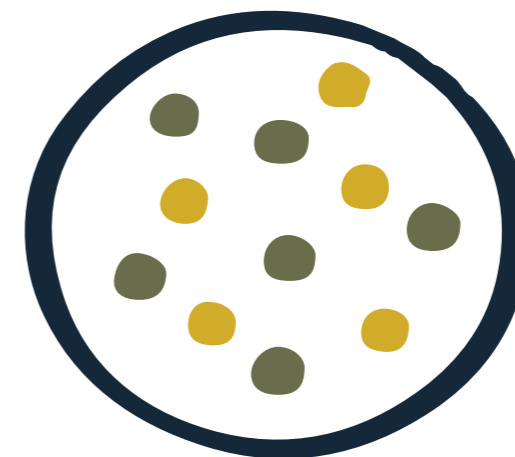
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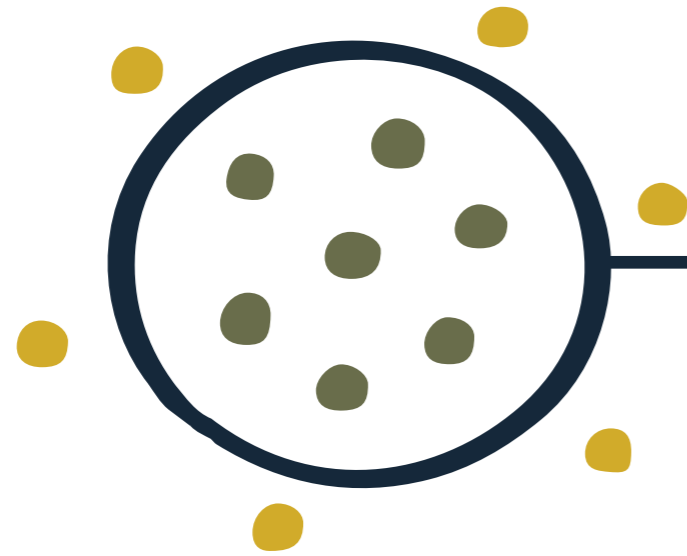
90's - NOW
Equal Citizens (same rights)
Inclusion does not need to be earned

INCLUSION



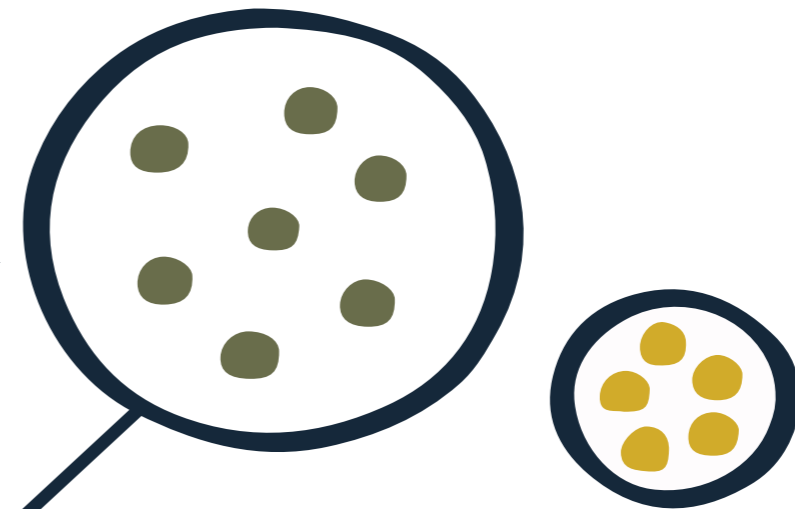
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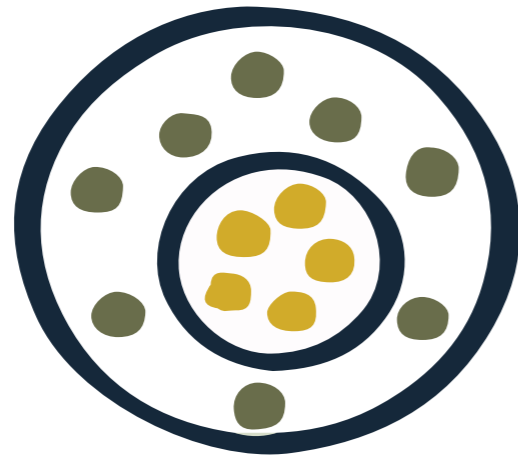
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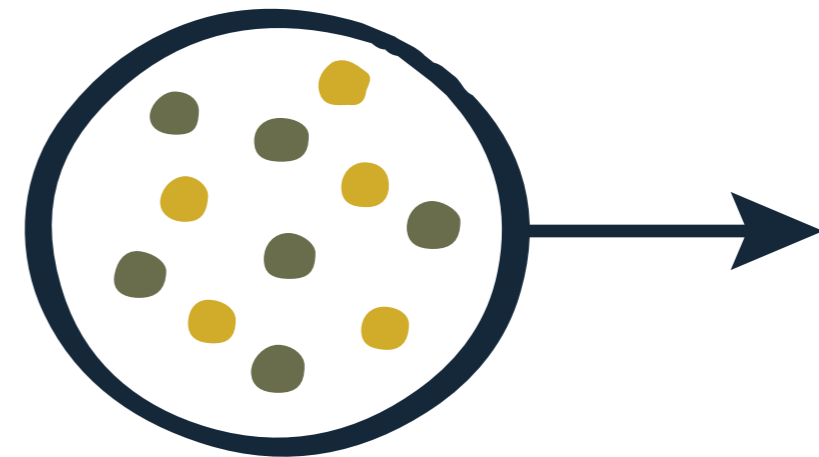
60's - 90's
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INTEGRATION



90's - NOW
Equal Citizens (same rights)
Inclusion does not need to be earned

INCLUSION



?

INCLUSIVE SOCIETY



Boontjes Doppen - © Albert Heijn (2021)

- + Own responsibility; 'eigen boontjes doppen' -> difficult MID
- + Focus WMO on inclusive society
- + WMO -> Supported by network of friend, family and **neighbourhood**

“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 USER GROUP

- + Young people with a mild intellectual disability
IQ between 50 and 70, or 70 and 85 and not social self-reliance in two or more ways.
- + WMO-indication
Only the right on little help or support in Natura or PGB
- + Age between 18 and 23 years
Till 18 years they are supported by the 'Jeugdwet', when turning 18 the 'WMO'. Age between 18 and 23 is most crucial in improving their social self-reliance.
- + Practical skills
Work with practical skills is just as essential as a safe living environment, they need it for their day structure.
- + Low budget
Income near social minimum, are eligible for a benefit and can apply for housing allowance.
Only receive housing allowance if the maximum rental does not exceed €431,25.

ACTUAL DWELLERS

'Net FF Anders'



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, enthusiast 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).

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INCLUSIVE USER GROUPS

- + Fully live and participate in society
- + Living in between other user groups with an open attitude:

Stimulating user groups who motivate people with MID

- + **Starters / young people**

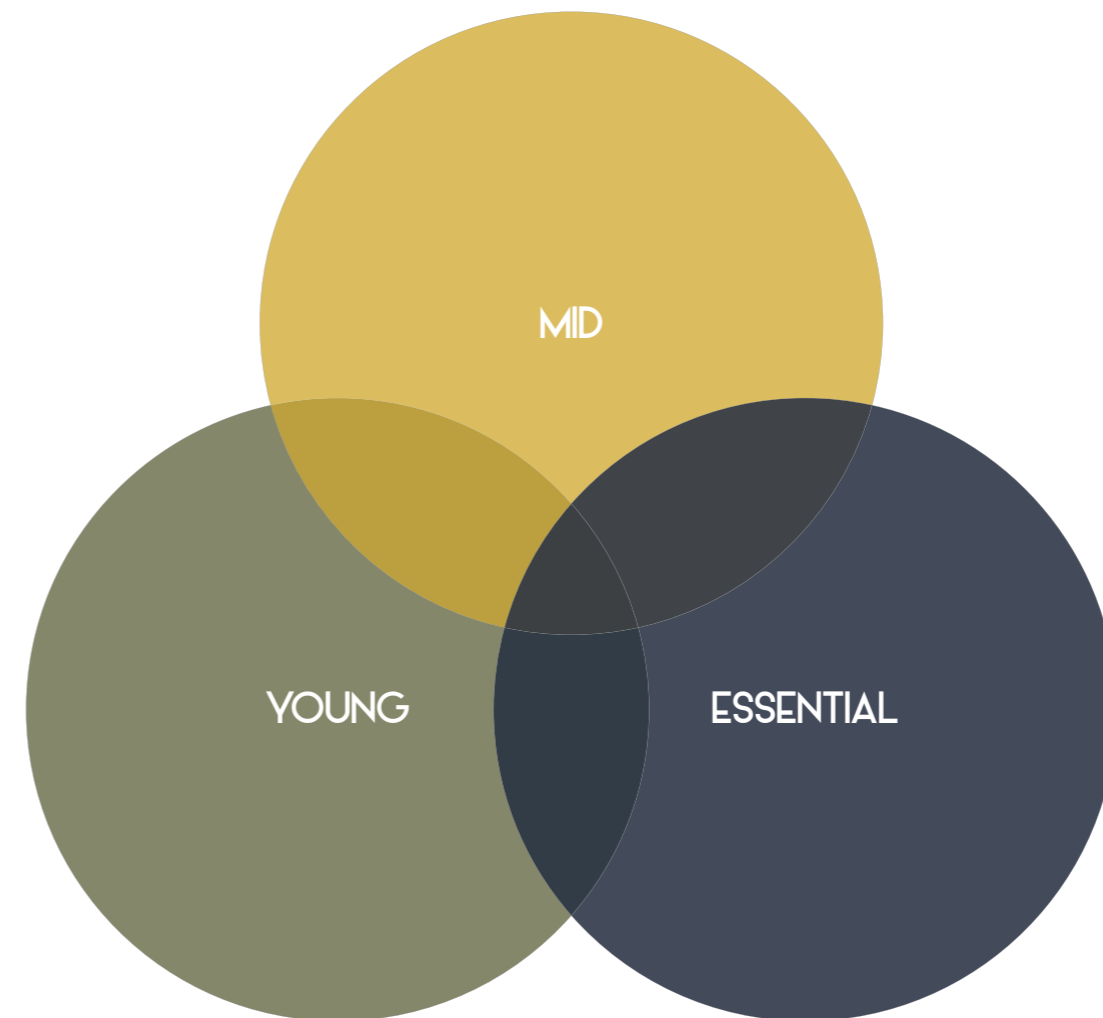
Same stage of life, same challenges
Age of 18 to 23 or a little older
Providing tools to handle difficult situations at that age
2 - Room apartments of around 50 - 60 m²
Singles and couples

- + **Essentials**

Police officers, firefighters, teachers and nurses
Already dealing with inclusiveness in their profession
Essential for a vital city as Rotterdam, unfortunately they cannot find a place in the city.
Keeping an eye on things and providing support
3, 4 - Room apartments or maisonettes
Rental between €711,- and €1000,-

- + **Makers / creatives**

Offer work with practical skills, suits to MID
Offer a great network for suitable work



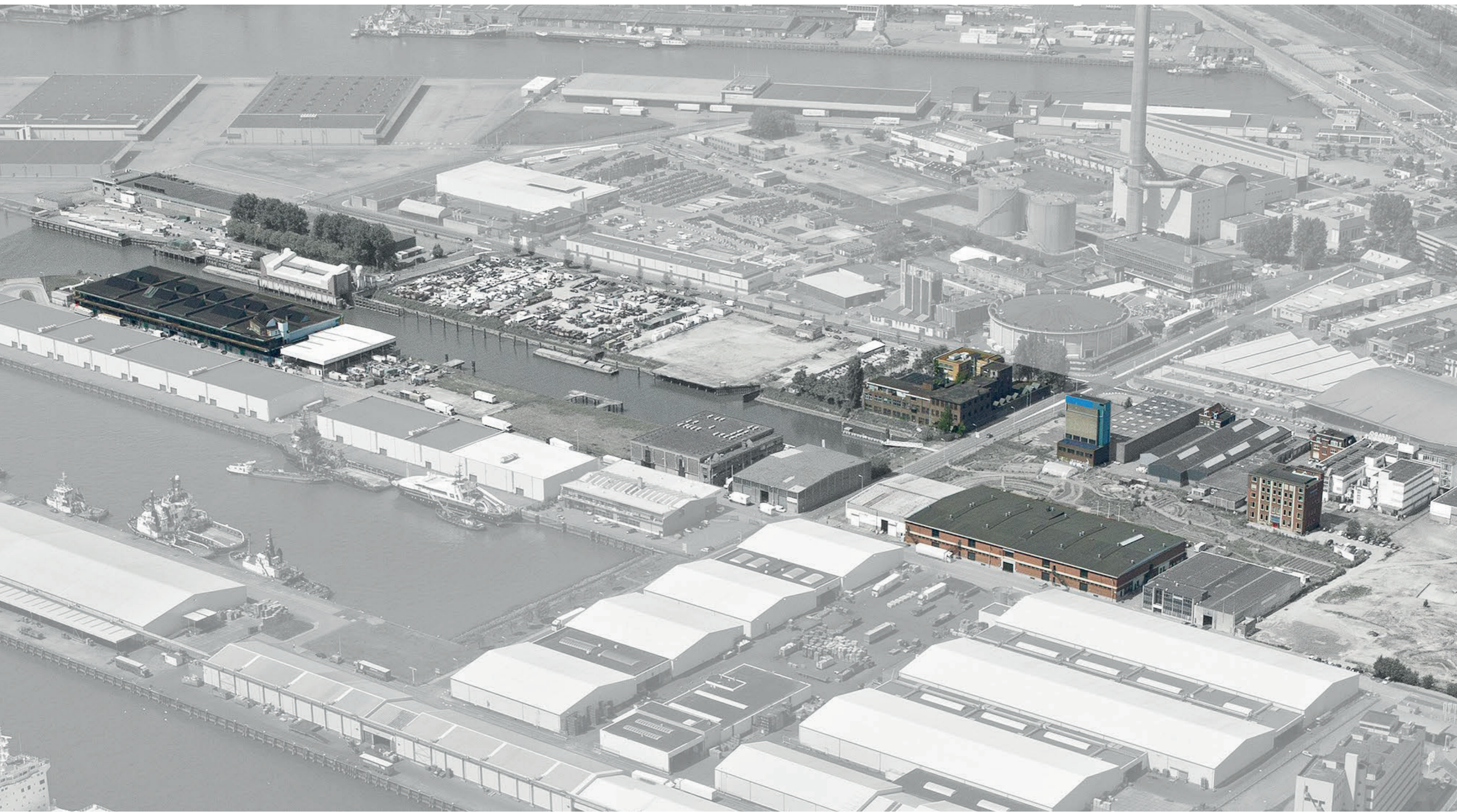
THE REQUIREMENTS

- + Separated rooms
In need for private spaces when getting too much incentives
- + Living above the streets
Feels safer
- + Communal facilities
Important in not feeling alone & ask for help
- + Compact apartments, around 50 m²
Based on case studies and budget

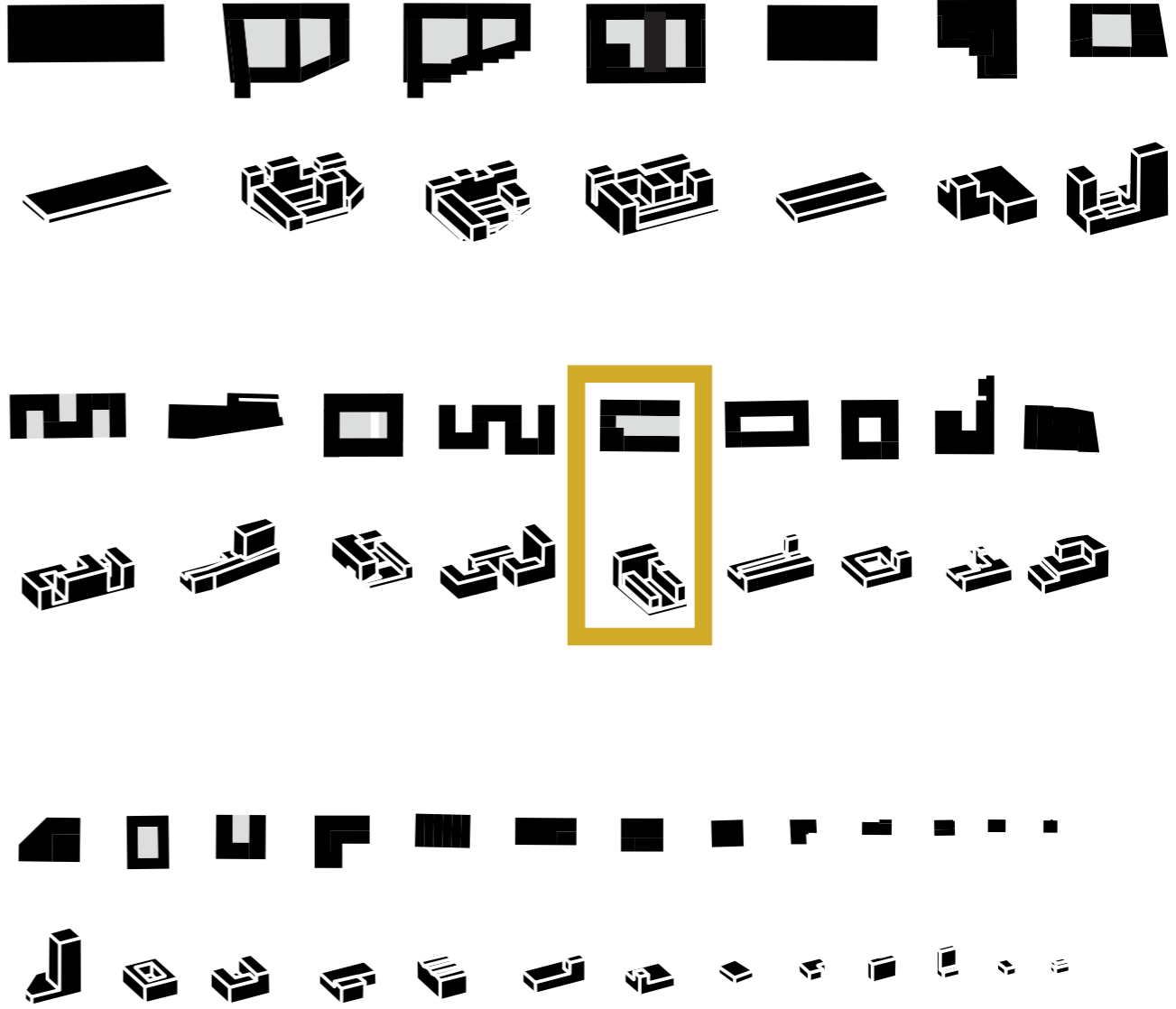
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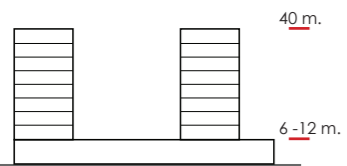
- + Clarity
Practical interior, everything you need close by.
 - + Structure
Store stuff in the same place.
 - + Recognizability
For instance bright colours.
 - + Cleaned Up
Many spaces to store everything.
 - + Little Distraction
For instance separated rooms, not distracted by television while cooking.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



URBAN MORPHOLOGY



BUILDING PLOT 1:500

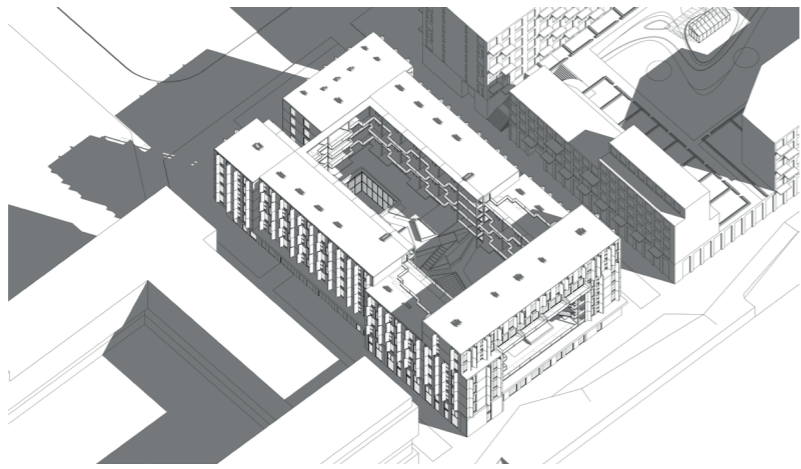


General Rules

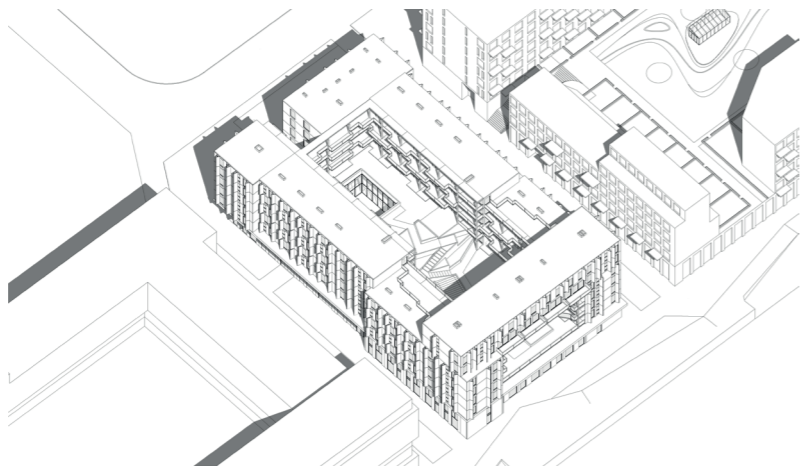
- The ground floor has a minimum height of 6 meters with the possibility of a mezzanine floor.
- The plinth floors fill out the building line. Their total height is 6-12 meters.
- Above the plinth floors the maximum height is 40 meters. The building mass no longer has to follow the building line.



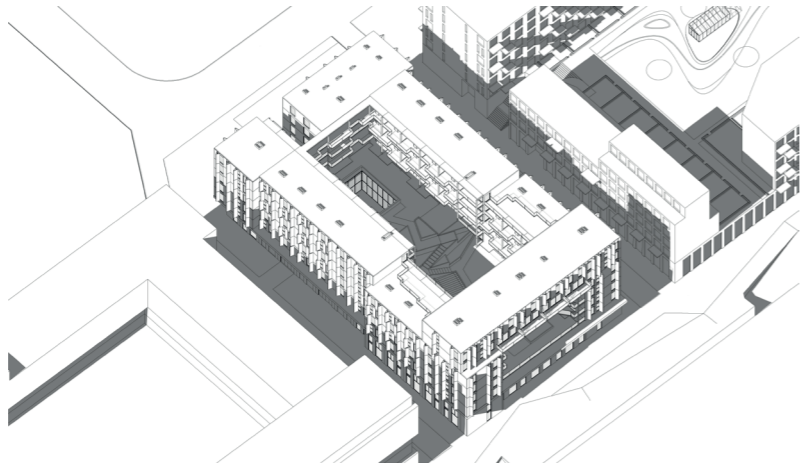




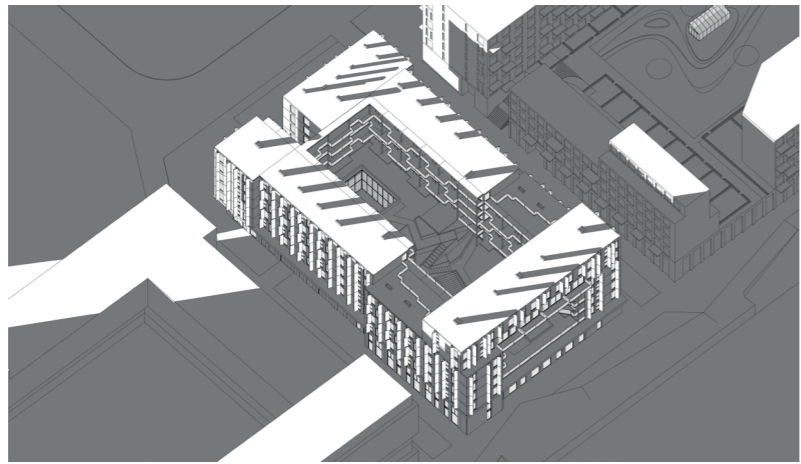
21st of March - 09:00



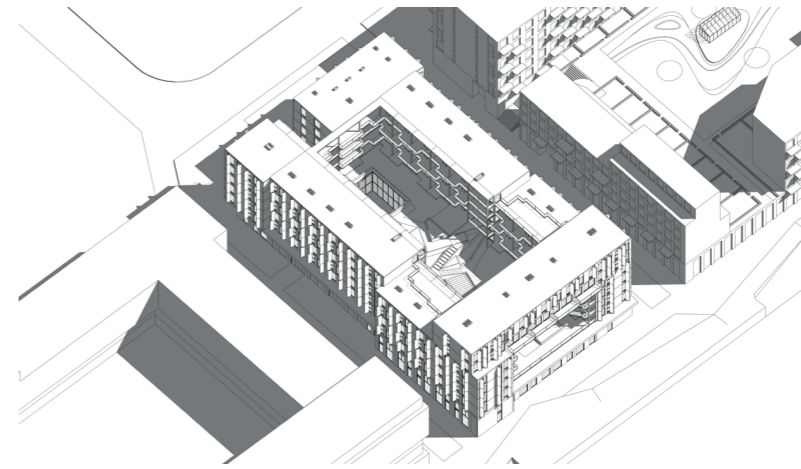
21st of March - 12:00



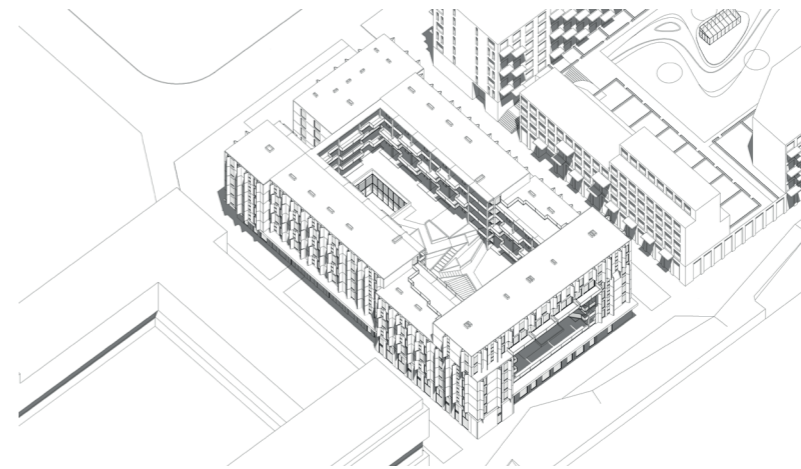
21st of March - 15:00



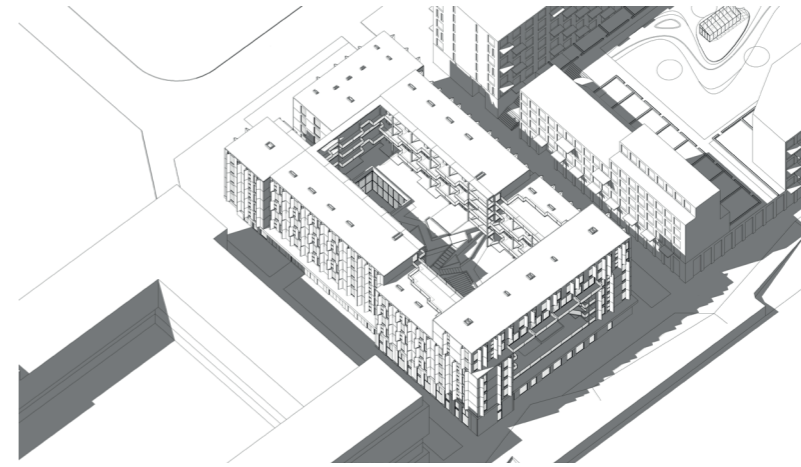
21st of March - 18:00



21st of June - 09:00



21st of June - 12:00



21st of June - 15:00

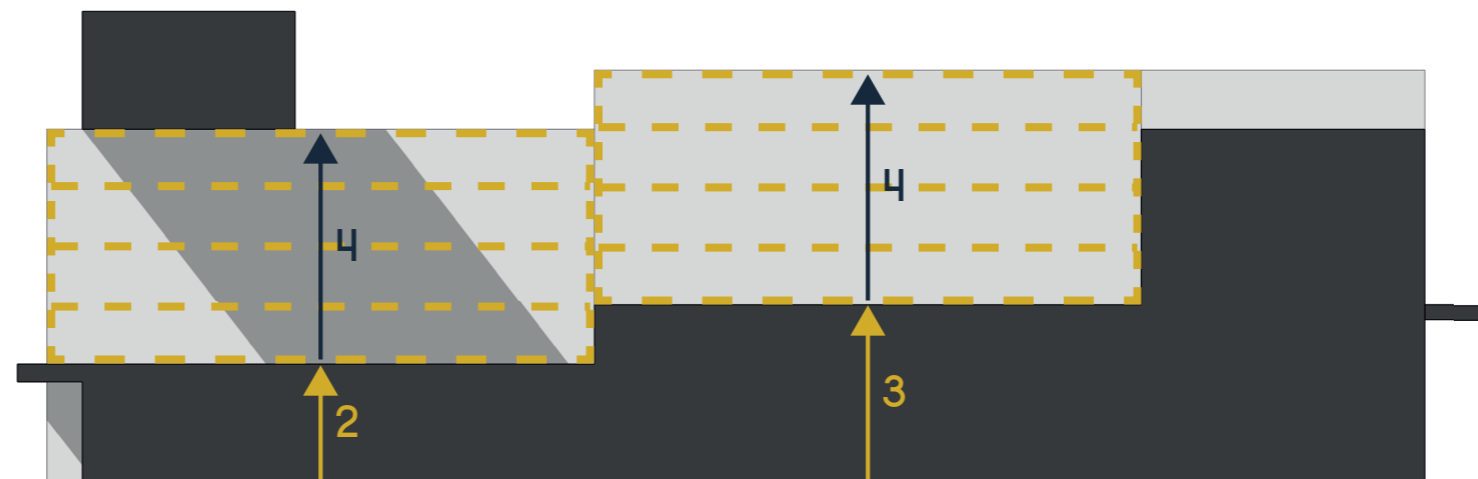


21st of June - 18:00

FOUR STORY LIMIT

A Pattern Language

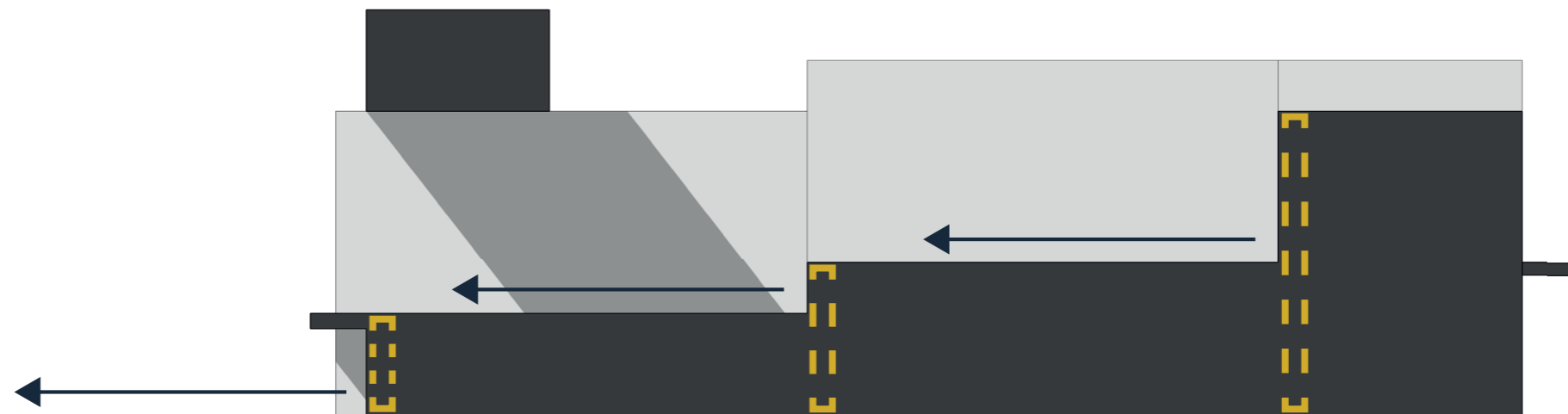
- + Feeling safe and comfortable
- + Maximum of 4 stories for not losing connection with inner space
Feeling involved in the neighbourhood is an outstanding goal



POSITIVE OUTDOOR SPACE

A Pattern Language

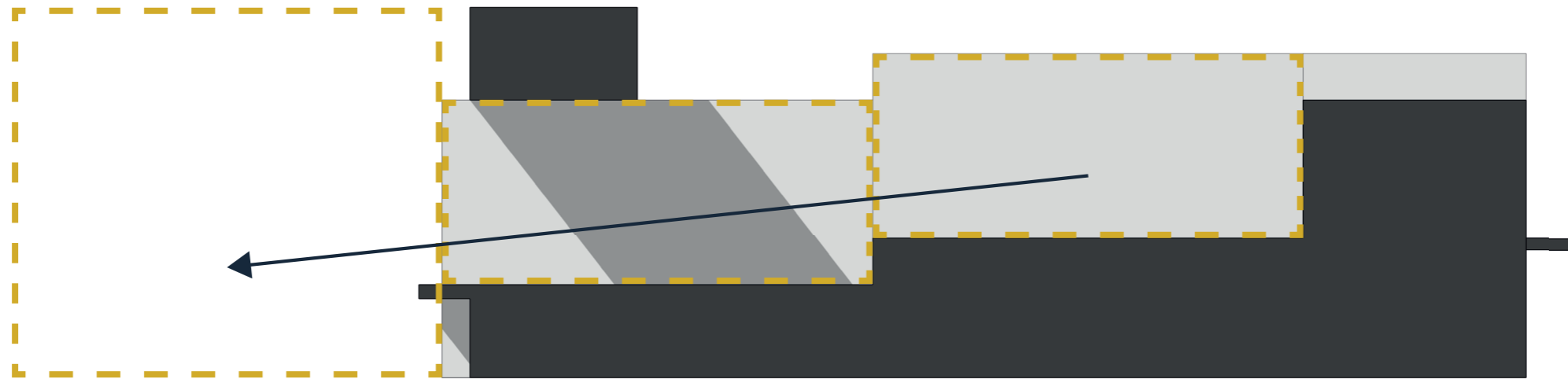
- + Feeling safe and comfortable in space
The inner courtyard has a definite shape created by the different building blocks
- + Feeling protected when having a back
Primitive instinct; we don't have eyes in our back



HIERARCHY OF OPEN SPACES

A Pattern Language

- + Looking from a smaller space into a larger space
- + People with MID are looking out over society
Shows the inclusion of people with MID in our society





HIERARCHY OF OPEN SPACES

SOCIAL INCLUSION

Three Levels

+ DWELL - Gallery

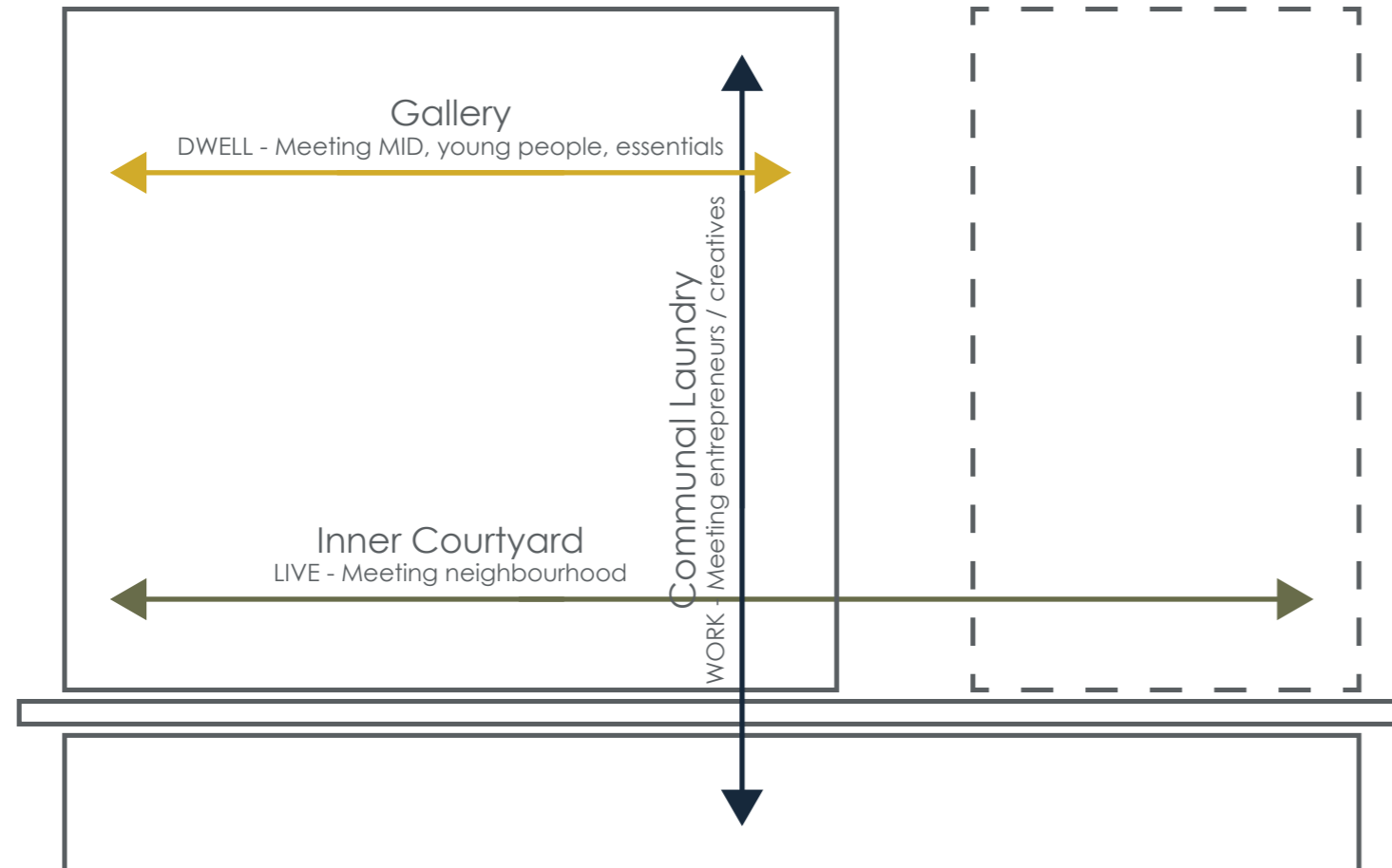
Meeting your neighbours on the gallery in horizontal direction

+ WORK - Communal Facilities

Meeting entrepreneurs / creatives in vertical direction

+ LIVE - Inner Courtyard

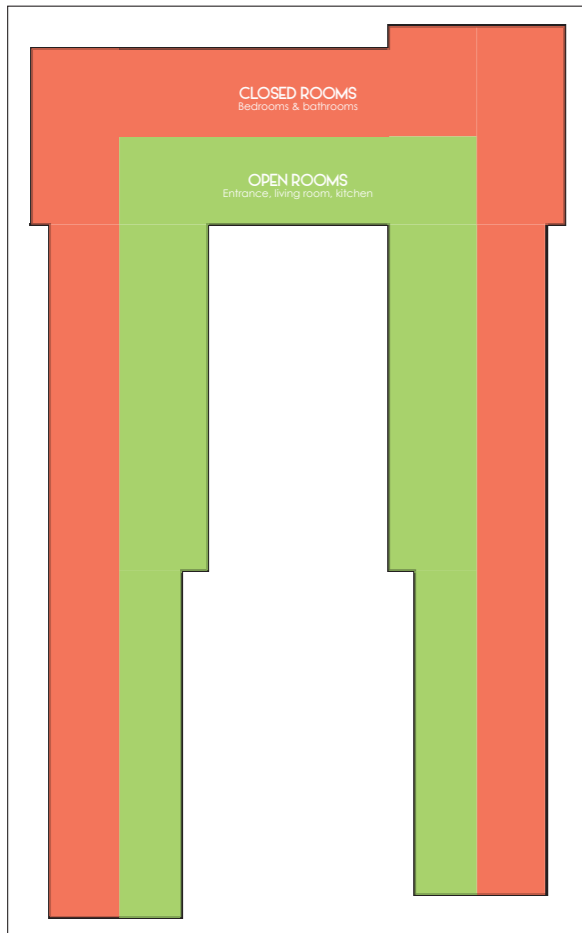
Meeting whole neighbourhood, from other blocks



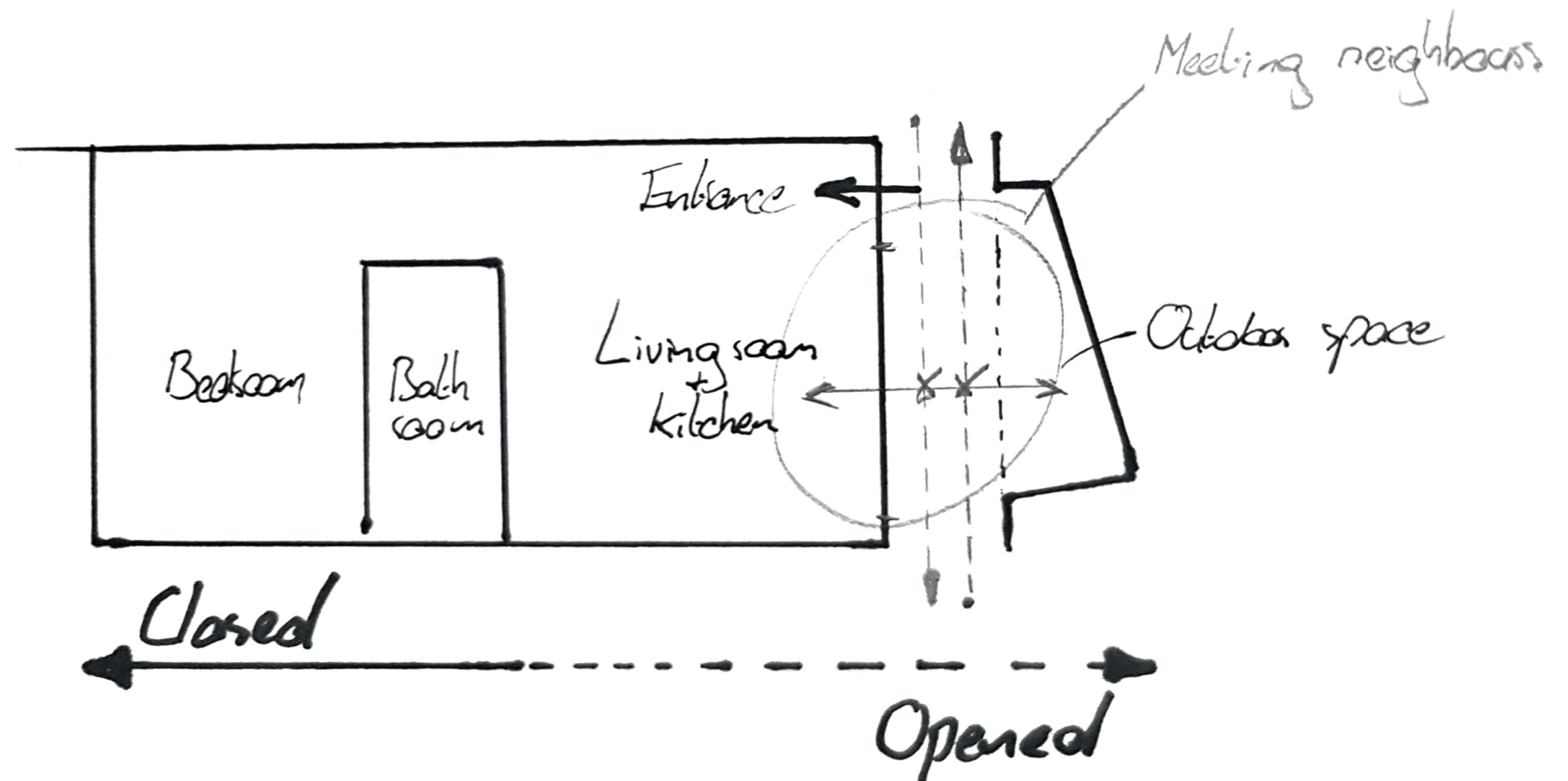
SOCIAL INCLUSION

Open vs. Closed

- + Dwellers are able to isolate themselves
In need for private space when getting too much incentives
- + Open rooms on the inside
Living room, kitchen -> stimulating social interaction with gallery
- + Closed rooms on the outside
Bathroom and bedroom



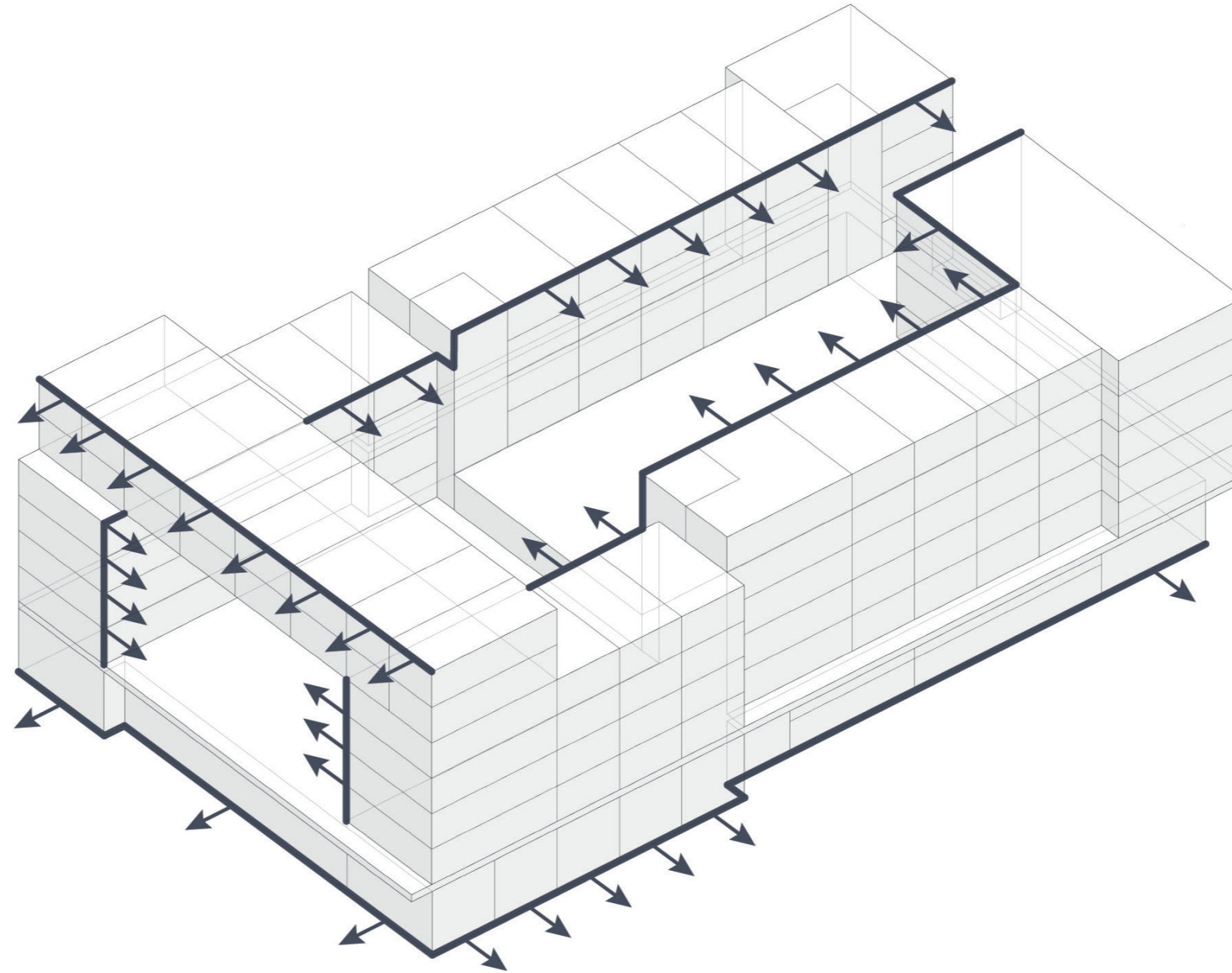
Open vs. Closed



Concept Social Interaction

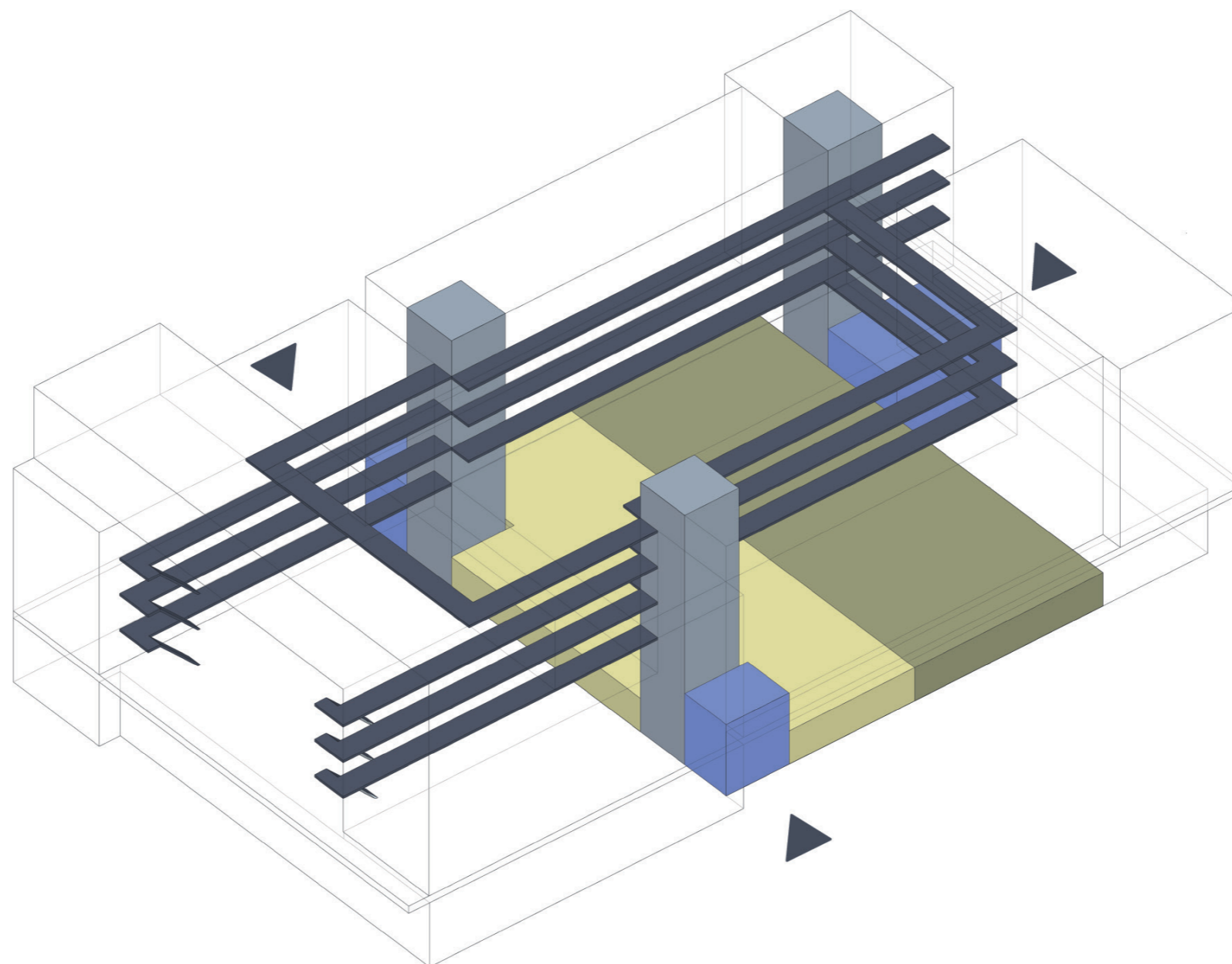
ORIENTATION

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.



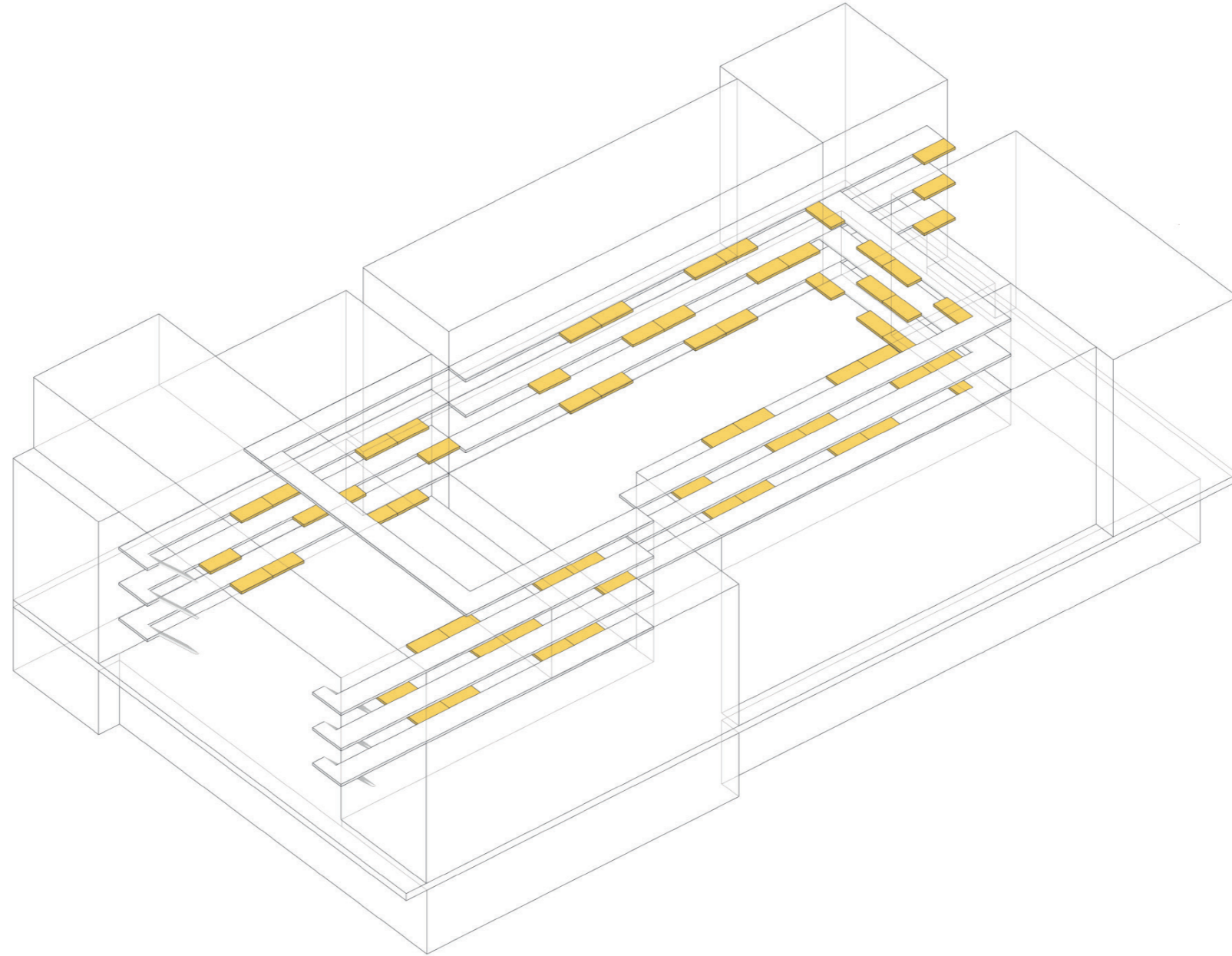
CIRCULATION SYSTEM

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



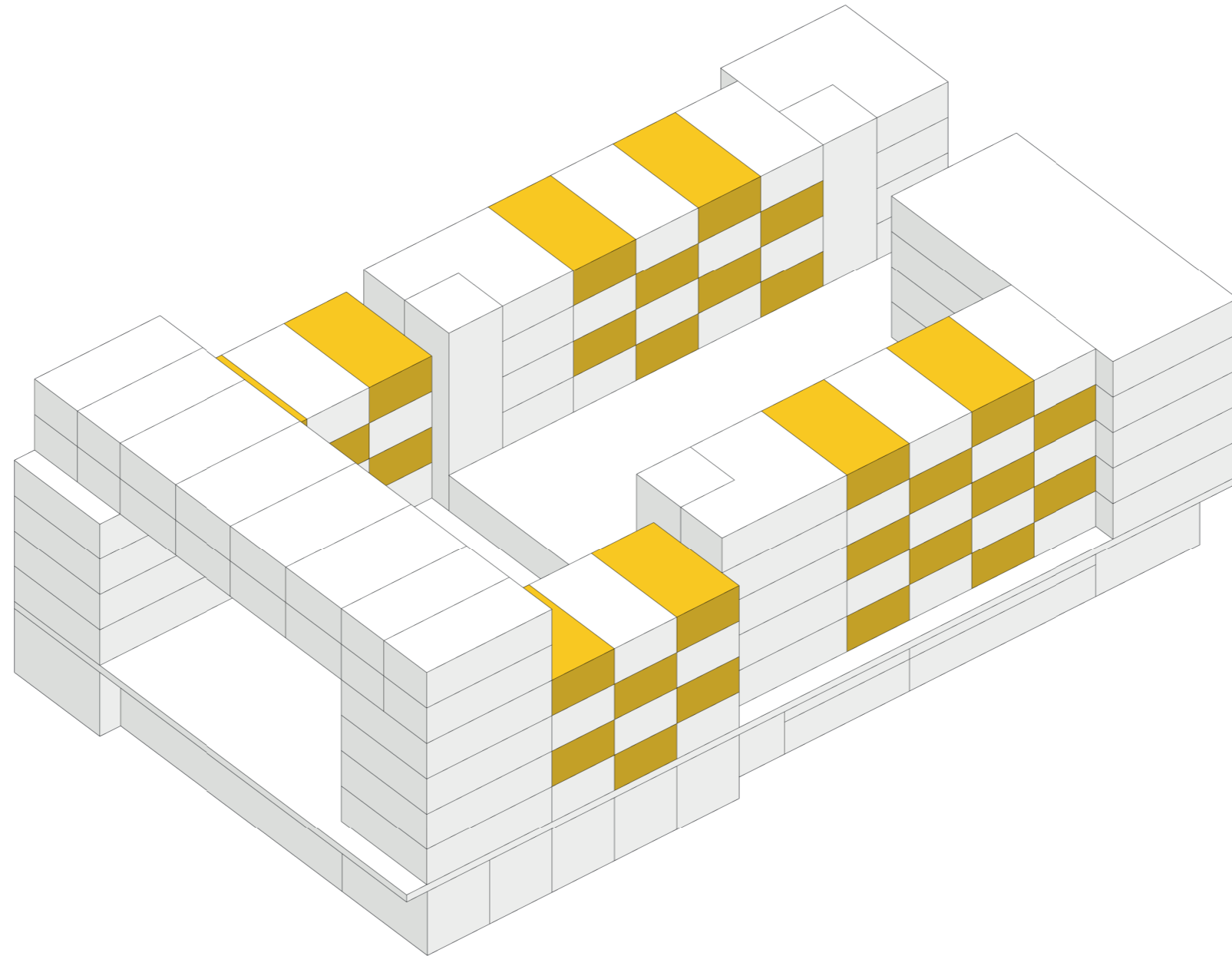
SHIFTING BALCONIES

+ Contact neighbours above & beneath



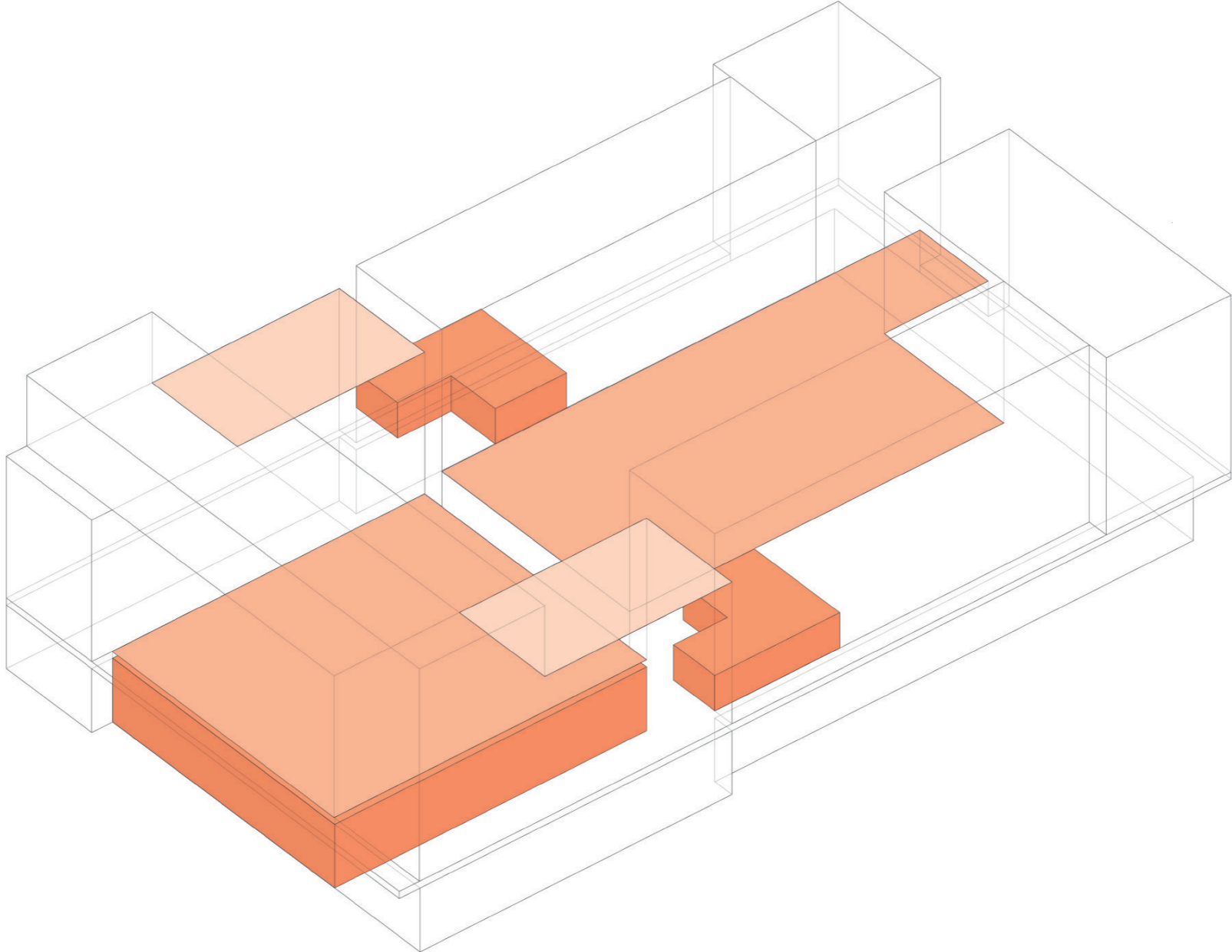
MIRRORED PLANS

+ Connection between balcony and living



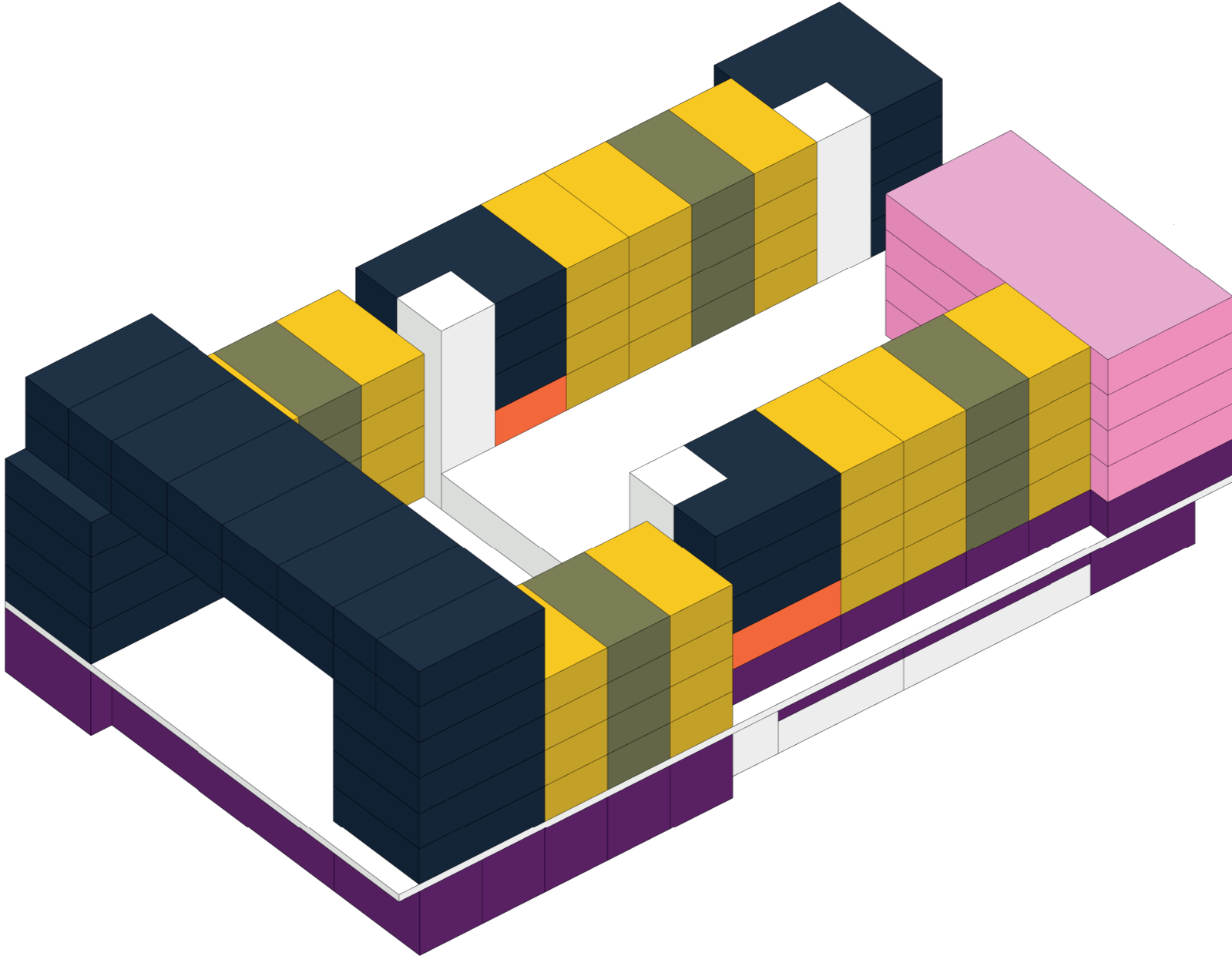
COLLECTIVITY

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



T TYPOLOGY

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



THE MAKERS

Beeldmakers (Visual Designers)

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 possibilities for long-term collaborations in the same area. Those creative people are part of the creative industries, one of the focus point of M4H and include:

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

+ 'Placemakers'

+ Part of the creative industries

Focus of M4H

WHAT IS MAKERS-INDUSTRY?

MAKERS-INDUSTRY

Broadly speaking, the makers-industry includes all business activities where products are manufactured, from food to cars, from building materials to furniture, from (petro)chemicals to high-tech electronics.

PROCESS INDUSTRY

Basic metal, chemical and food industry
Characteristic: high capital intensity and a high bulk production.



'CORE' MAKERS-INDUSTRY

Automotive-, metaalproducten en elektrotechnische industrie
Kenmerk: hogere arbeidsintensiteit en productontwikkeling / assemblage.



'TWILIGHT' ZONE

Business activities which are indispensable in the production chain, but which are themselves almost not engaged in production, as exception only small series.

DESIGN & PRODUCTION

Research and development, design, testing and prototyping.



CREATIVE INDUSTRIES

The same processes as in the field of 'Design & Production', but with more emphasis on creative and artistic content.

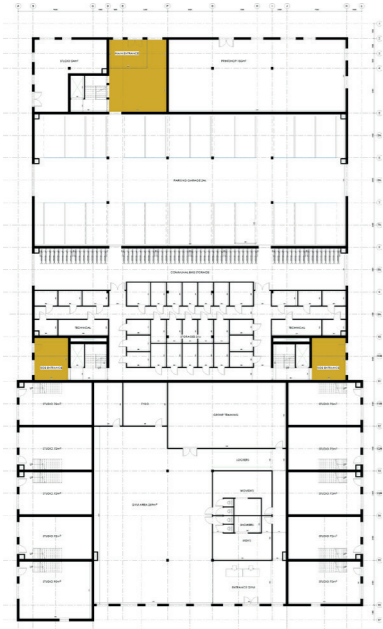




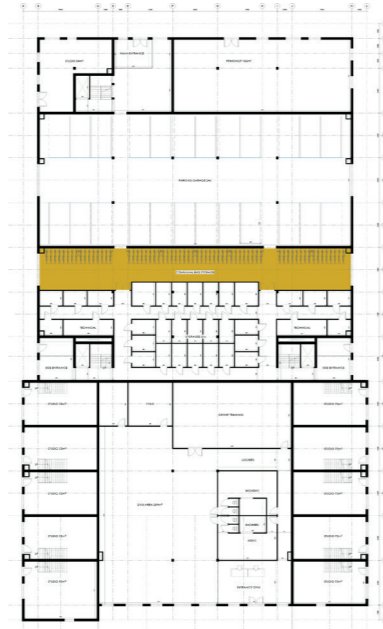
APPROACH KEILEWEG



ENTRANCES



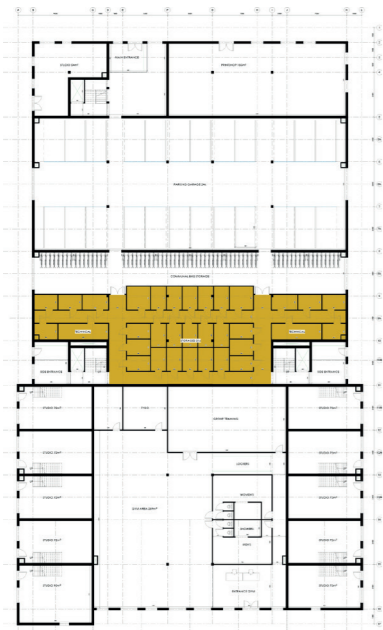
ENTRANCES



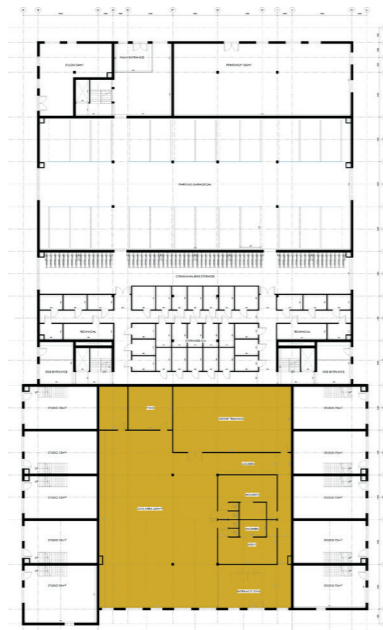
BIKE STORAGE



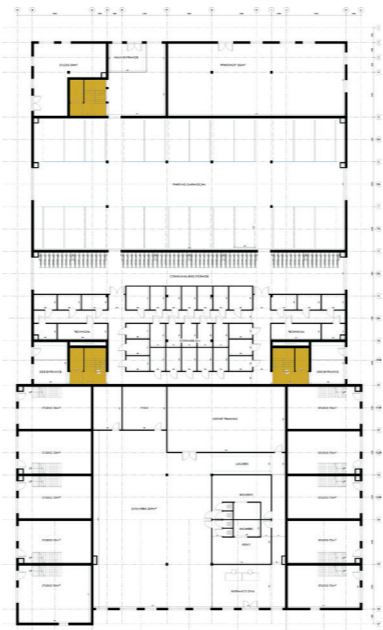
PARKING



STORAGES

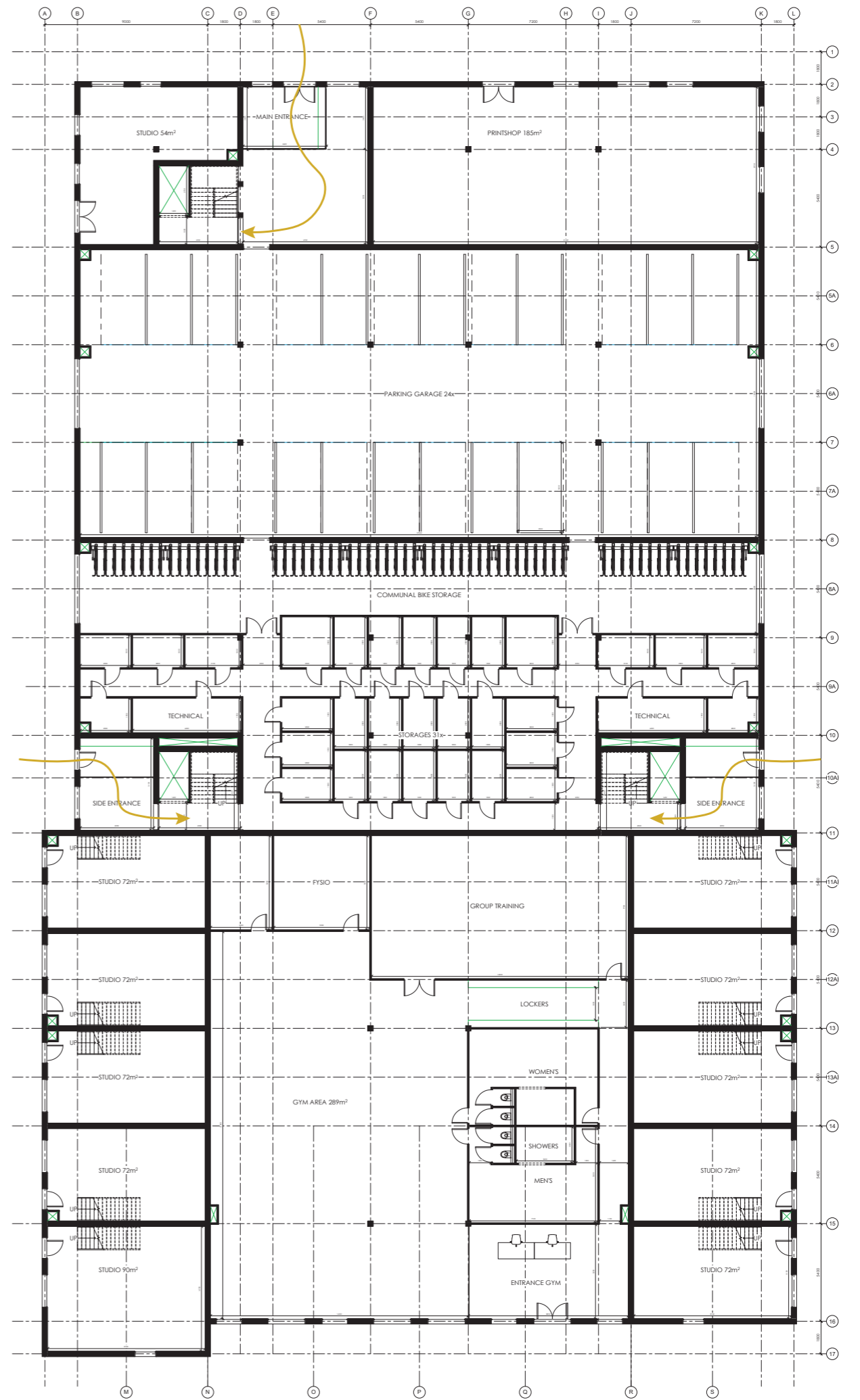


GYM



ELEVATORS STAIRS

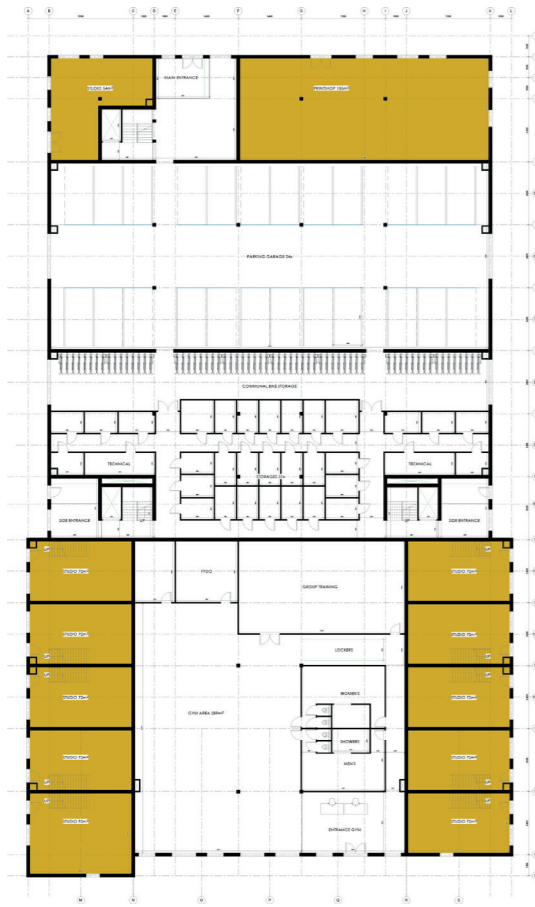
SCALE 1:400



GROUND FLOOR

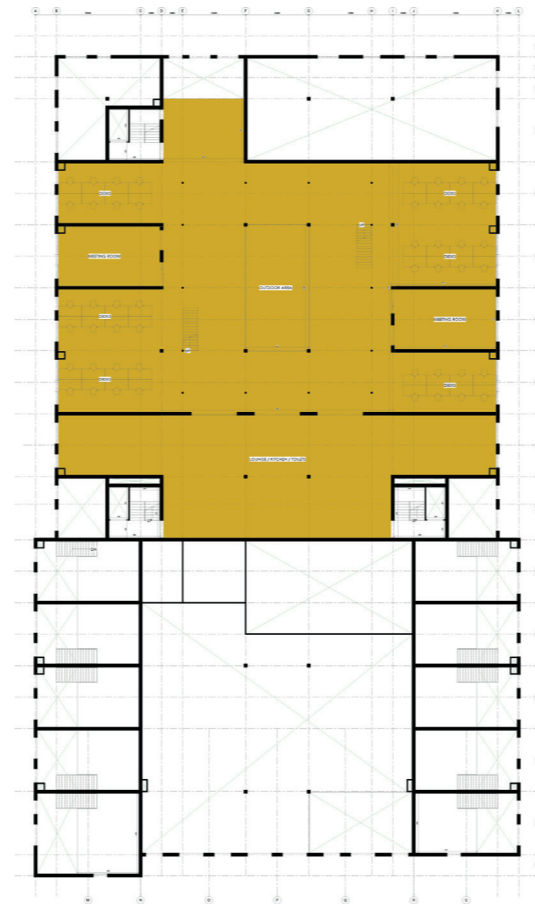


WORKSPACES



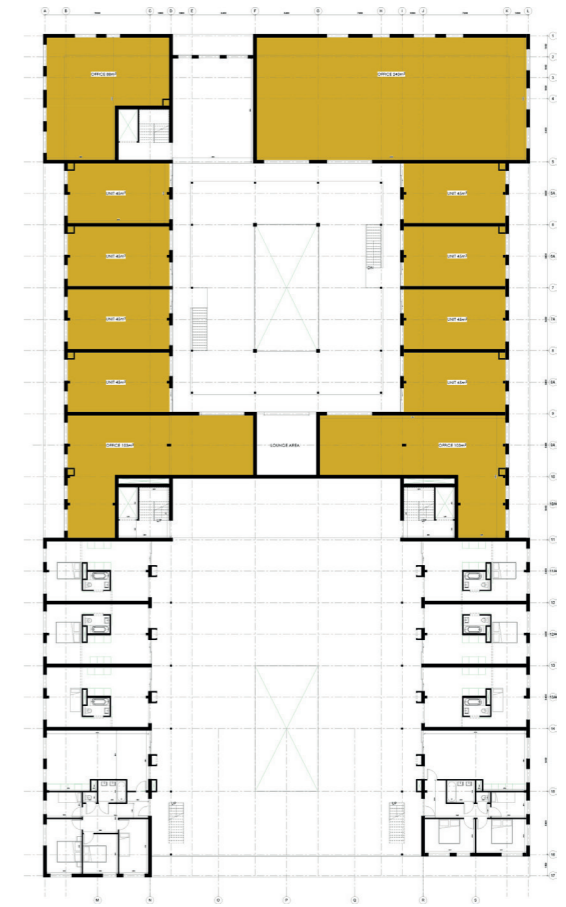
STUDIO'S

- + 8 Studio's of 72 m², 1 of 54m² and 1 of 90 m²
- + 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

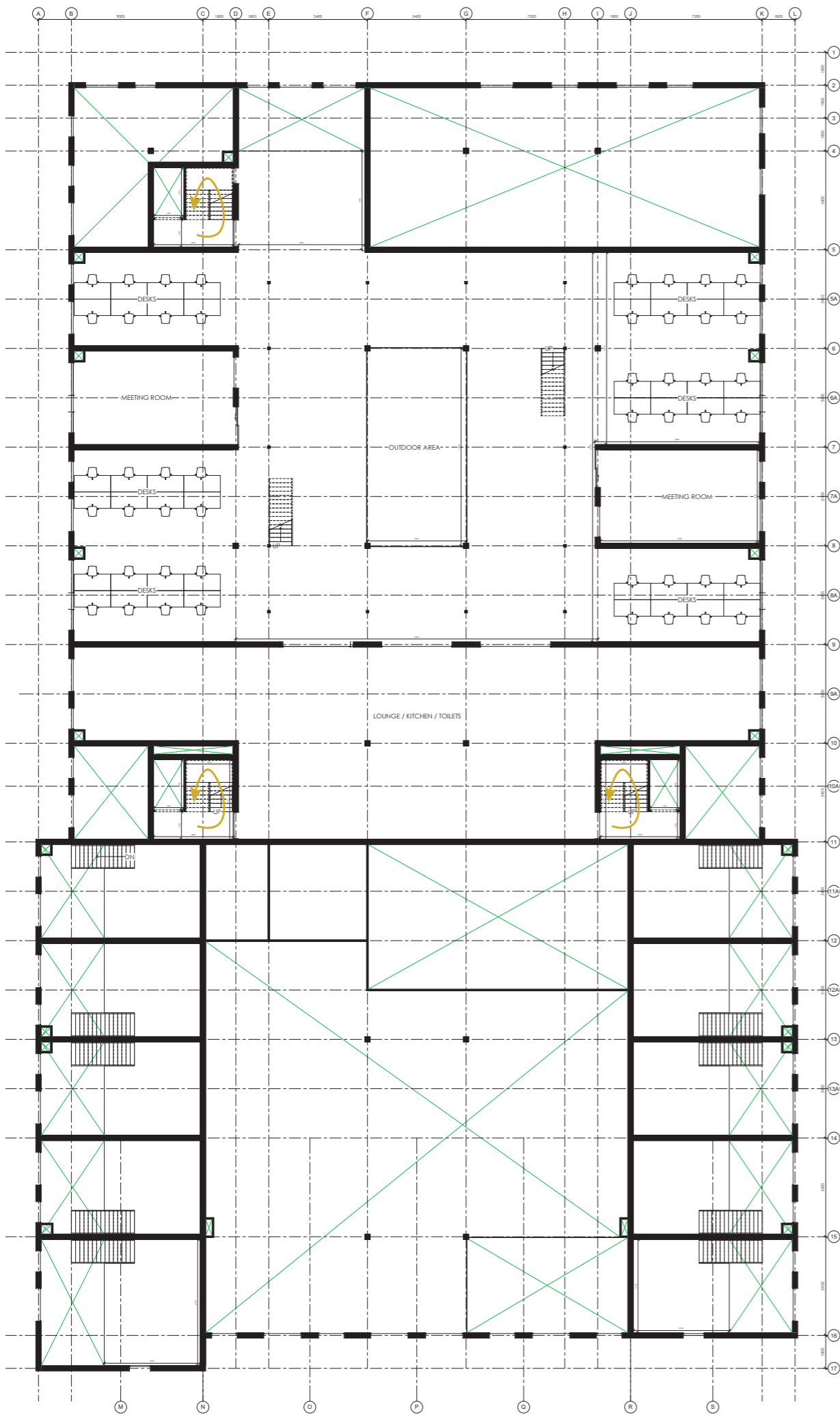


UNITS & OFFICES

- + Open character
- + Different sizes, units (45 m²), offices (88 - 243 m²)
- + Large atrium in the middle of the building

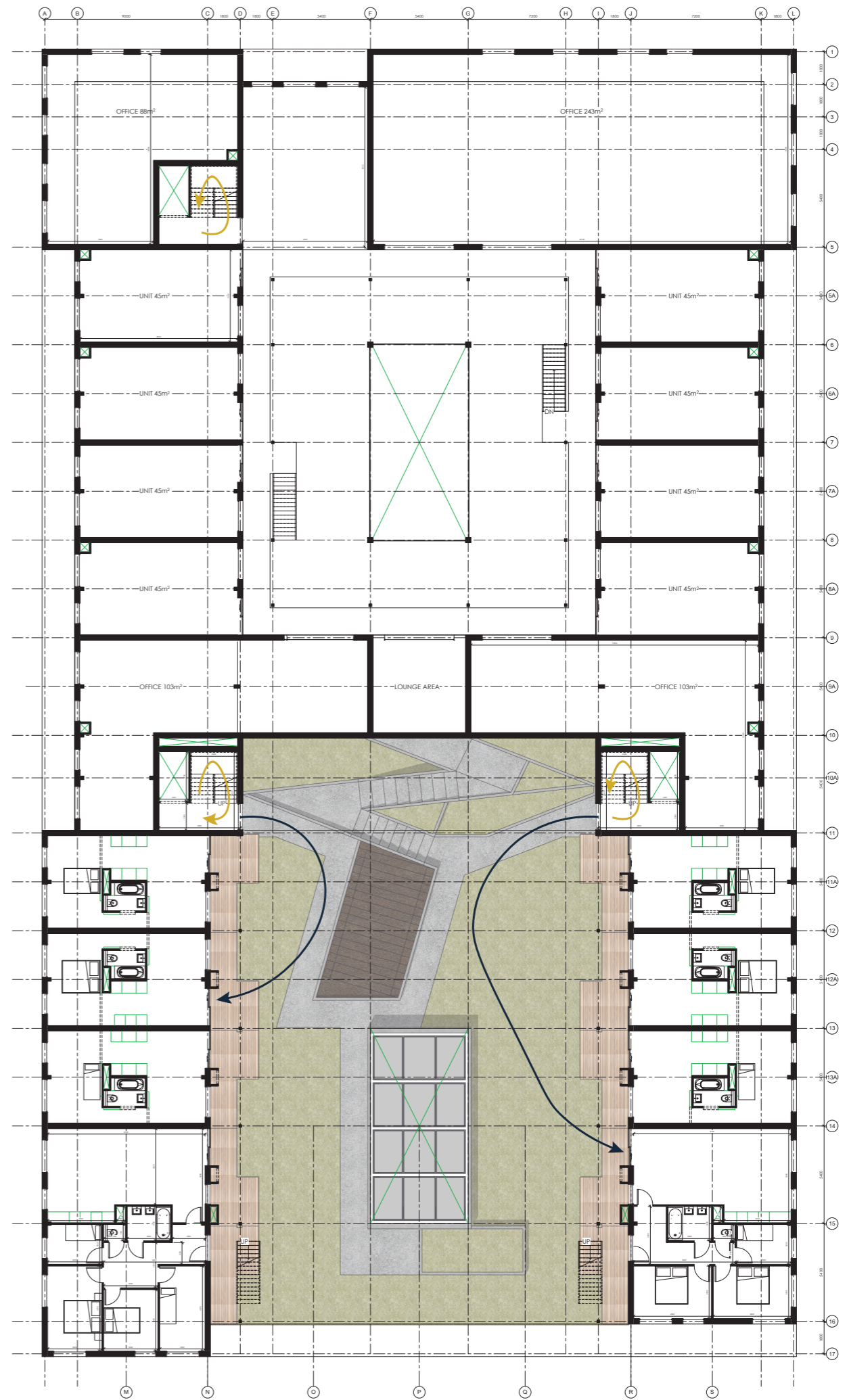


SCALE 1:400



1ST FLOOR

SCALE 1:400



2ND FLOOR



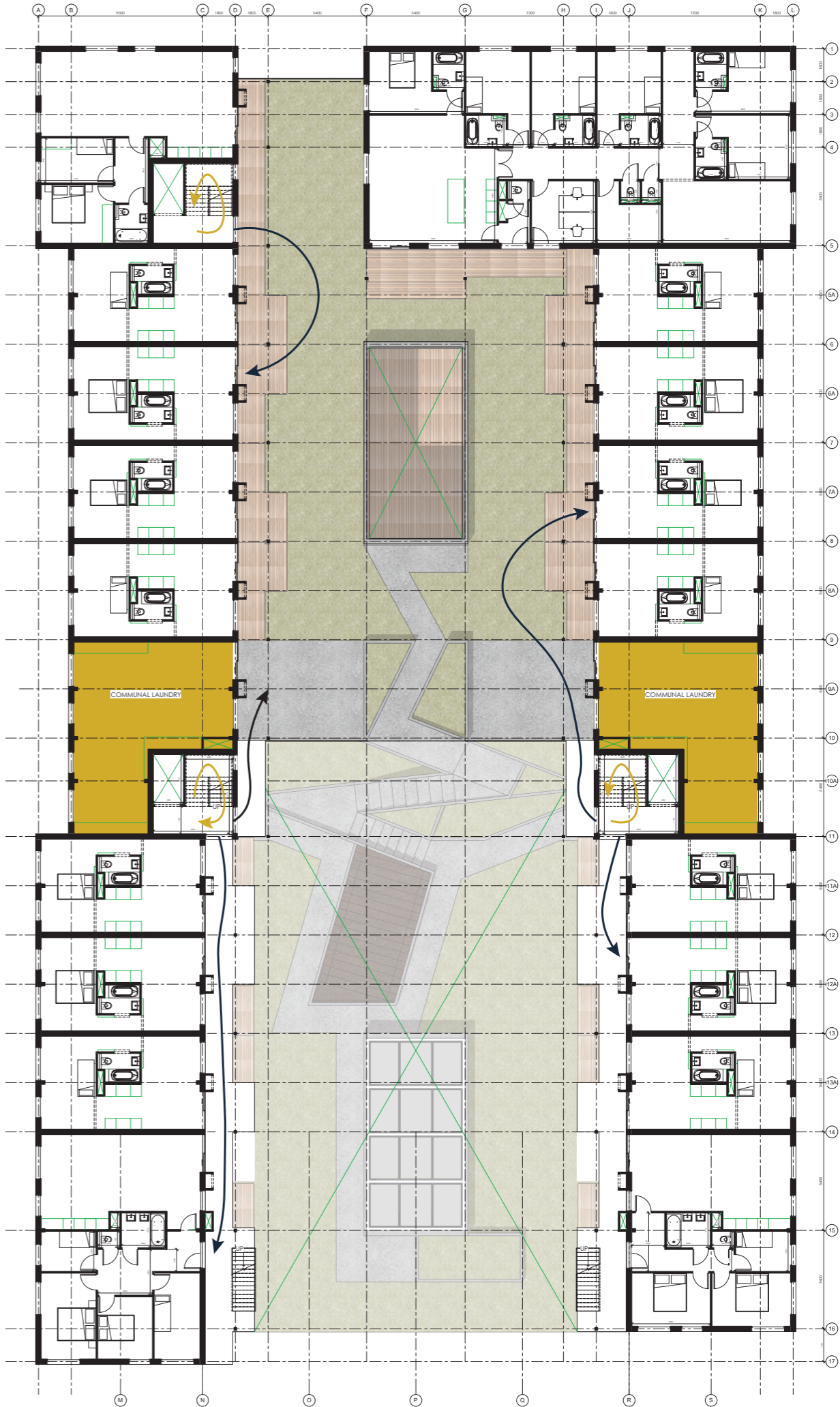
INNER COURTYARD

THIRD FLOORS

Communal Laundry Rooms

- + Stimulating social interaction
- + Next to elevators & stairs

SCALE 1:400



- + Improving social self-reliance & asking for help
- + Reason to go to communal rooms;
need to do laundry

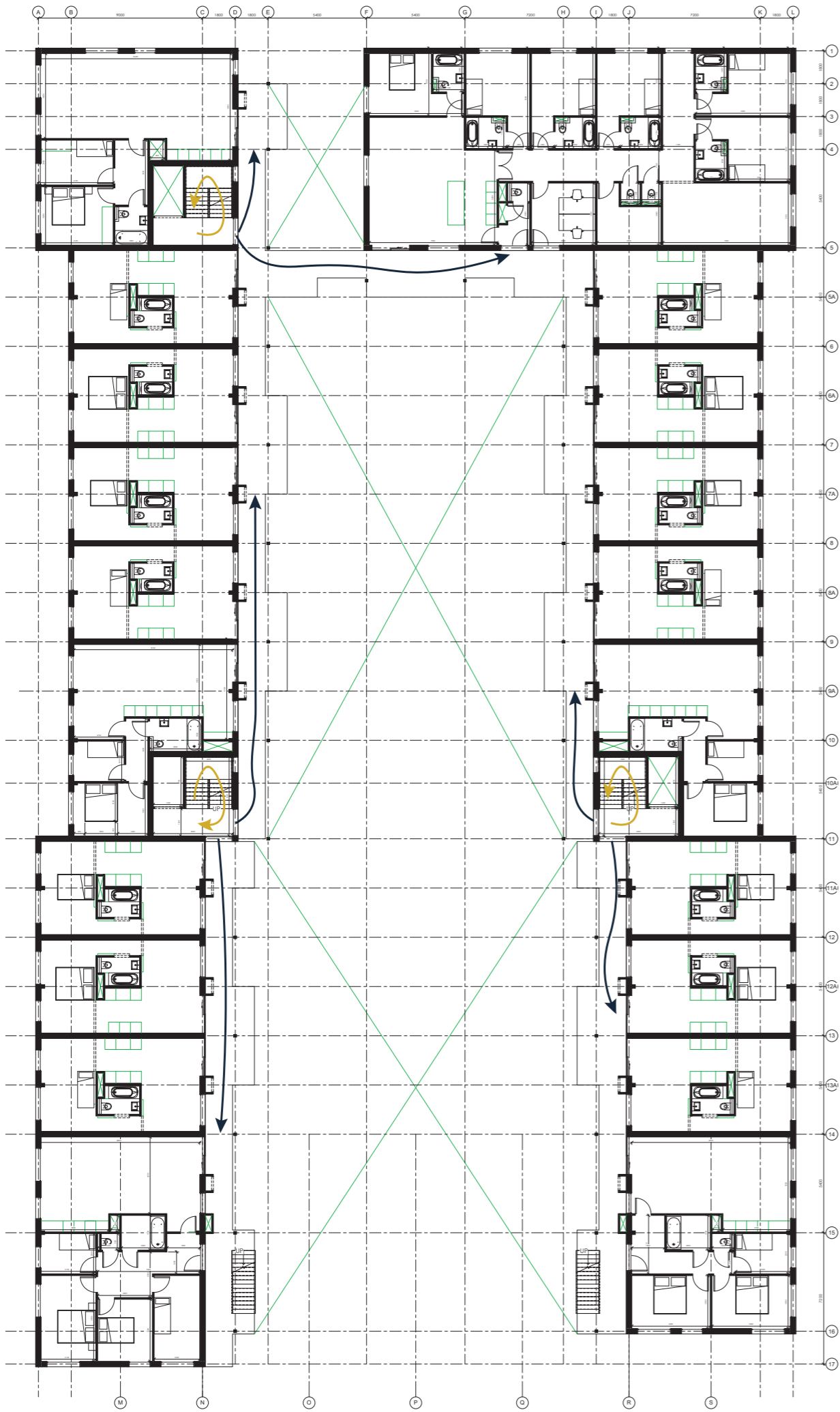


COMMUNAL LAUNDRY



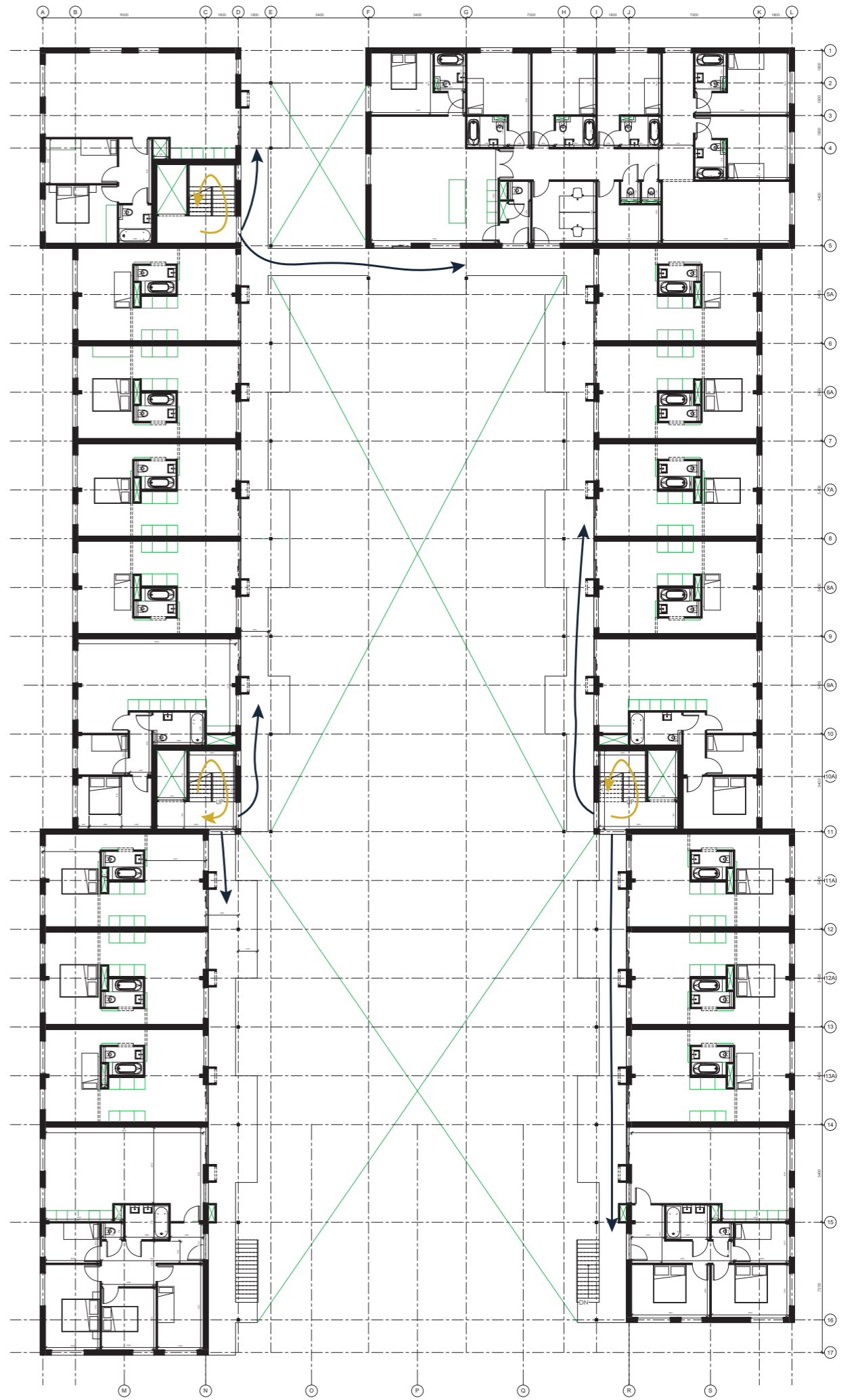
MEETING NEIGHBOURHOOD

SCALE 1:400



4TH FLOOR

SCALE 1:400

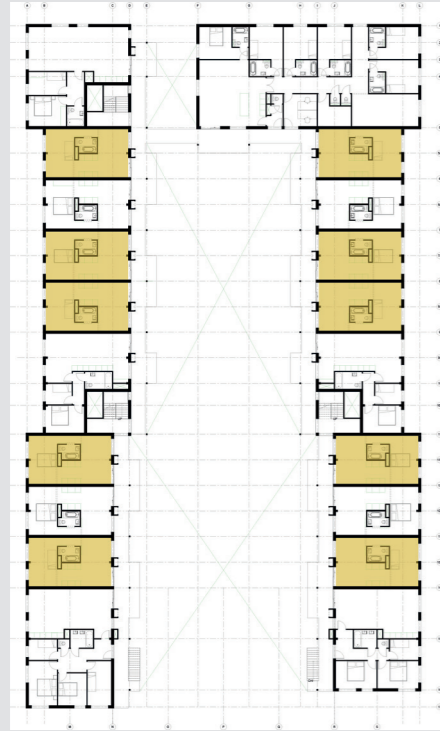


5TH FLOOR



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.

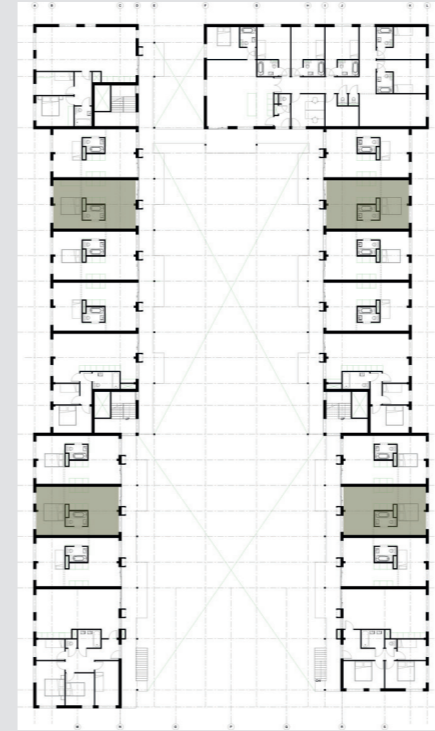
Flexible walls create privacy when the residents receive too much stimuli or if they want to be alone. The facade will also be flexible with shutters. Hereby they can create a total private room.

Total living area
 - Living / kitchen / bedroom 39,5 m²
 - Bathroom 3,1 m²

Total amount of 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

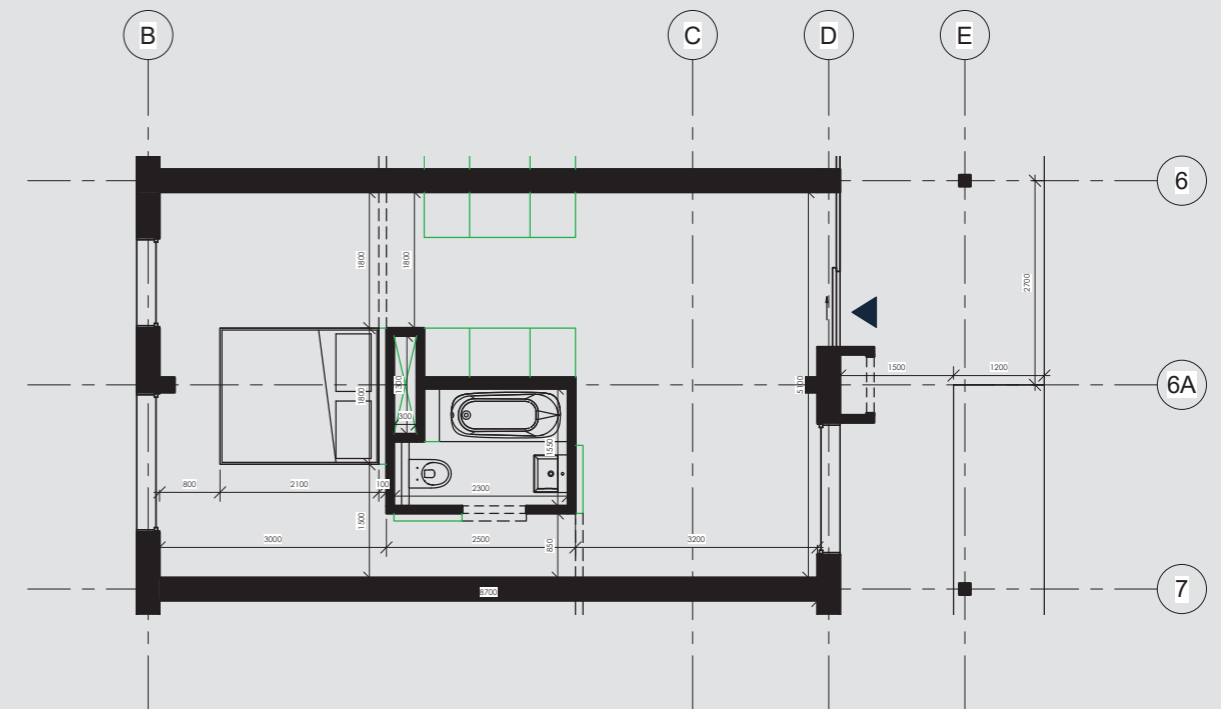
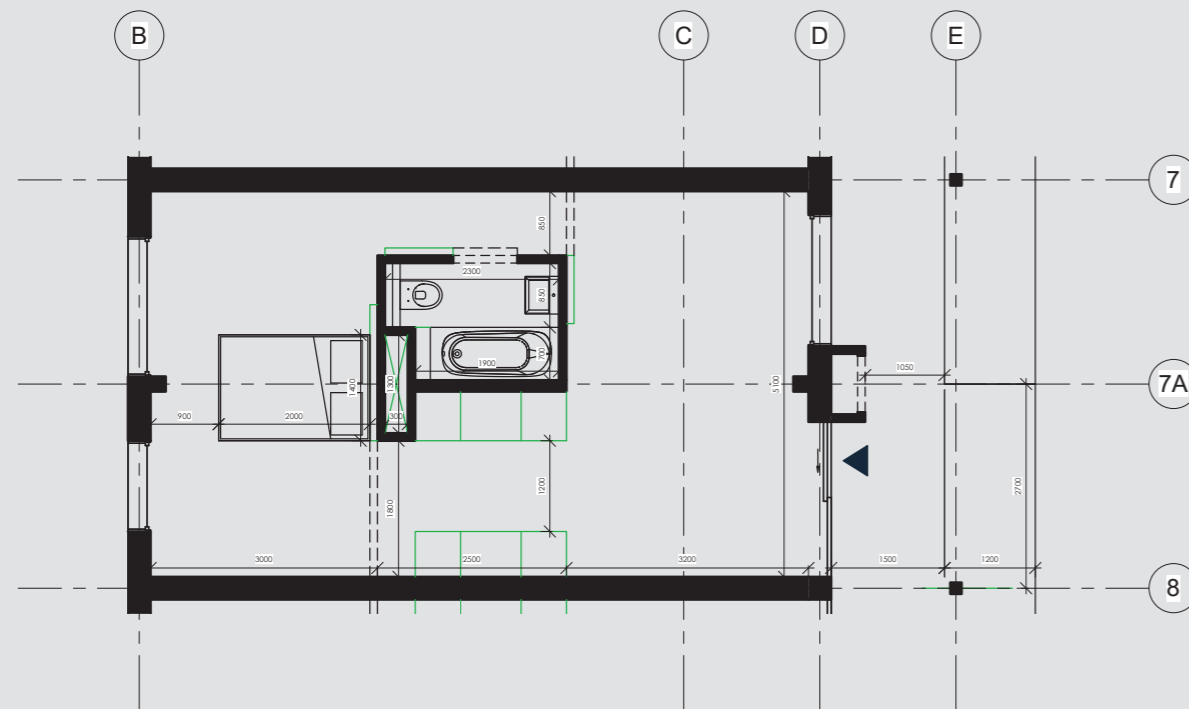


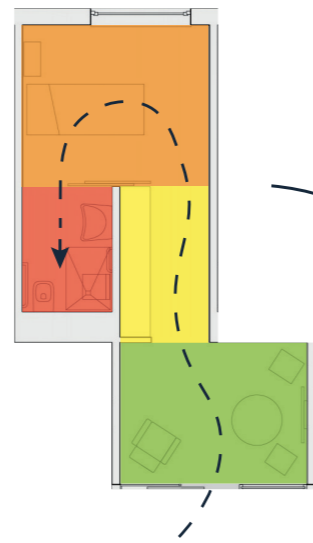
SPECIFICATIONS

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

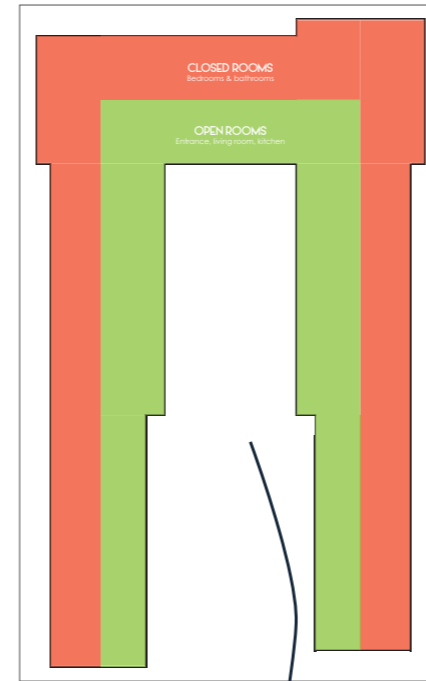
Total living area
 - Living / kitchen / bedroom 39,5 m²
 - Bathroom 3,1 m²

Total amount of dwellings
 - 2nd Floor 2 Dwellings
 - 3rd Floor 4 Dwellings
 - 4th Floor 4 Dwellings
 - 5th Floor 4 Dwellings
 - 6th Floor 2 Dwellings

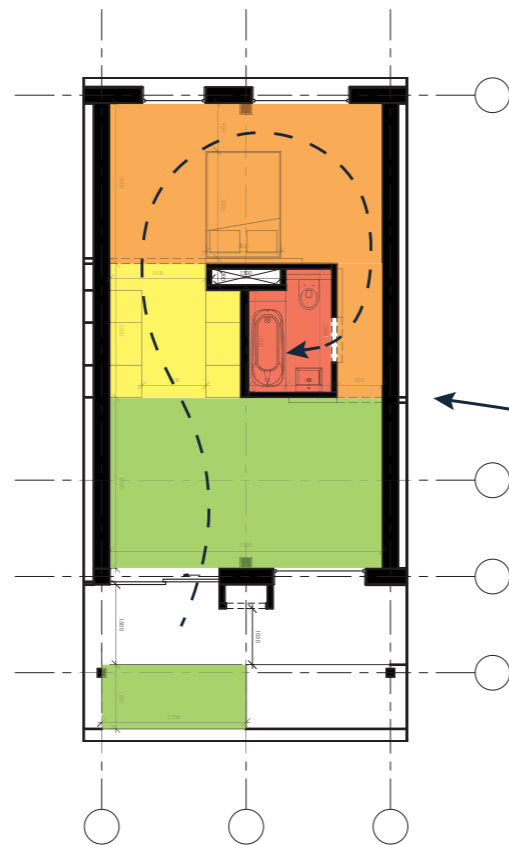




1.OCMW Nevele
Transition in privacy



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



4. Final Plan
Circular transition in privacy at P4



3. Model Dwelling
Linear transition in privacy, based on concept



Veerle - © Linnele Deunk (2020)



VEERLE



Sanne - © Linnele Deunk (2020)



SANNE

PRIVACY

Foldable Shutters

2700

11A

2700

12

2700

12A

2700

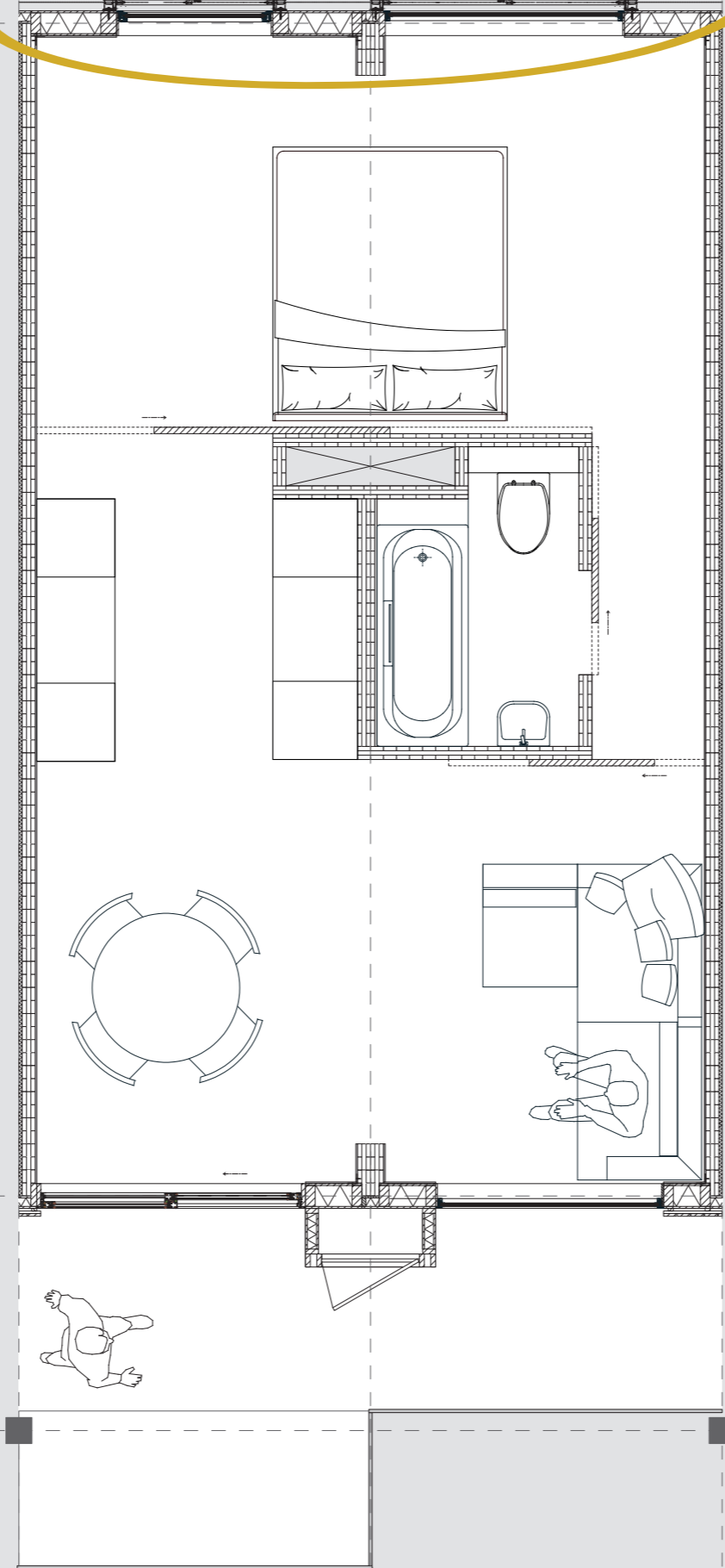
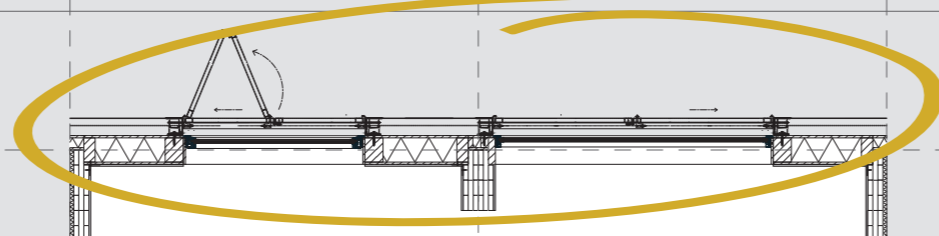
13

2700

13A

2700

14



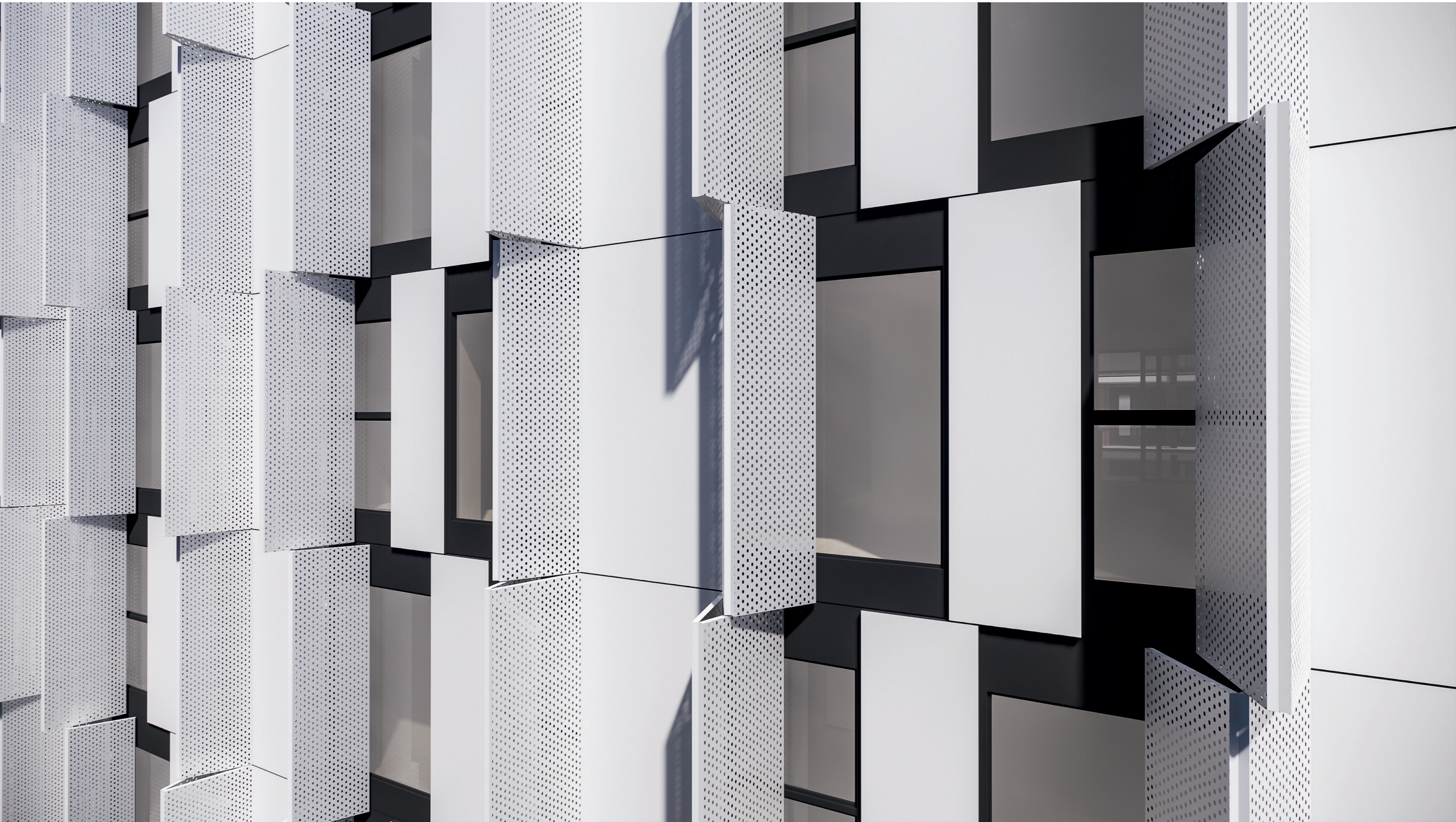
B

9000

C

1800

D



SHUTTERS OPEN

- + Awareness of independently living / household
- + Manually controlled; own control privacy

SHUTTERS CLOSED





Shutters Closed - 21/03/2021 13:00



WEST FACADE ELEVATION 1:200
Shutters Open - 21/03/2021 13:00



Sander - © Linnele Deunk (2020)



SANDER

11

11A

12

12A

13

13A

14

2700

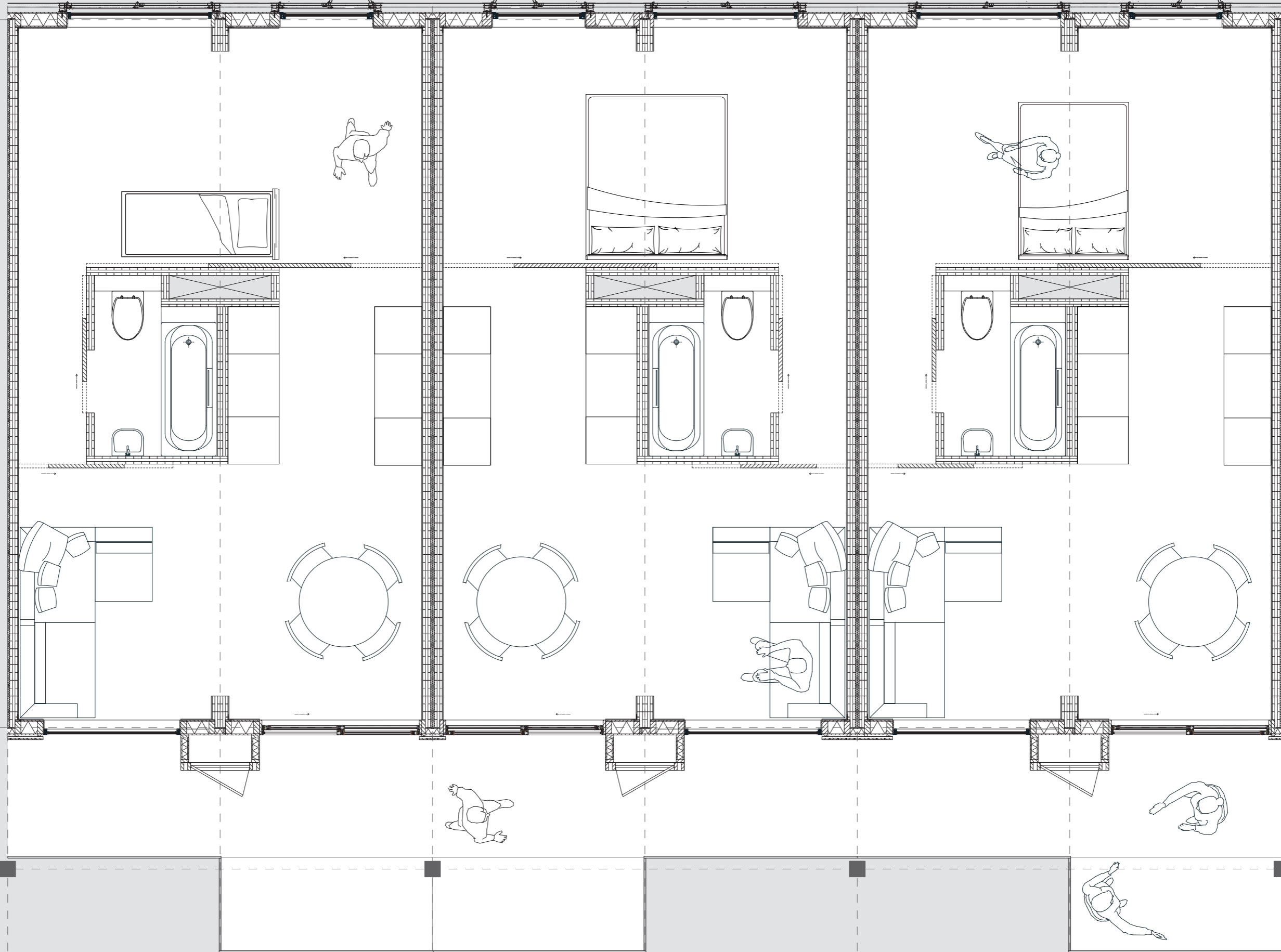
2700

2700

2700

2700

2700



B

9000

C

1800

D



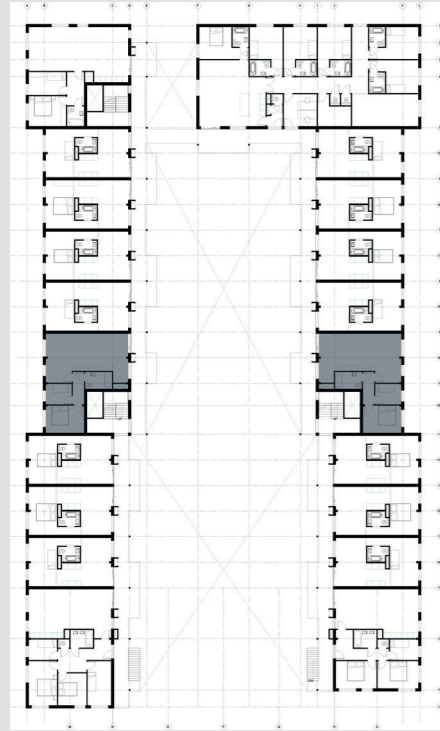
SOCIAL CONTROL



SOCIAL INTERACTION

ESSENTIAL A 1:100

3-Room Apartment



SPECIFICATIONS

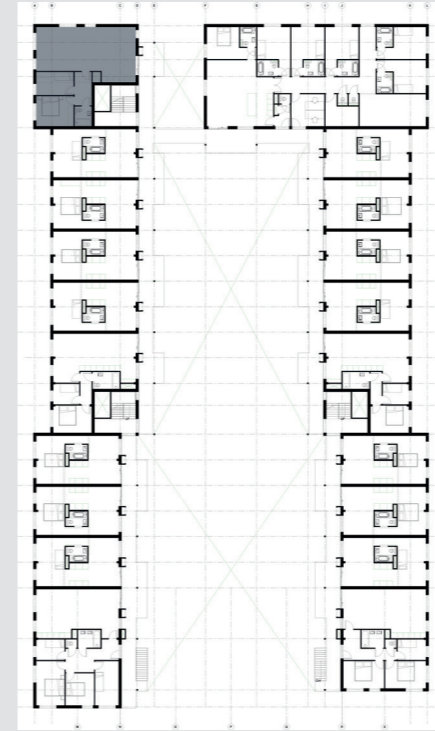
Meant for the essentials. These are the people working at the police, as a teacher, in care or firefighters. One large bedroom and a smaller for a first child. Creating a large living kitchen / room in one.

| | |
|--------------------------|----------------|
| 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

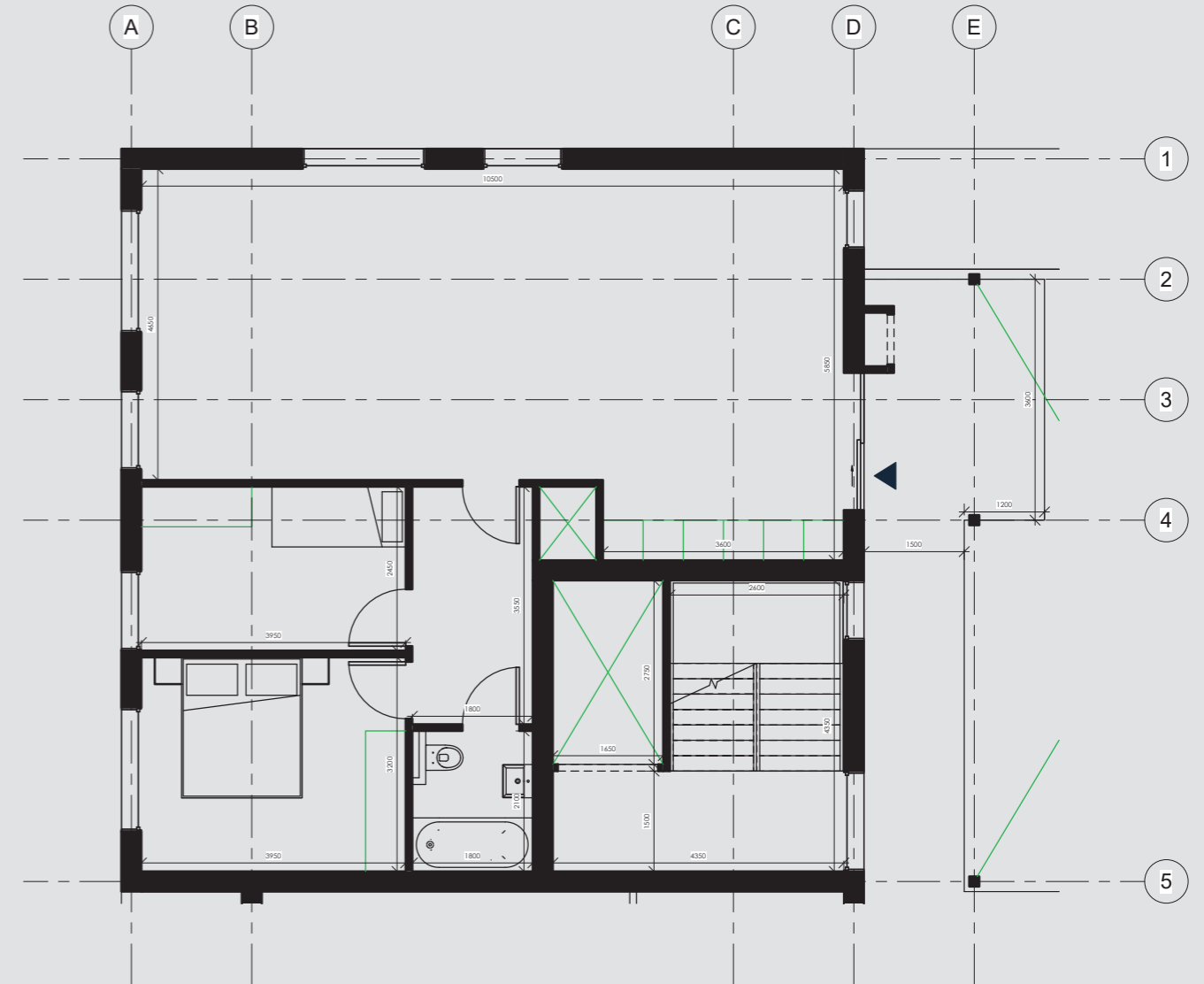
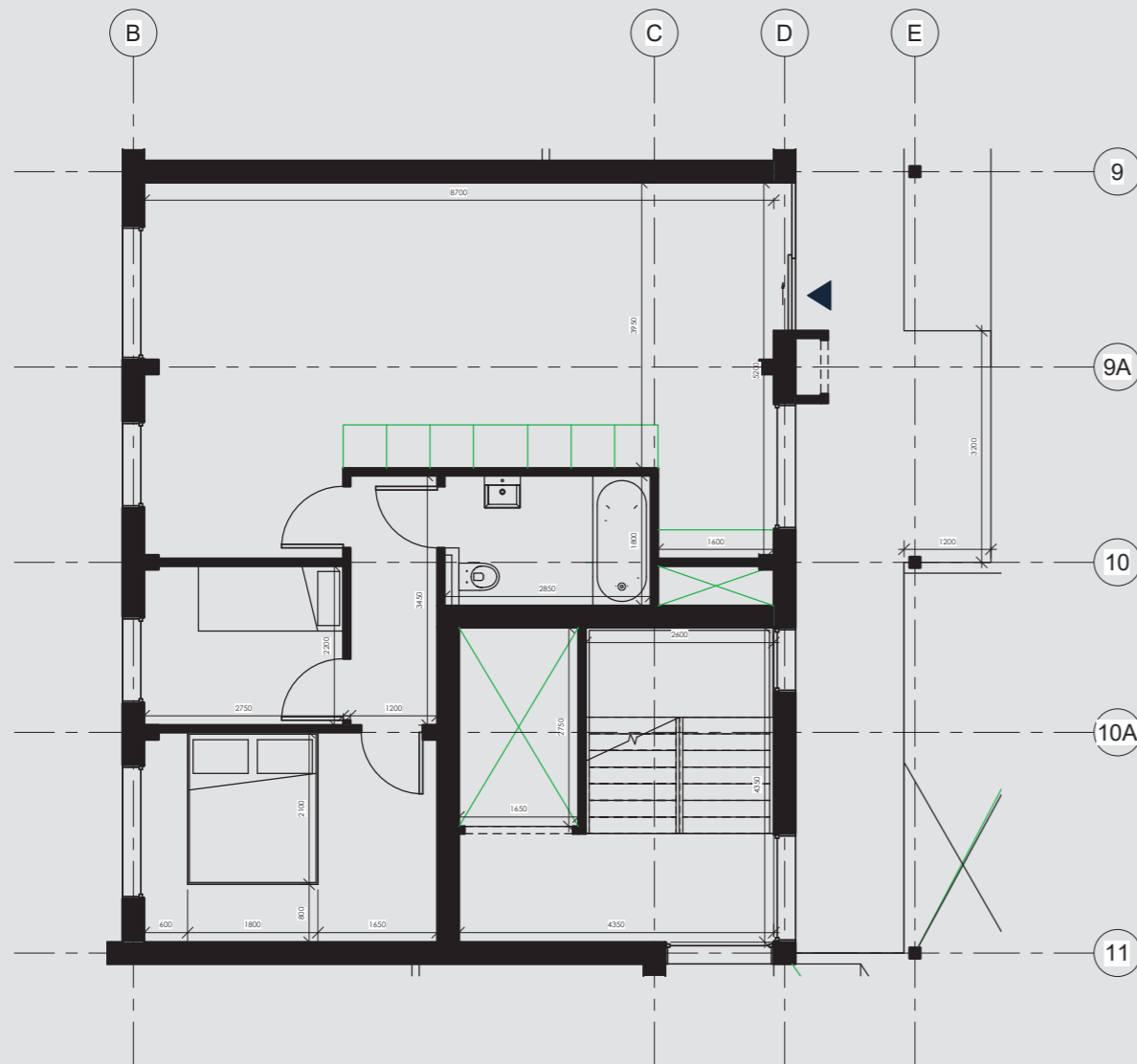


SPECIFICATIONS

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.

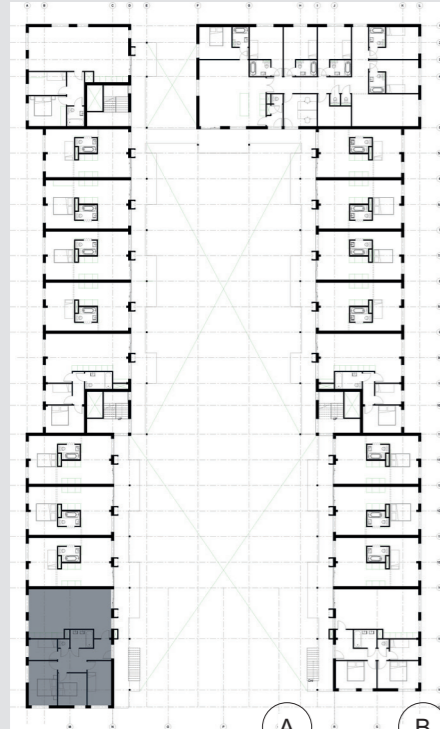
| | |
|--------------------------|----------------|
| Total living area | 85,4 m2 |
| - Living kitchen / room | 53,1 m2 |
| - Hallway | 6,4 m2 |
| - Bathroom | 3,6 m2 |
| - Master bedroom | 12,6 m2 |
| - Bedroom 2 | 9,7 m2 |

| | |
|----------------------------------|--------------------|
| 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

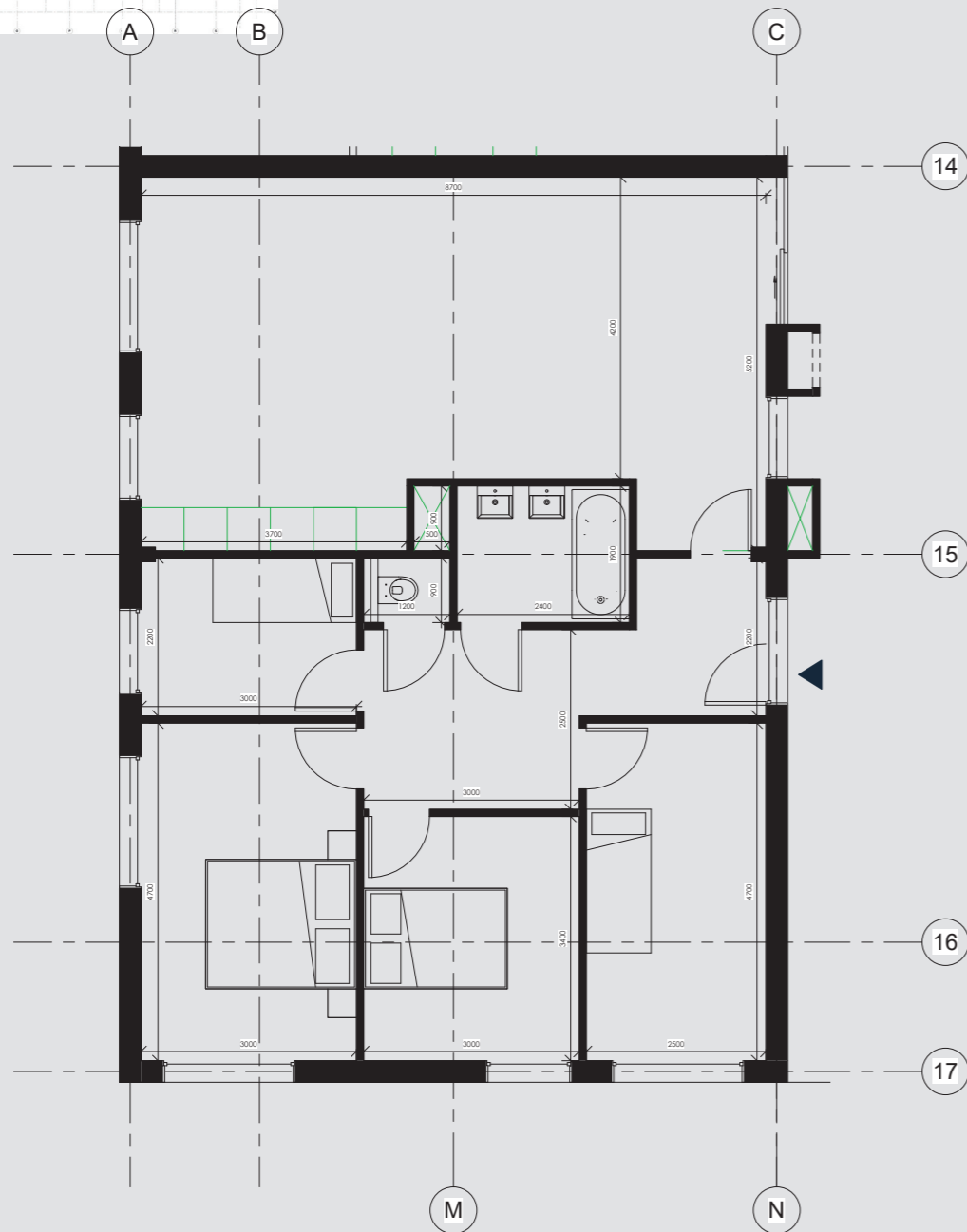


SPECIFICATIONS

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.

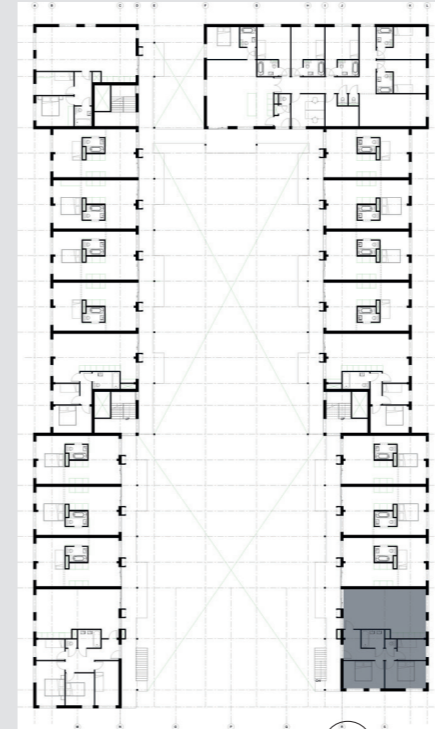
| | |
|--------------------------|-----------------|
| Total living area | 102,8 m2 |
| - Living kitchen / room | 42,0 m2 |
| - Hallway | 12,4 m2 |
| - Bathroom | 4,6 m2 |
| - Toilet | 1,1 m2 |
| - Master bedroom | 14,1 m2 |
| - Bedroom 2 | 10,2 m2 |
| - Bedroom 3 | 11,8 m2 |
| - Bedroom 3 | 6,6 m2 |

| | |
|----------------------------------|--------------------|
| 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

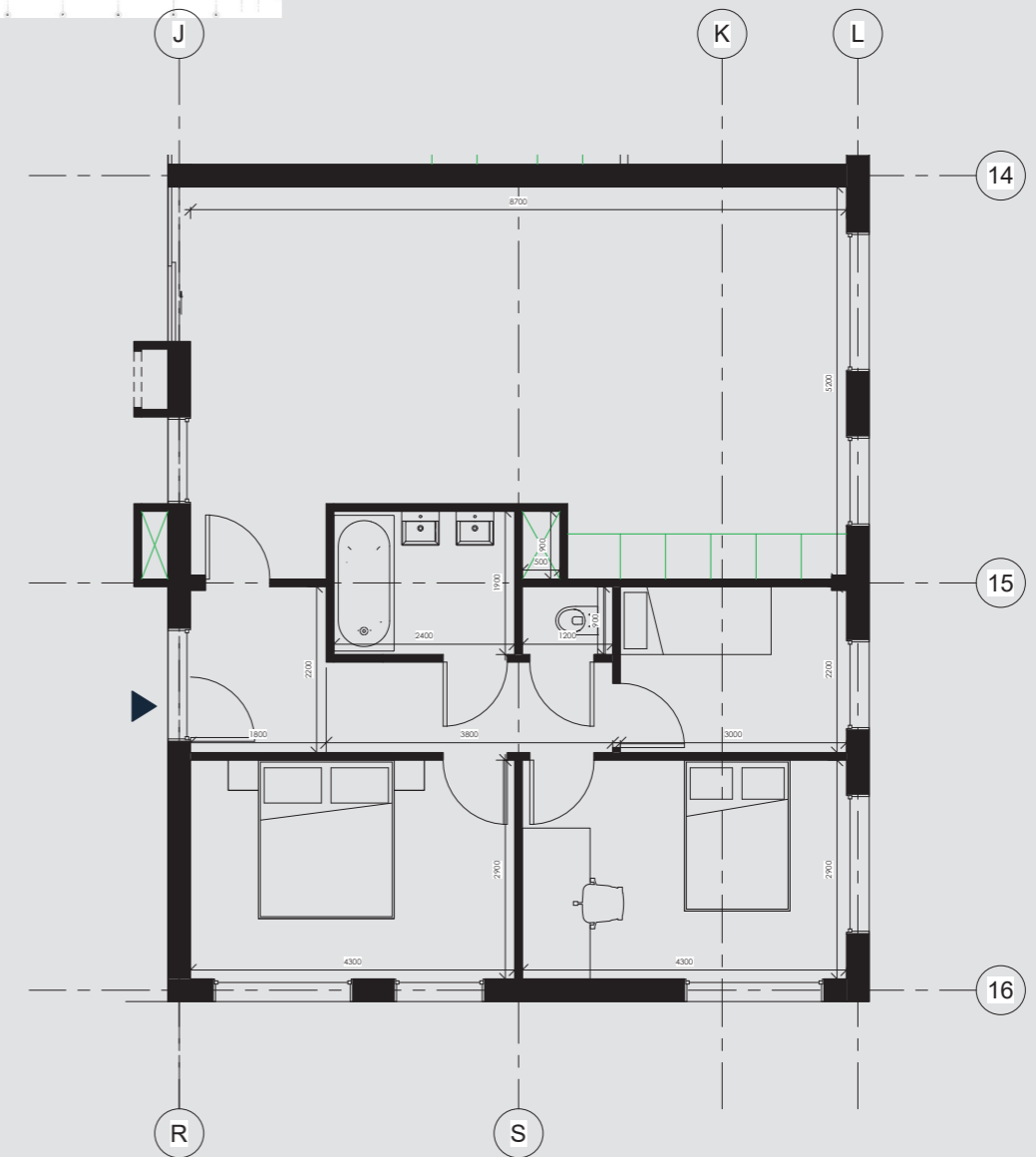


SPECIFICATIONS

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

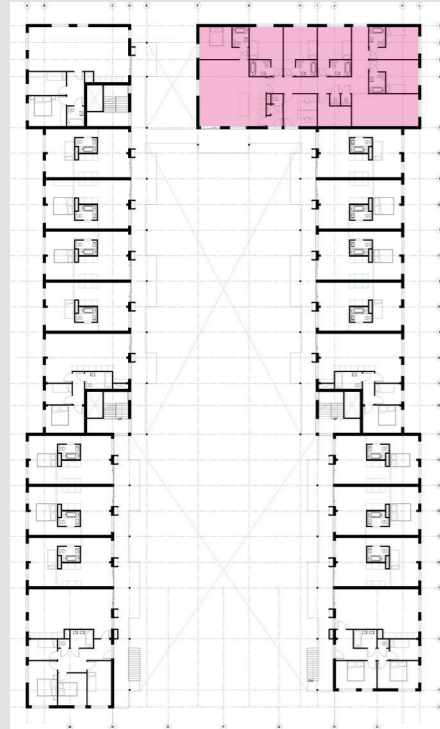
| | |
|--------------------------|----------------|
| Total living area | 87,8 m2 |
| - Living kitchen / room | 42,0 m2 |
| - Hallway | 8,5 m2 |
| - Bathroom | 4,6 m2 |
| - Toilet | 1,1 m2 |
| - Master bedroom | 12,5 m2 |
| - Bedroom 2 | 12,5 m2 |
| - Bedroom 3 | 6,6 m2 |

| | |
|----------------------------------|--------------------|
| 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

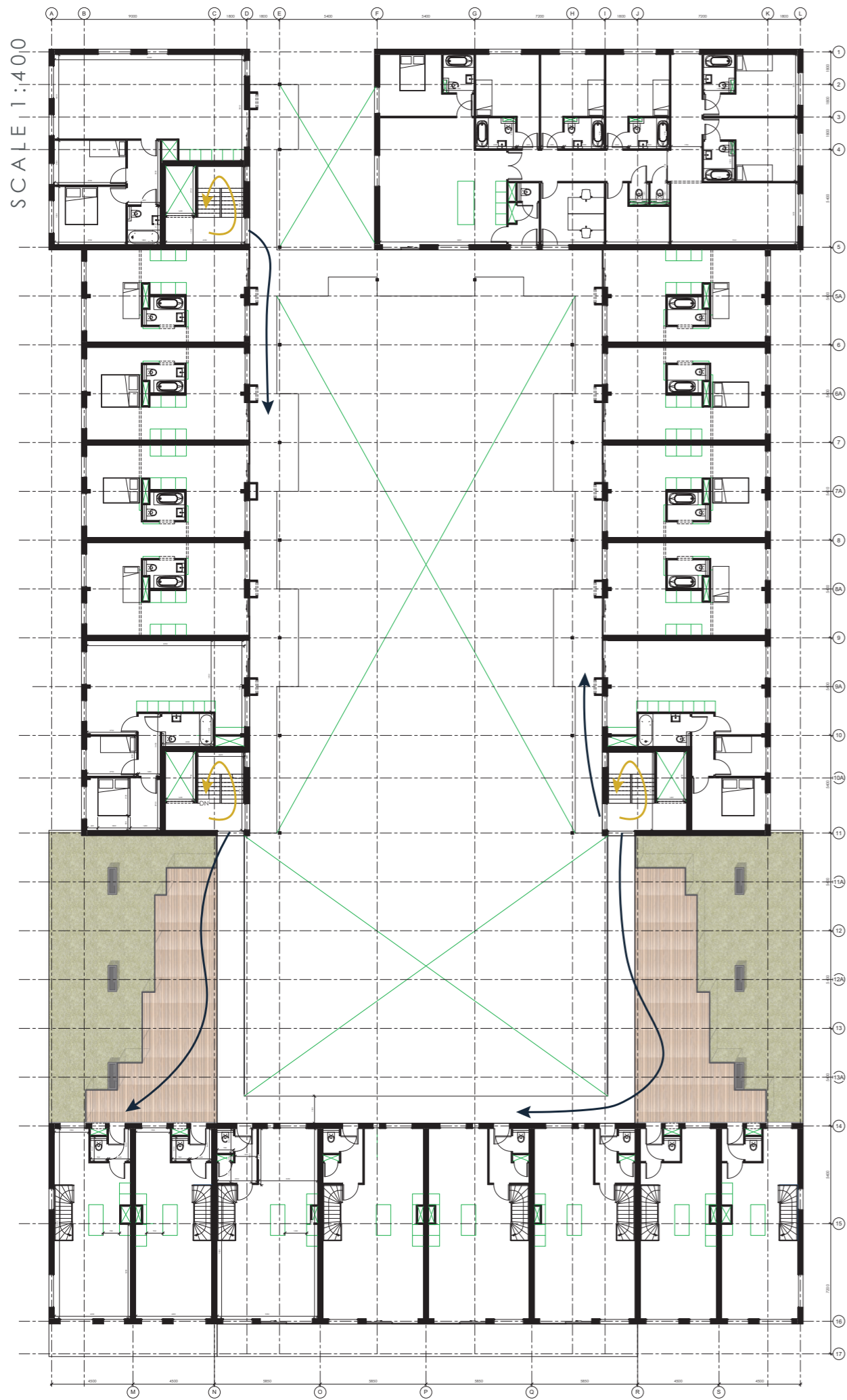


SPECIFICATIONS

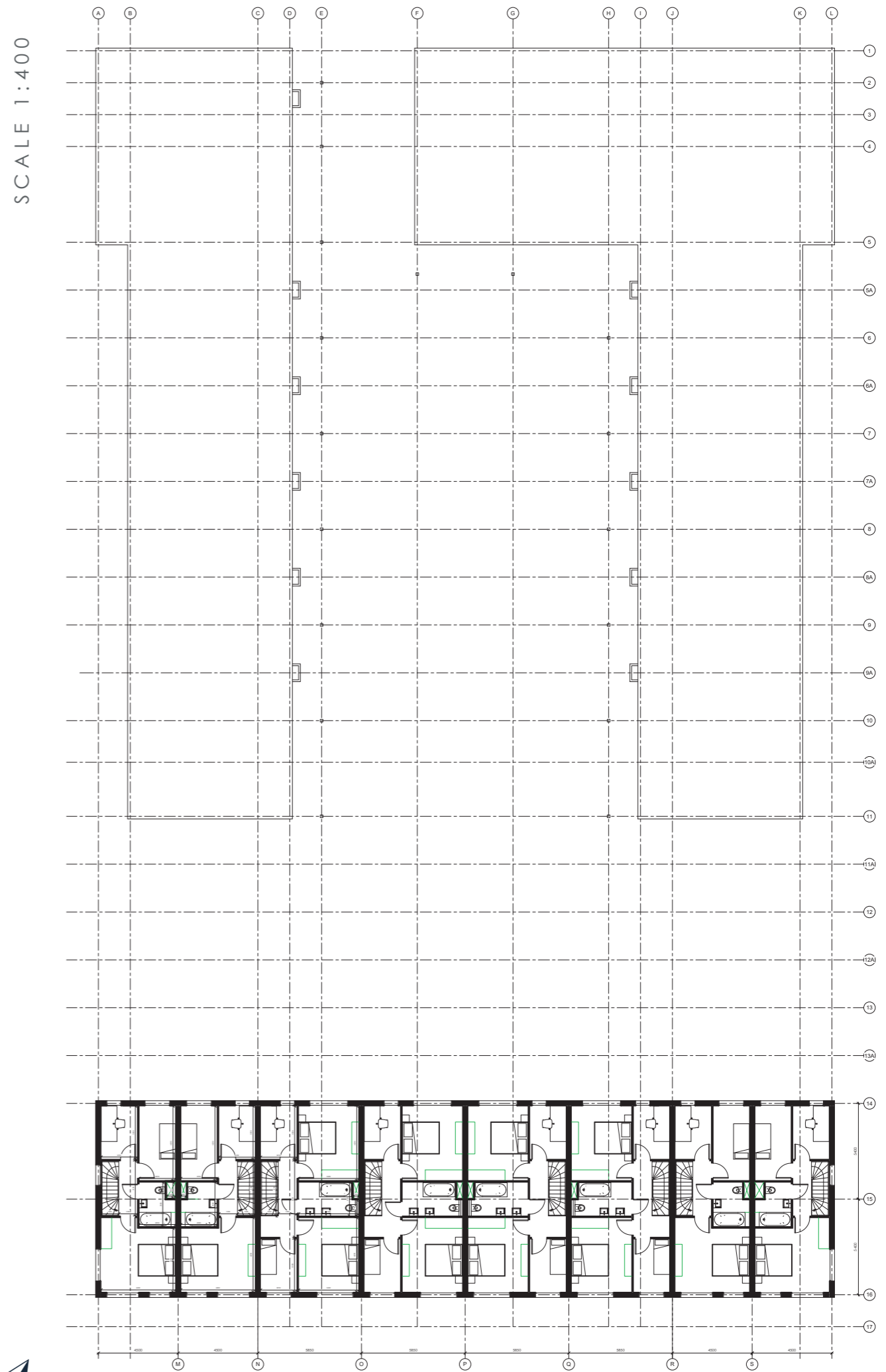
Meant for young people with MID who are a step before living independently. They live together in a group of 6 with an own large bedroom and shared facilities like the bathroom, kitchen and living room. They can live together or with some support. One sleep-over room for a parent or a caregiver. This 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 m ² |
| - Entrance | 3,3 m ² |
| - Hallway | 20,4 m ² |
| - Toilet | 1,2 m ² |
| - Office Caregivers | 11,9 m ² |
| - Laundry Room | 8,9 m ² |
| - Hallway | 51,2 m ² |
| - Extra Toilets | 2,5 m ² |
| - Bedroom 1 incl. bathroom | 17,6 m ² |
| - Bedroom 2 incl. bathroom | 17,6 m ² |
| - Bedroom 3 incl. bathroom | 17,6 m ² |
| - Bedroom 4 incl. bathroom | 17,6 m ² |
| - Bedroom 5 incl. bathroom | 17,1 m ² |
| - Bedroom Sleep-over incl. bathroom | 17,1 m ² |

| | |
|--|--------------------------|
| 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 |



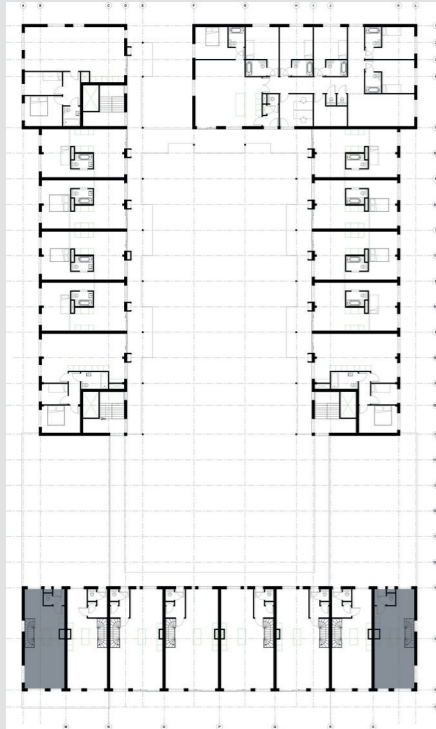
6TH FLOOR



7TH FLOOR

ESSENTIAL E 1:100

4-Room Maisonette



SPECIFICATIONS

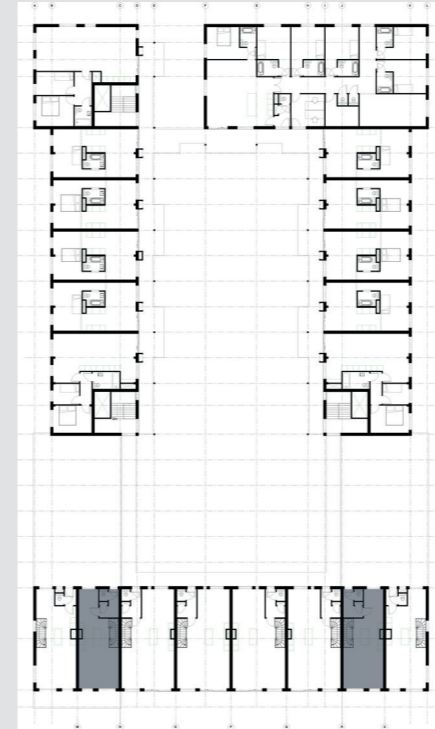
These maisonettes are on top of the building at the 6th and 7th floor. Together with Essential F they share the communal roof terrace. They are looking out over the harbour area M4H.

| | |
|--------------------------|----------------|
| 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

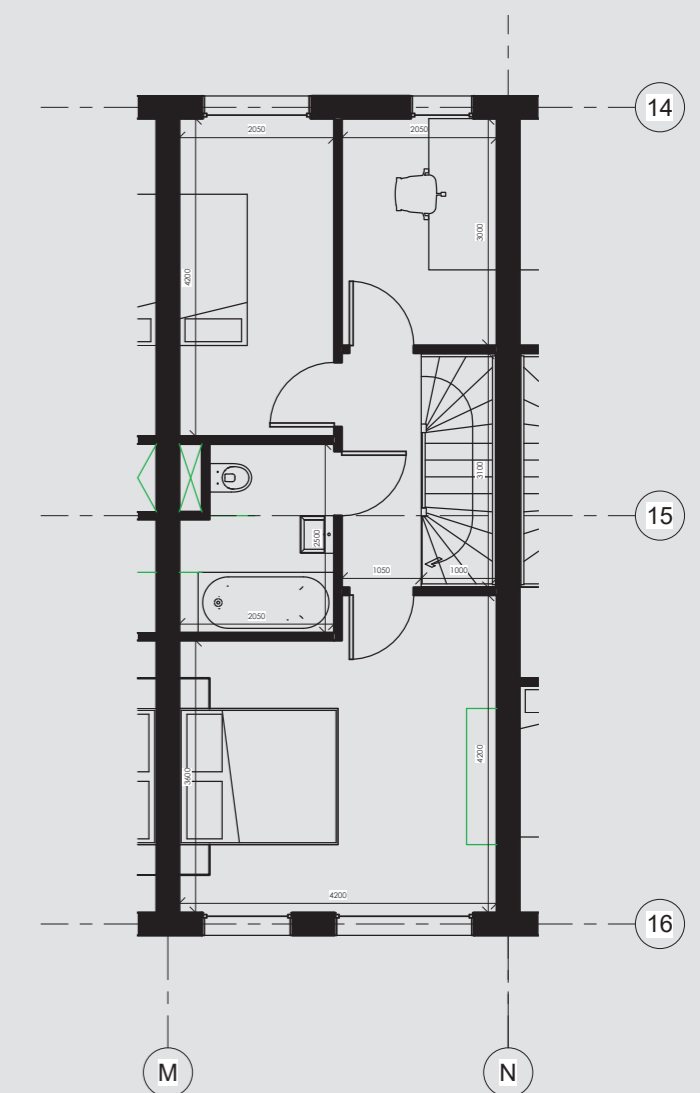
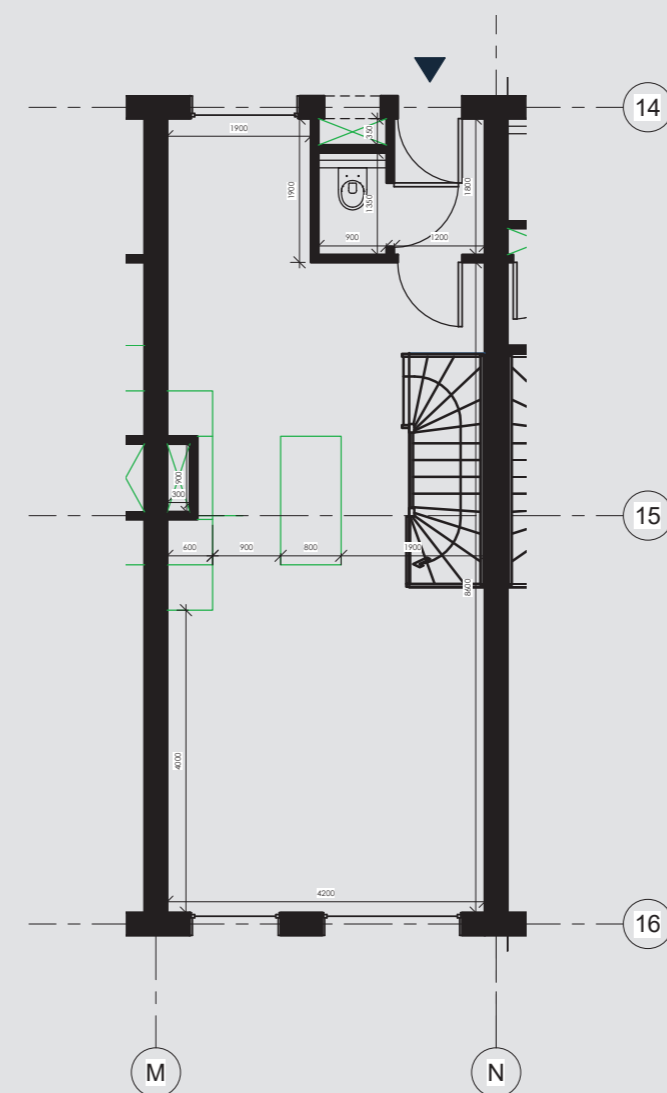
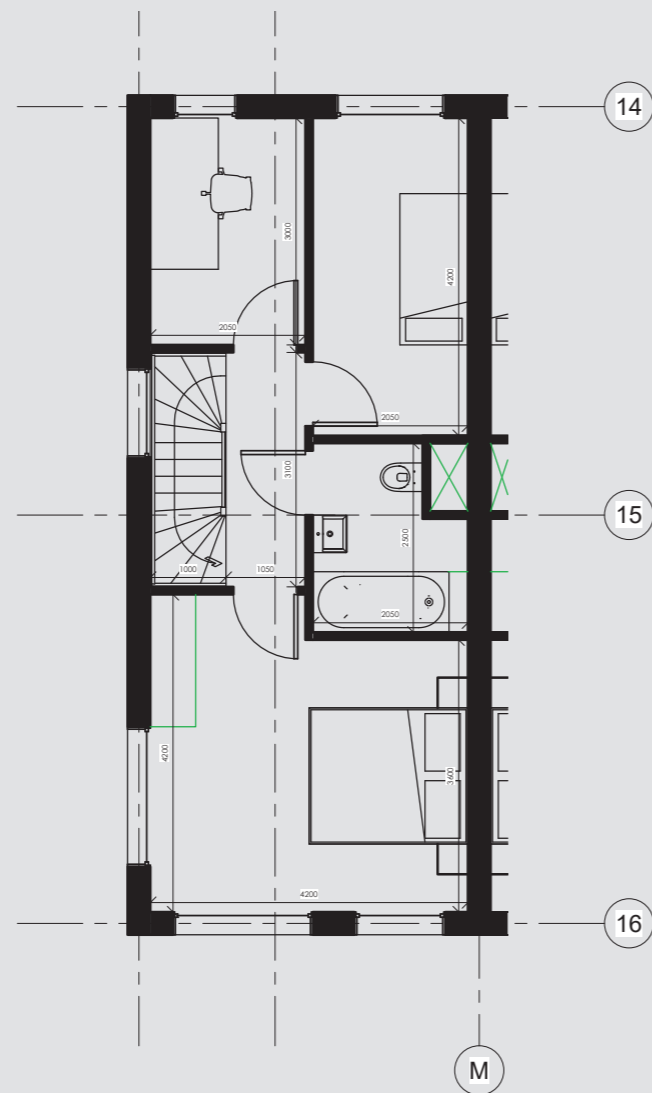
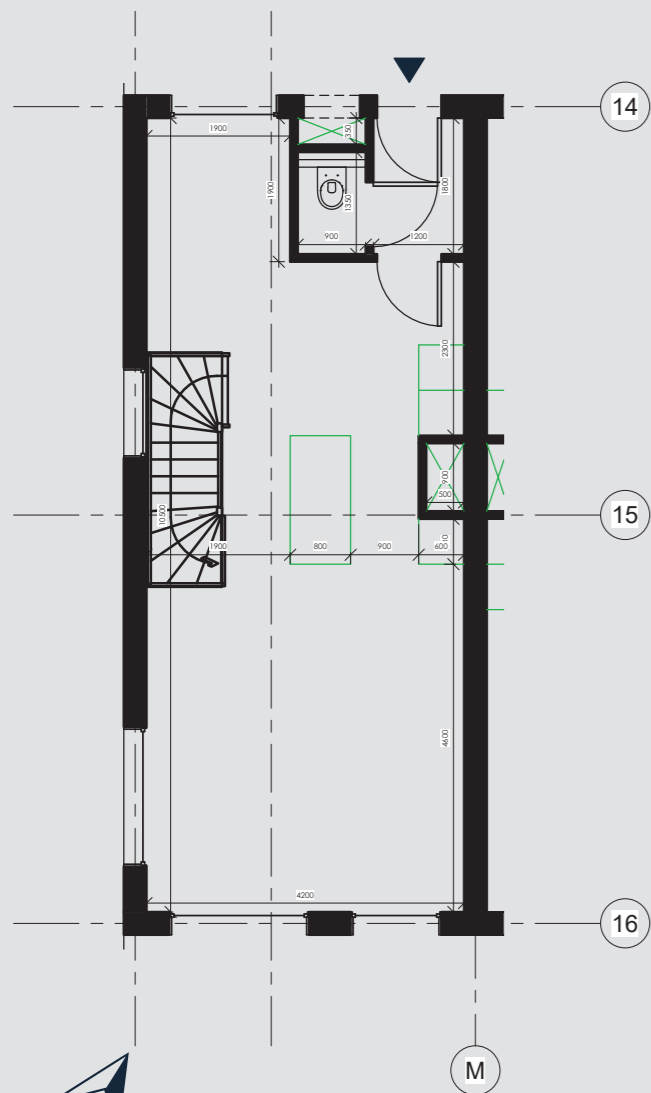


SPECIFICATIONS

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.

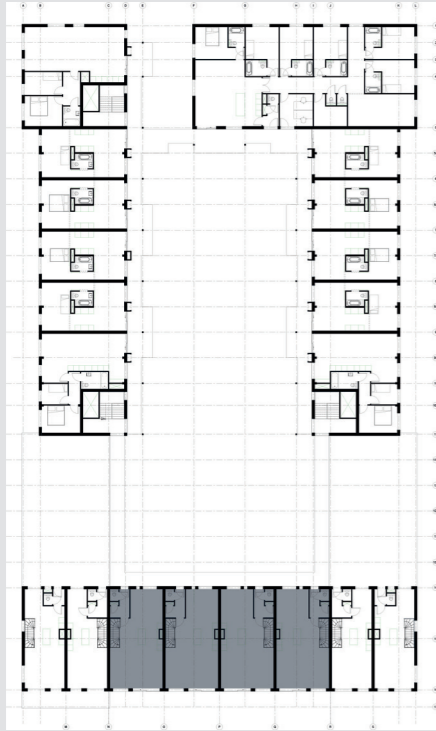
| | |
|--------------------------|----------------|
| Total living area | 81,5 m2 |
| - Living kitchen / room | 39,1 m2 |
| - Hallway | 2,2 m2 |
| - Toilet | 1,2 m2 |
| - Hall | 3,3 m2 |
| - Bathroom | 4,5 m2 |
| - Master bedroom | 16,4 m2 |
| - Bedroom 2 | 8,6 m2 |
| - Study room | 6,2 m2 |

| | |
|----------------------------------|--------------------|
| Total amount of dwellings | 2 Dwellings |
| - 6th / 7th Floor | 2 Dwelling |



ESSENTIAL G 1:100

5-Room Maisonette

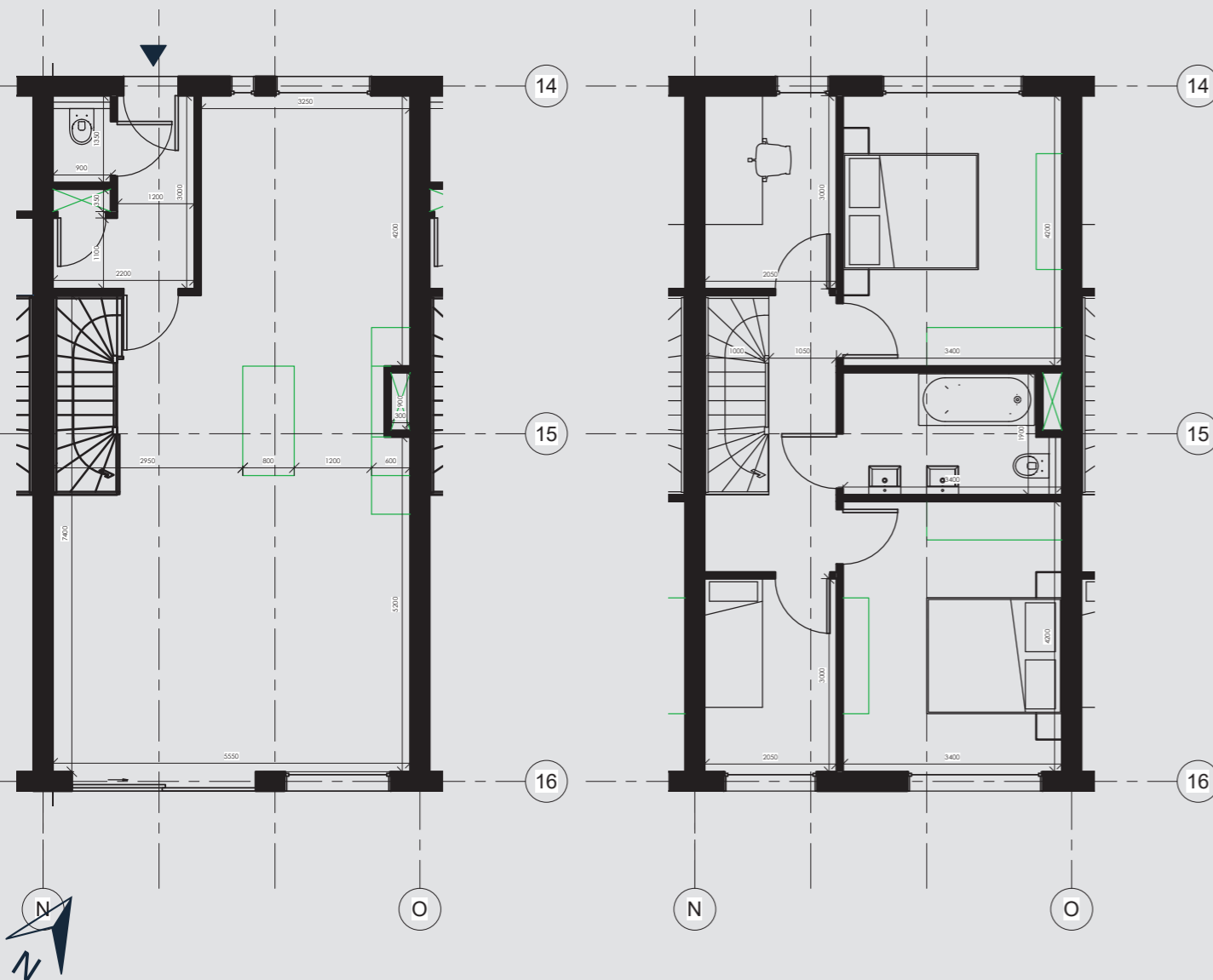


SPECIFICATIONS

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 m ² |
| - Hallway | 4,7 m ² |
| - Toilet | 1,2 m ² |
| - Hall | 5,7 m ² |
| - Bathroom | 5,9 m ² |
| - Master bedroom | 14,2 m ² |
| - Bedroom 2 | 14,3 m ² |
| - Bedroom 3 | 6,2 m ² |
| - Study room | 6,2 m ² |

| | |
|----------------------------------|--------------------|
| Total amount of dwellings | 4 Dwellings |
| - 6th / 7th Floor | 4 Dwelling |



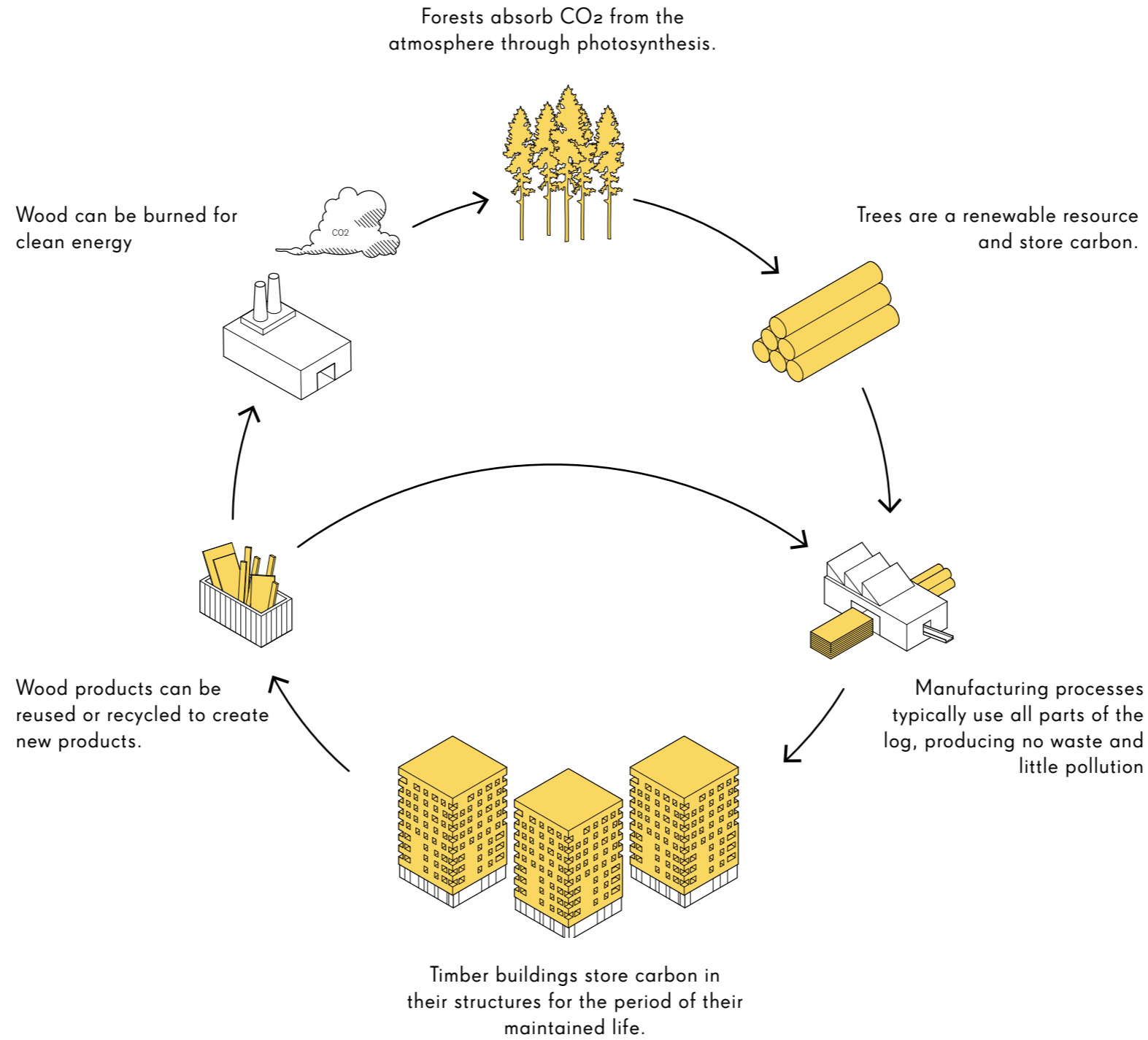


VIEW OVER KEILEHAVEN



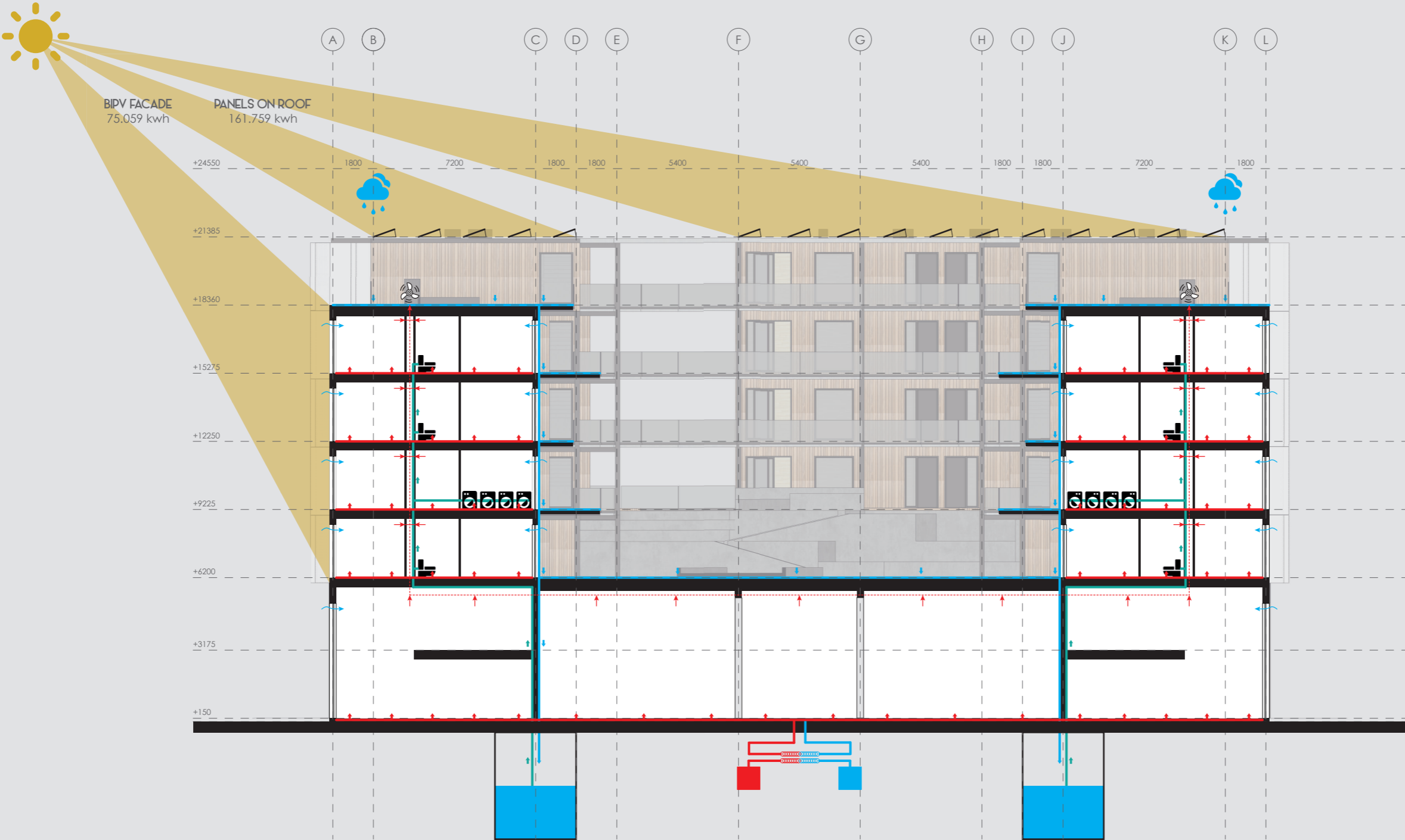
APPROACH KEILEHAVEN

CROSS LAMINATED TIMBER



© Waugh Thistleton Architects (2018)

CLIMATE CONCEPT



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.

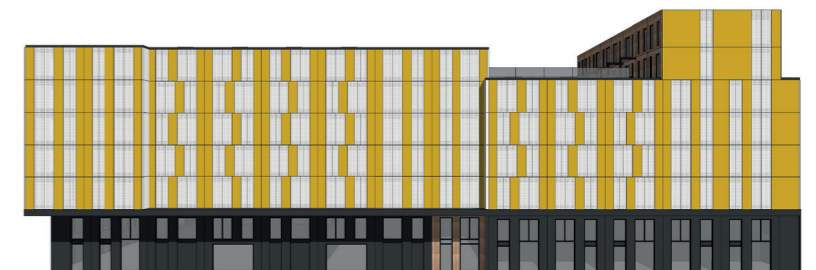
WATER SYSTEM

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

BIPV PANELS

Building Integrated PhotoVoltaic

SOLAXESS 
white solar technology



BIPV PANELS

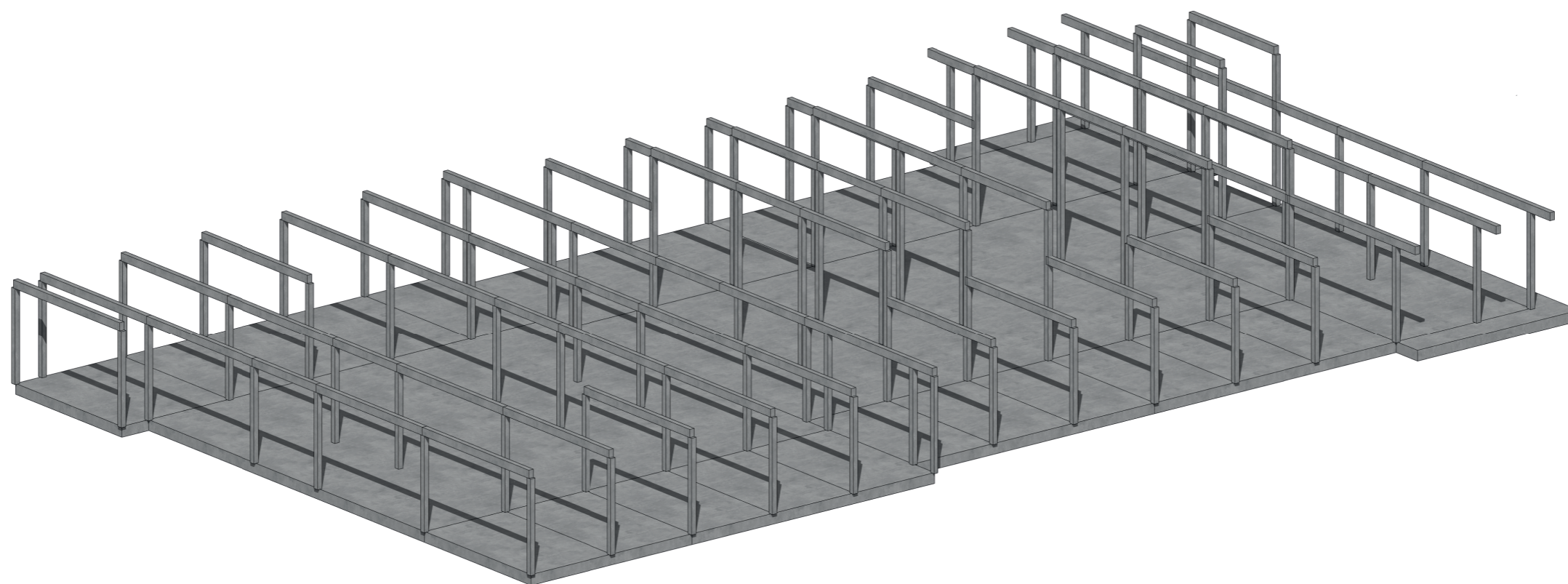
Building Integrated PhotoVoltaic

- + Higher efficiency -> 1M Homes
Building faster because of high amount of prefabricated elements
- + Reducing Costs
Less workers needed on construction site. Building costs are lower.
- + Lower Emissions
Less CO2 because of lower transport movements.
- + Higher Restvalue
The modular elements can be used again, which makes it a modular building.



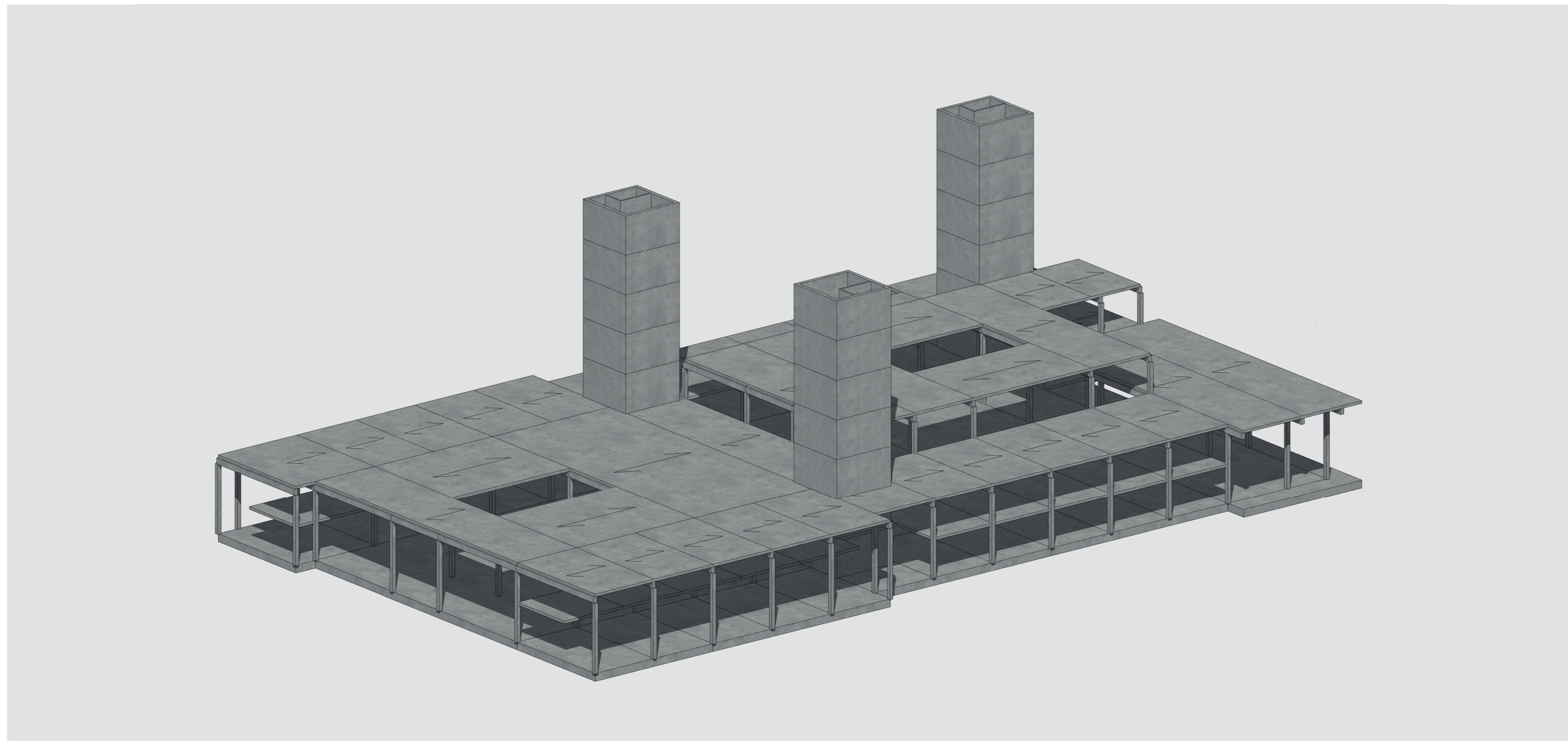
CONSTRUCTION

Concrete Foundation, Stramien 5,40m



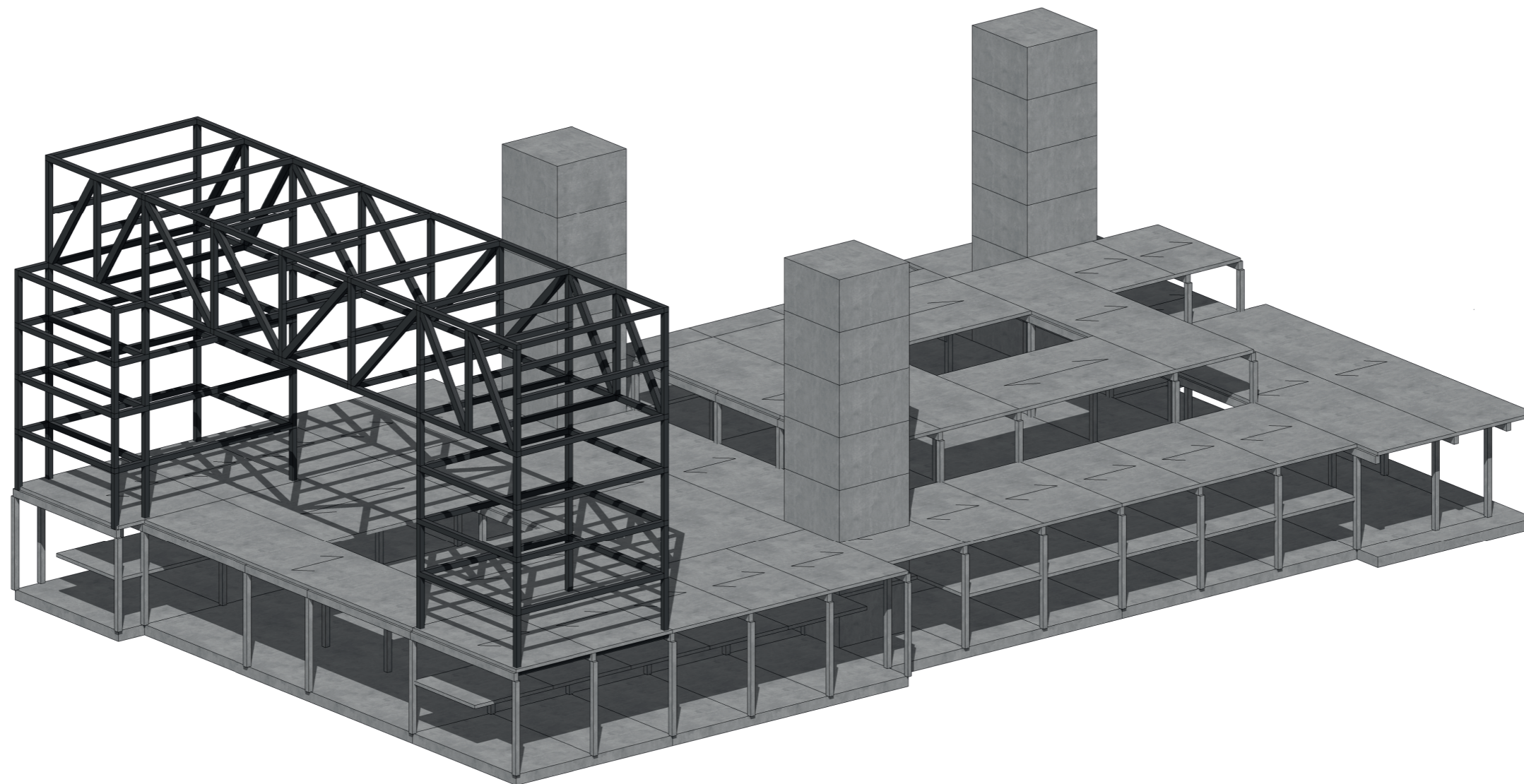
CONSTRUCTION

Hollow-core Slab Floors 200 & 320 VBI



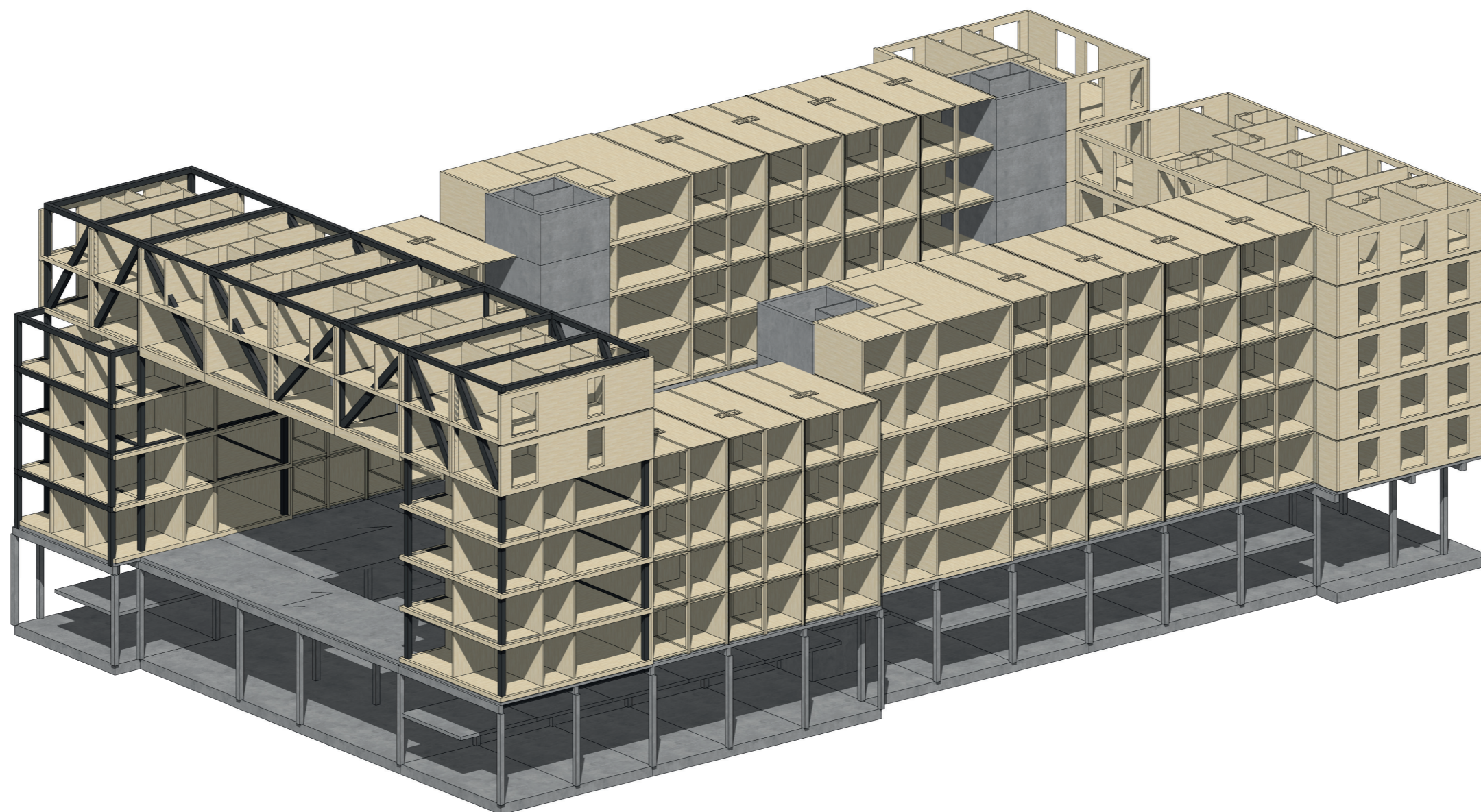
CONSTRUCTION

Steel Span



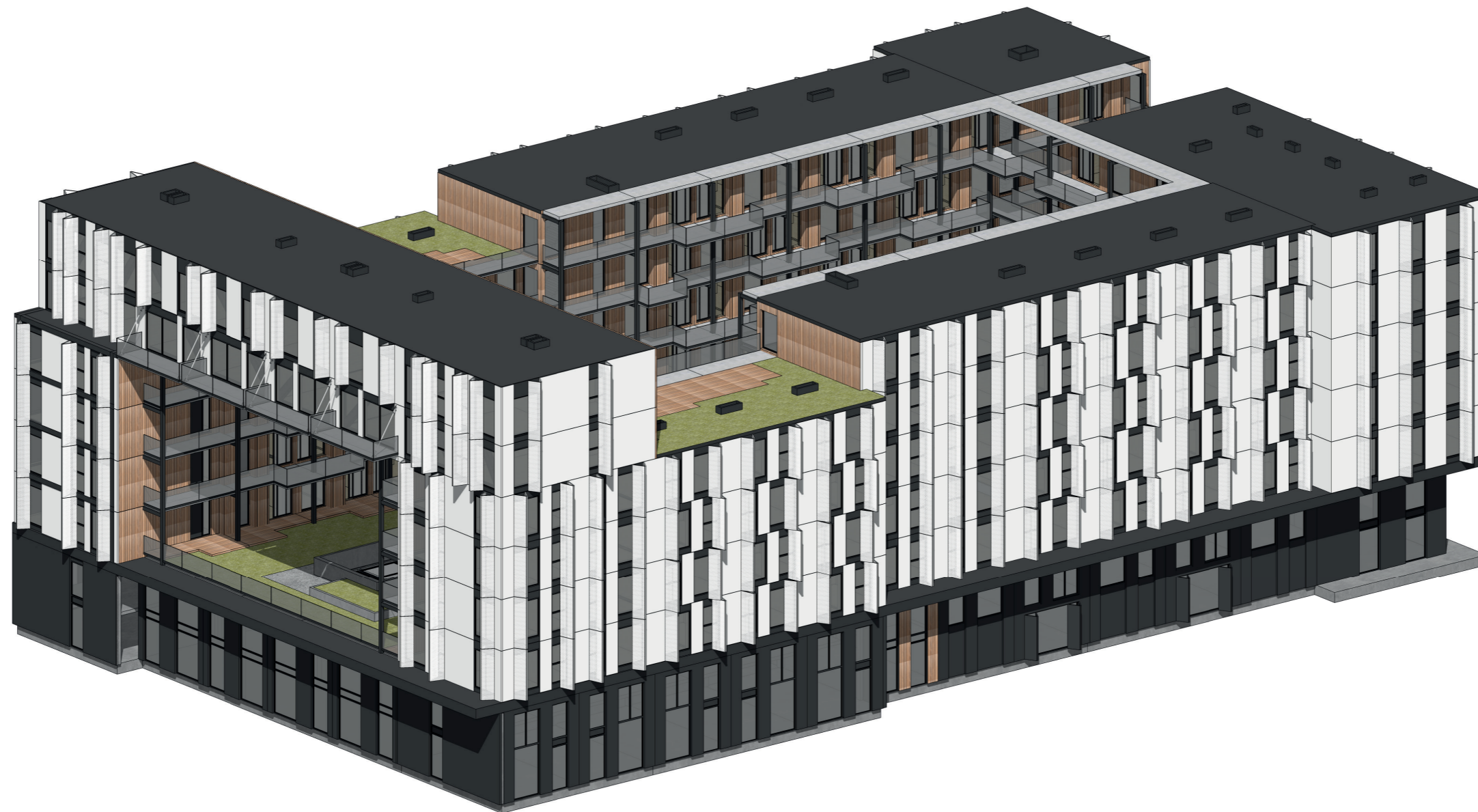
CONSTRUCTION

CLT Modular Elements

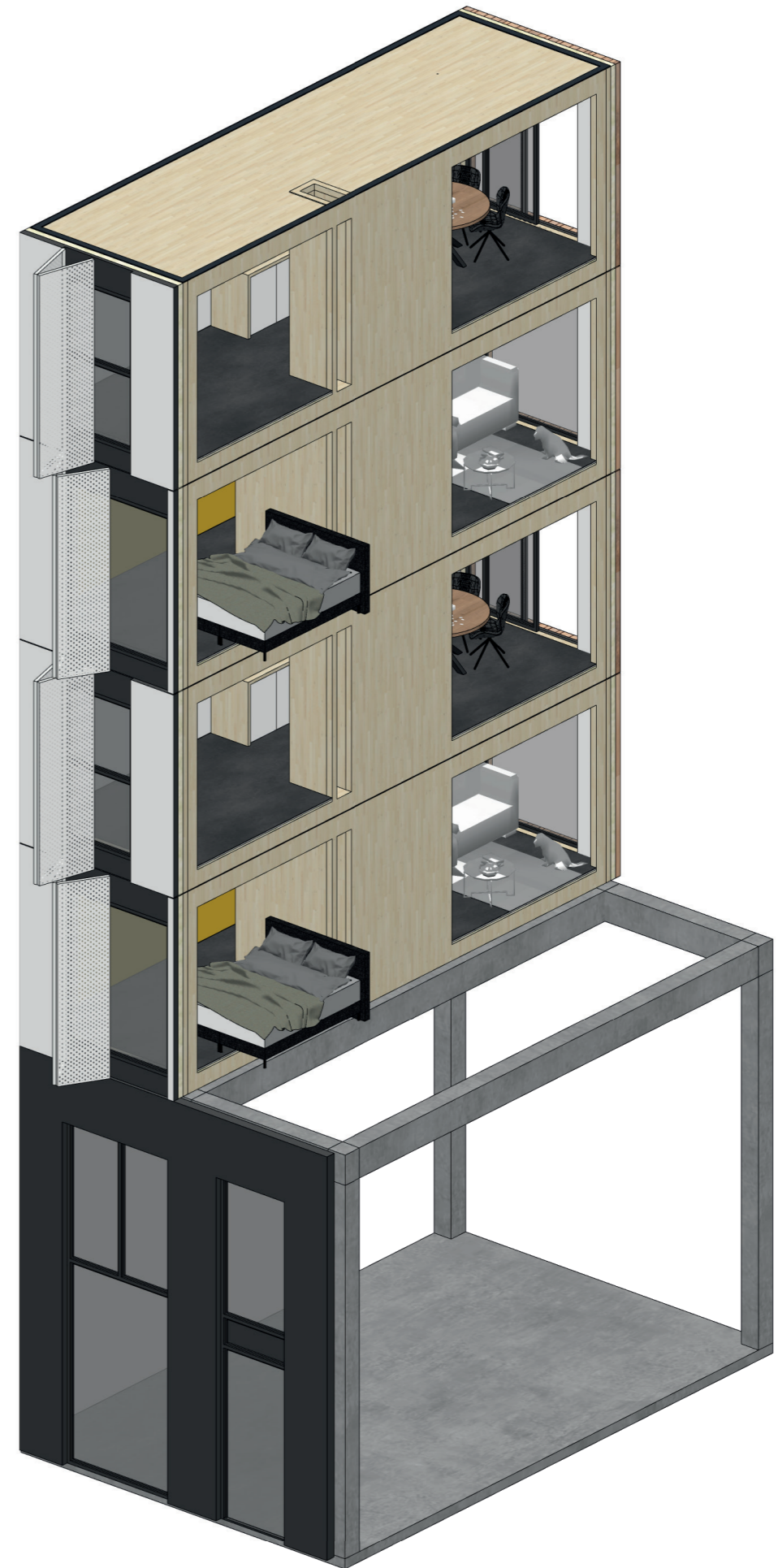
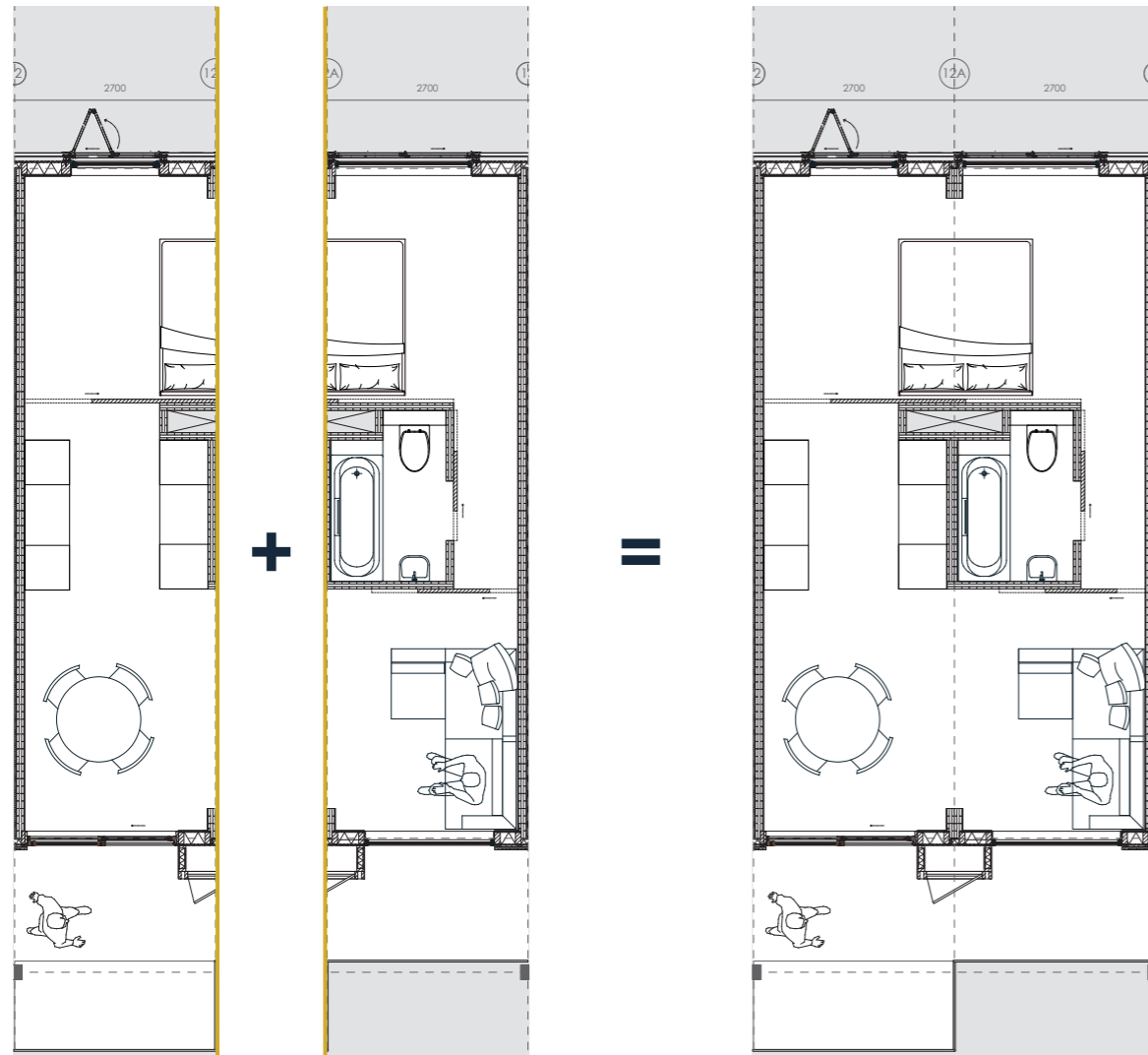


CONSTRUCTION

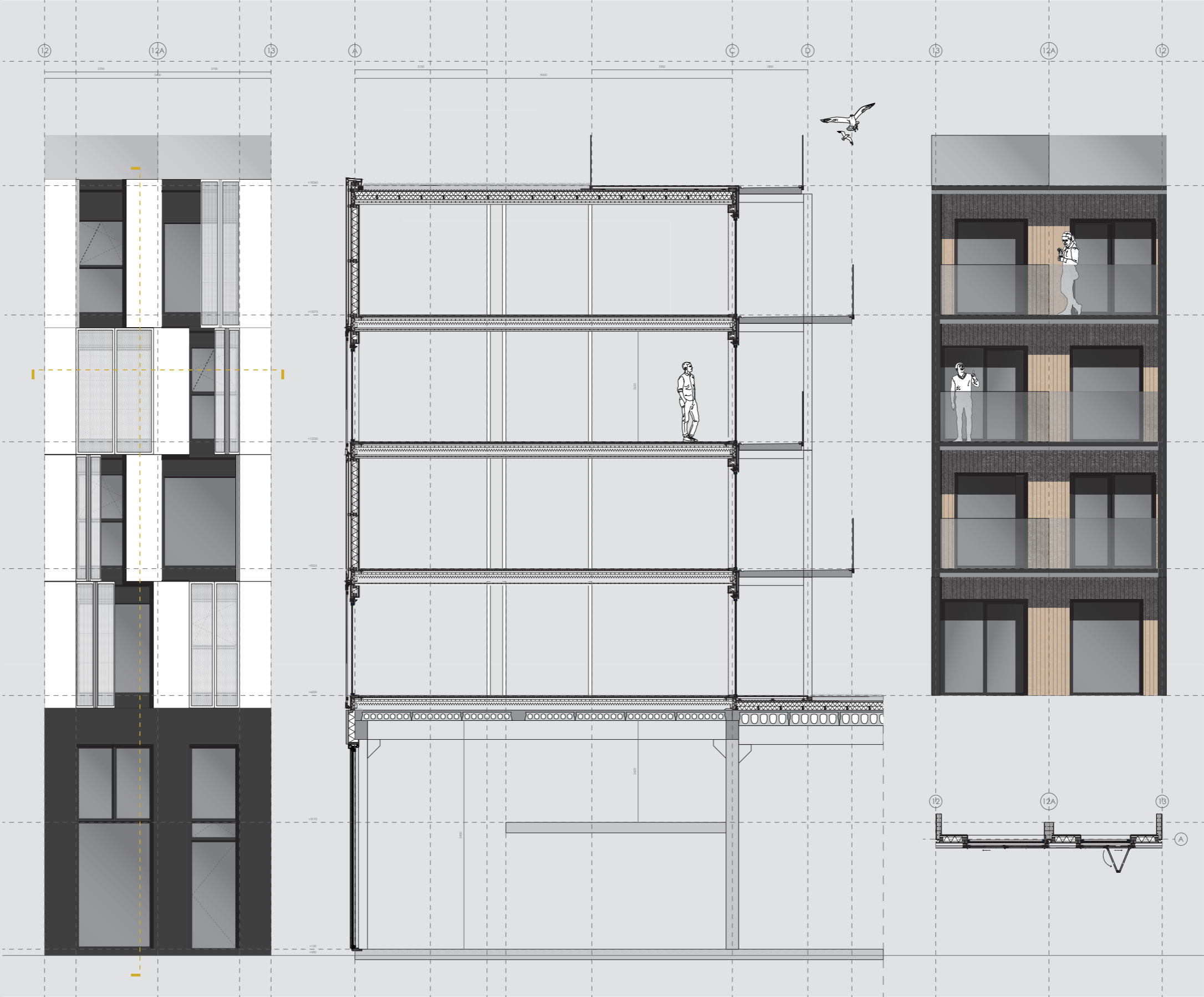
Prefab Facade Elements



STACKING MODULES



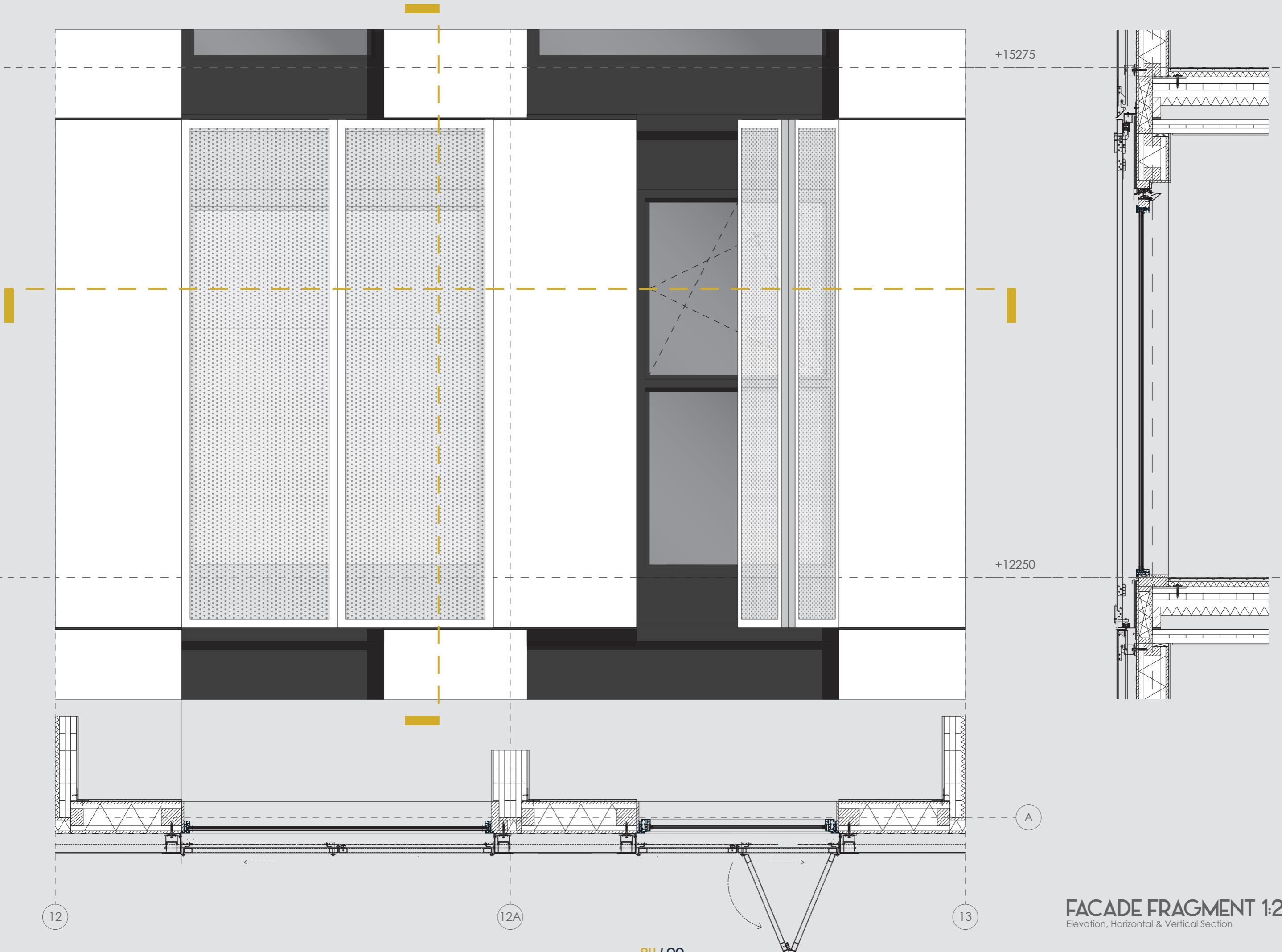
SECTION



STREET

SECTION

INNER COURTYARD



+15275

+12250

12

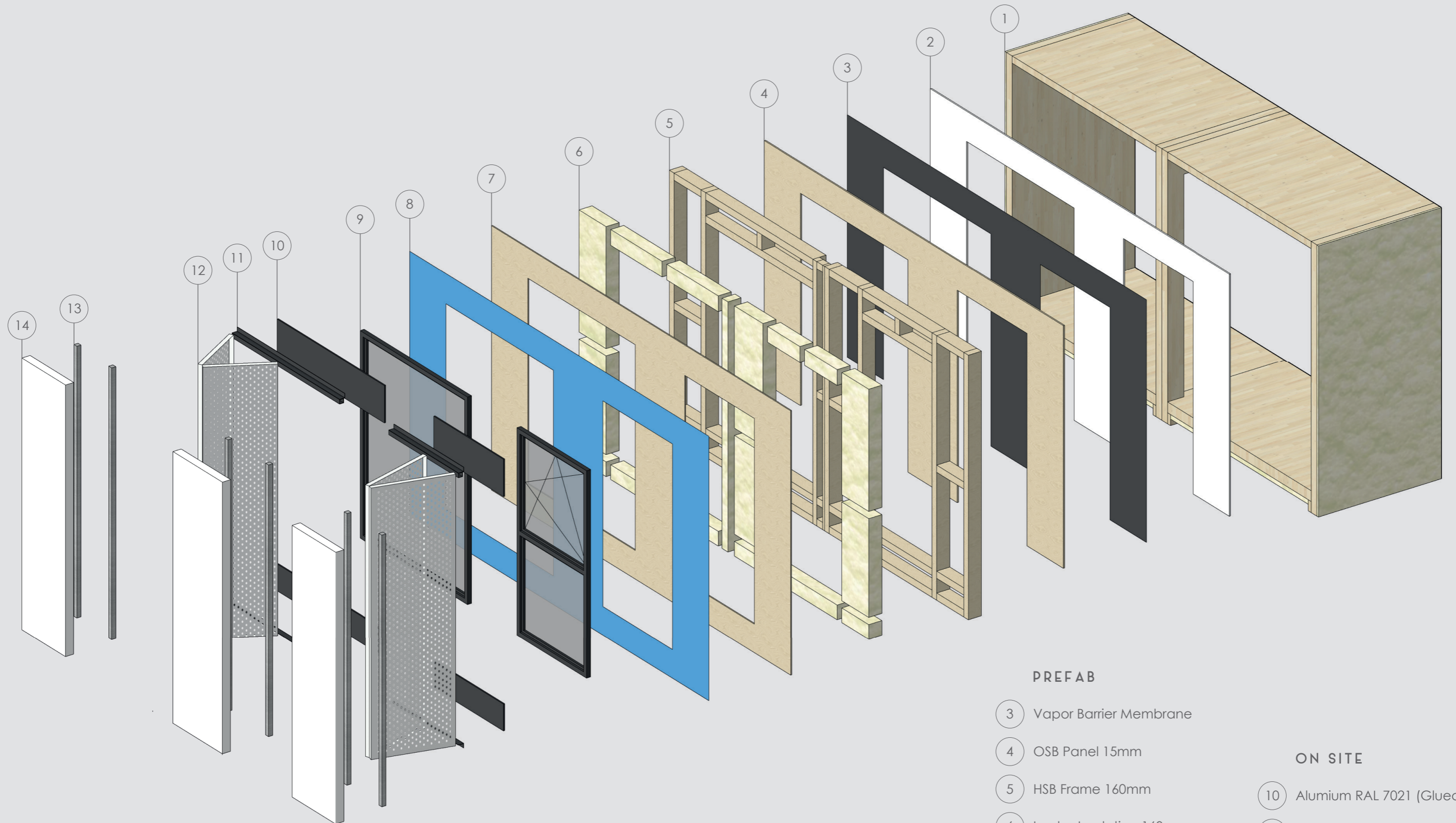
12A

13

A

FACADE ASSEMBLY

Exploded View



PREFAB

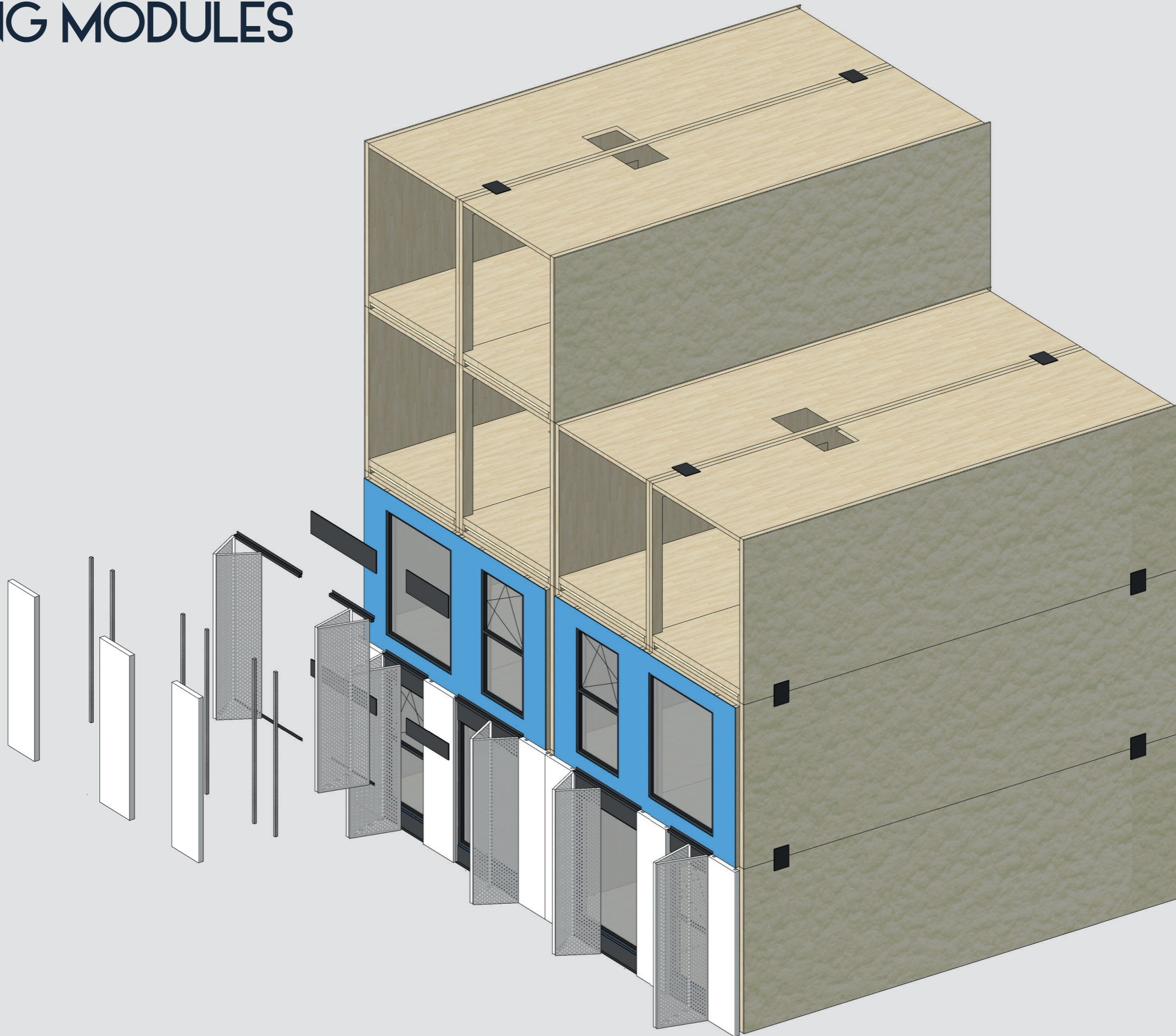
- 3 Vapor Barrier Membrane
- 4 OSB Panel 15mm
- 5 HSB Frame 160mm
- 6 Isovlas Insulation 160mm
- 7 OSB Panel 15mm
- 8 Waterproof Vapor-Open Membrane
- 9 Aluminium Window RAL 7021 with HR+++ Glass

ON SITE

- 10 Aluminium RAL 7021 (Glued)
- 11 Frame Shutters
- 12 Aluminium Perforated Shutters Bi-Fold MetaDecor
- 13 Alucobond Hooked-On Cassette System
- 14 BIPV Panels Solaxess

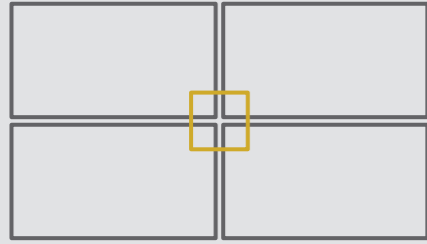
- 1 CLT-Module
- 2 Gypsum Board 12,5mm

STACKING MODULES



INTERSECTION DETAIL 1:5

Intermediate Floor to Partition Wall CLT

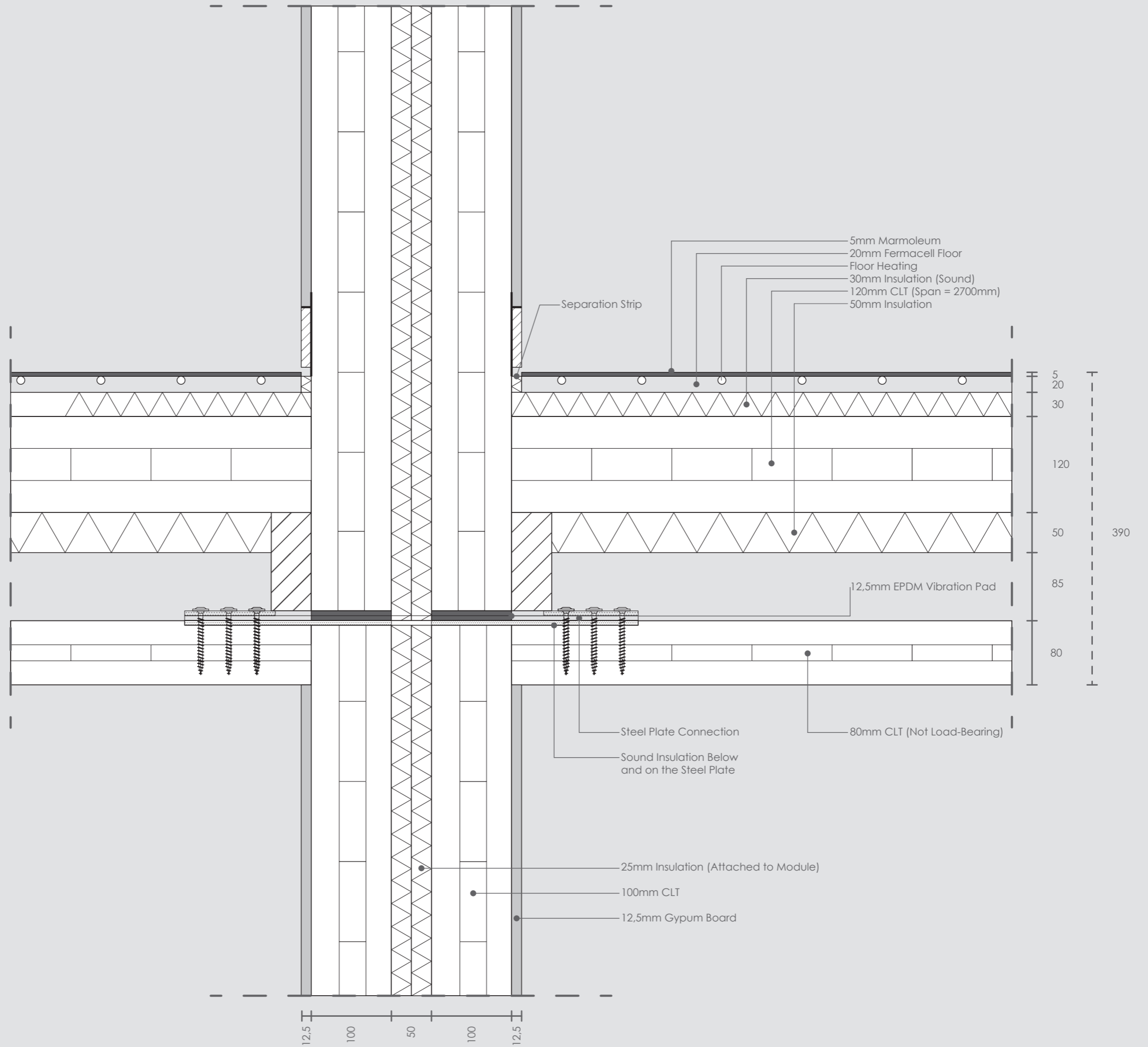


SPECIFICATIONS

The building 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.

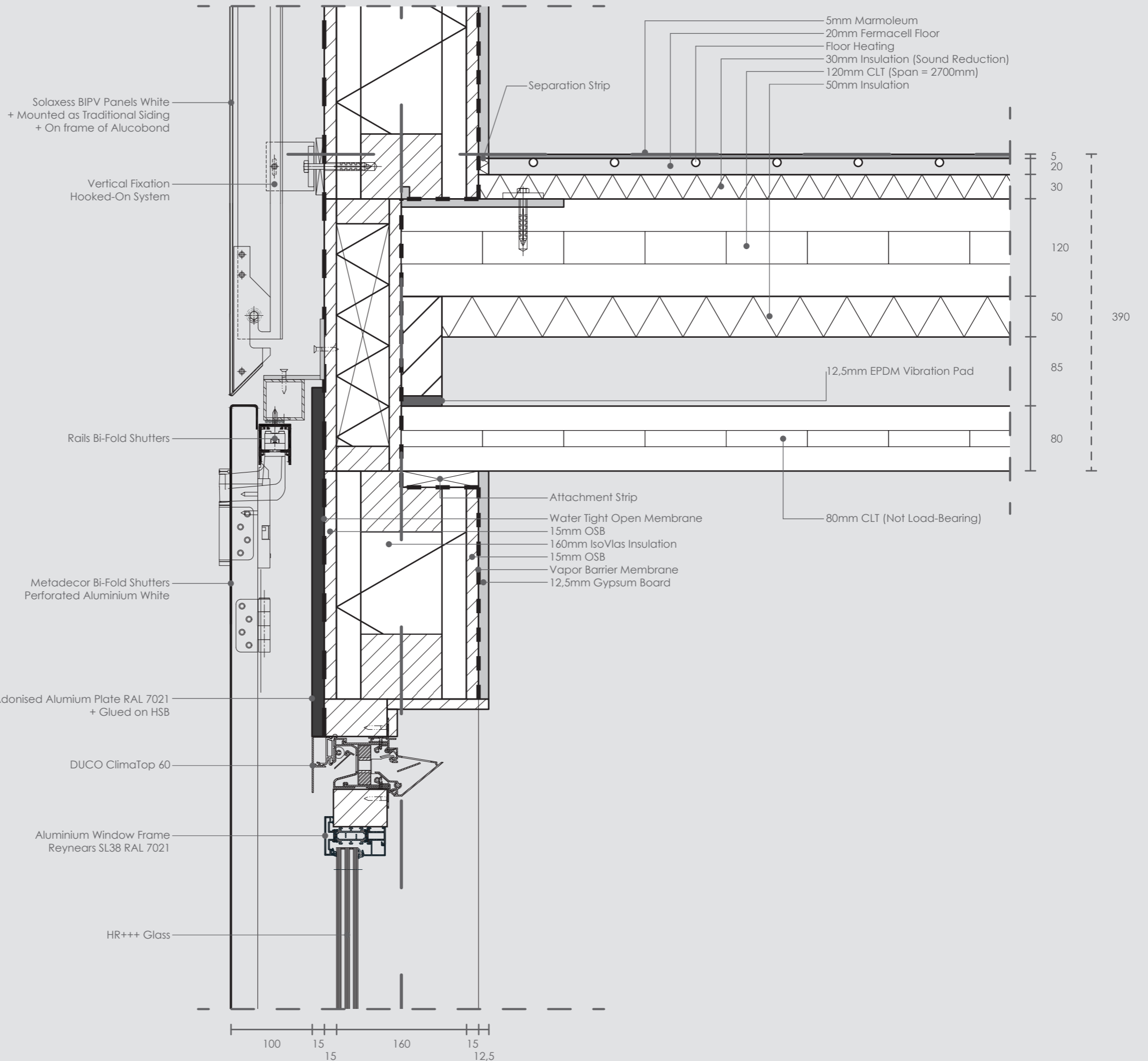
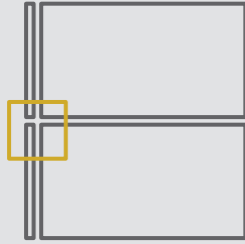
The modular elements will be connected with steel plates and screws horizontal and vertical.

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 | R_d |
|----------------------------|------------------|-------|
| 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 | |



"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



Shutters Closed - 21/06/2020 17:00



NORTH FACADE ELEVATION 1:200
Shutters Open - 21/06/2020 17:00



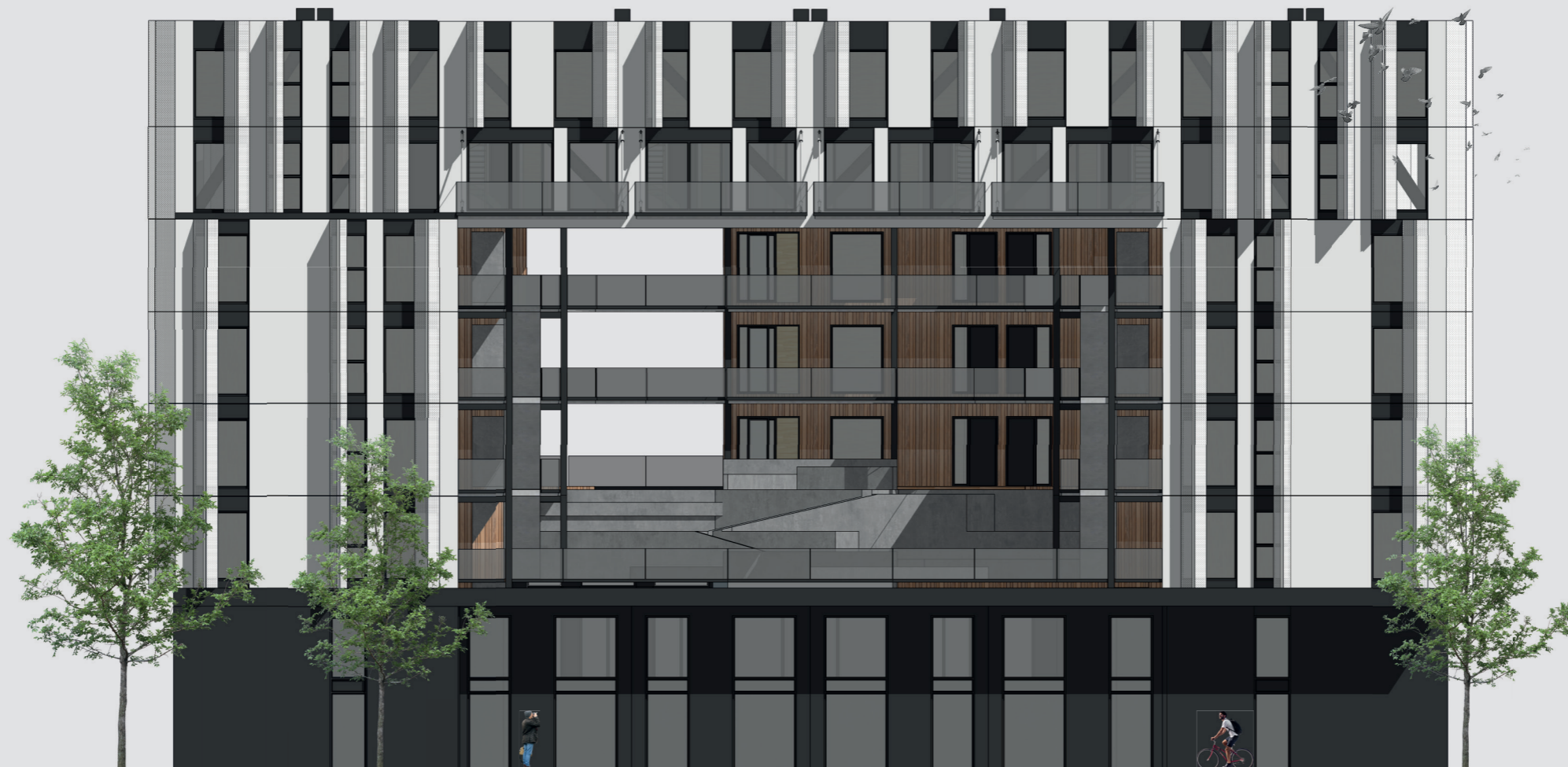
Shutters Closed - 21/06/2021 09:00



EAST FACADE ELEVATION 1:200
Shutters Open - 21/06/2021 09:00



Shutters Closed - 21/06/2021 09:00



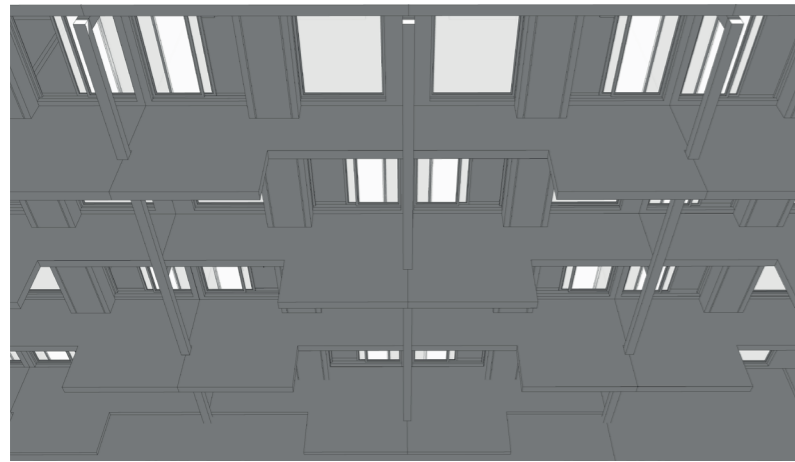
SOUTH FACADE ELEVATION 1:200
Shutters Open - 21/06/2021 09:00



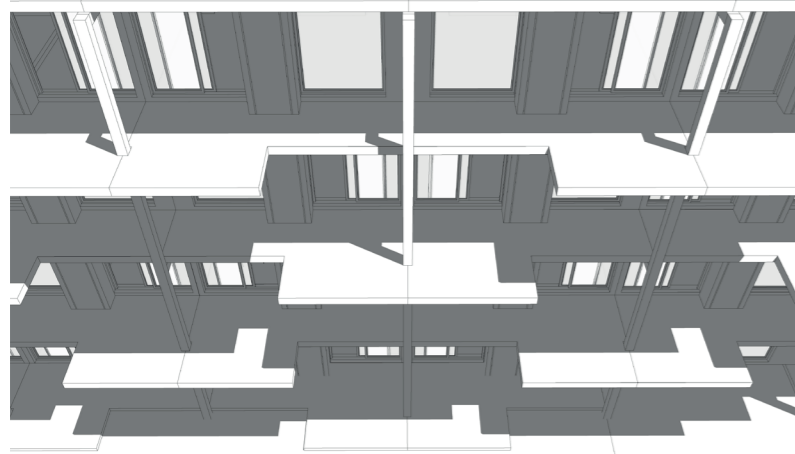
Shutters Closed - 21/03/2021 13:00



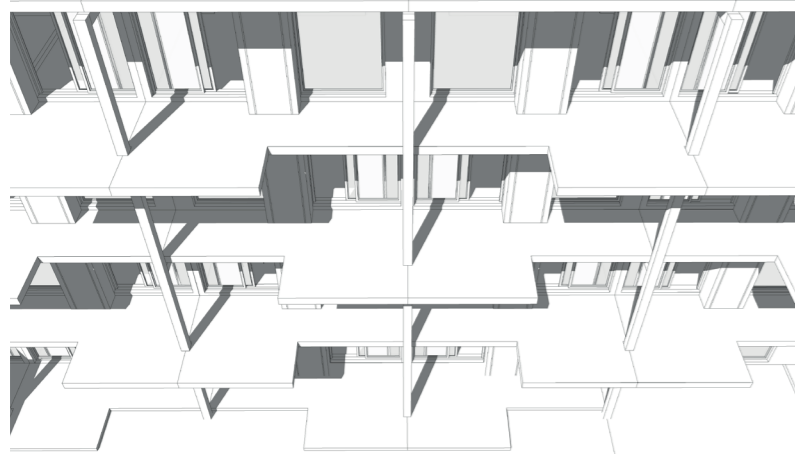
WEST FACADE ELEVATION 1:200
Shutters Open - 21/03/2021 13:00



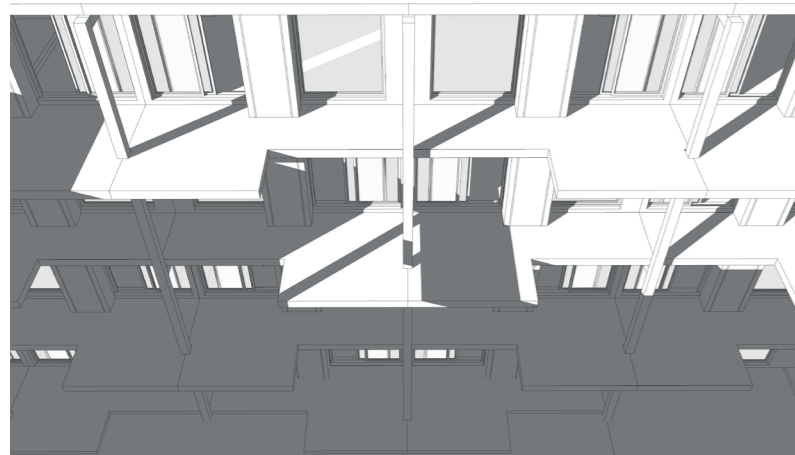
21st of June - 09:00



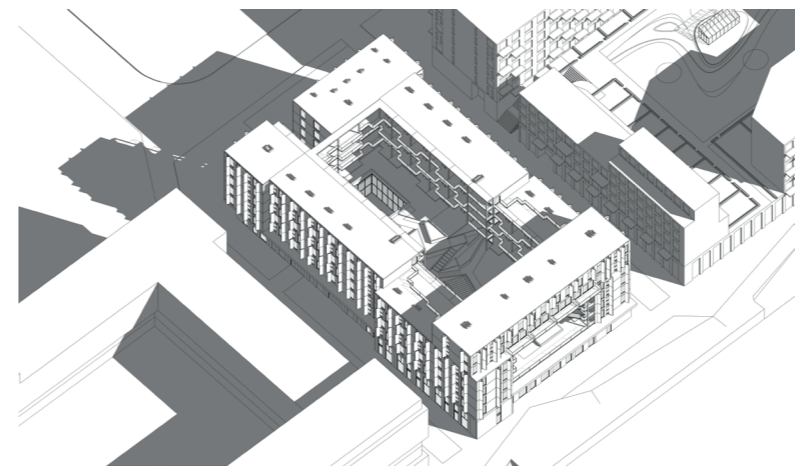
21st of June - 12:00



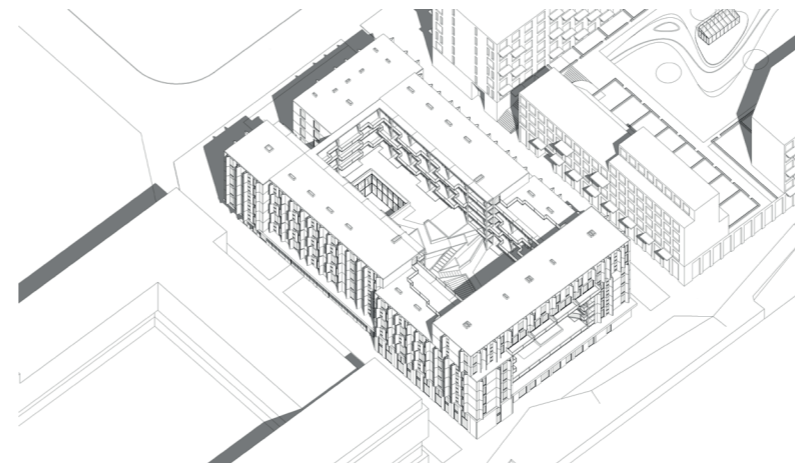
21st of June - 15:00



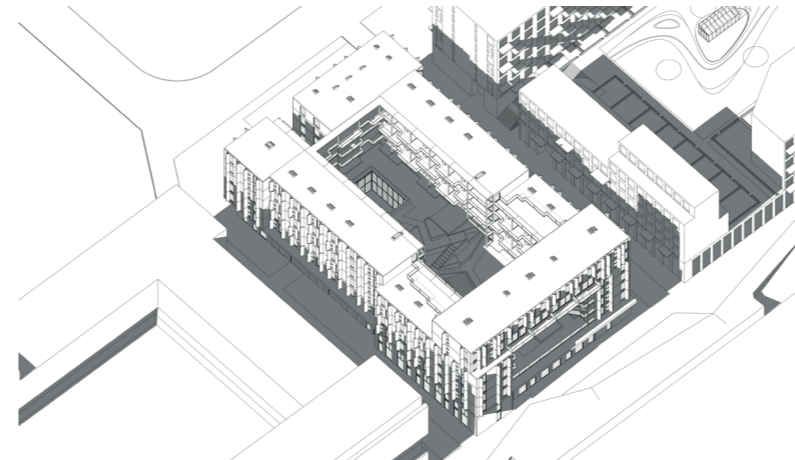
21st of June - 18:00



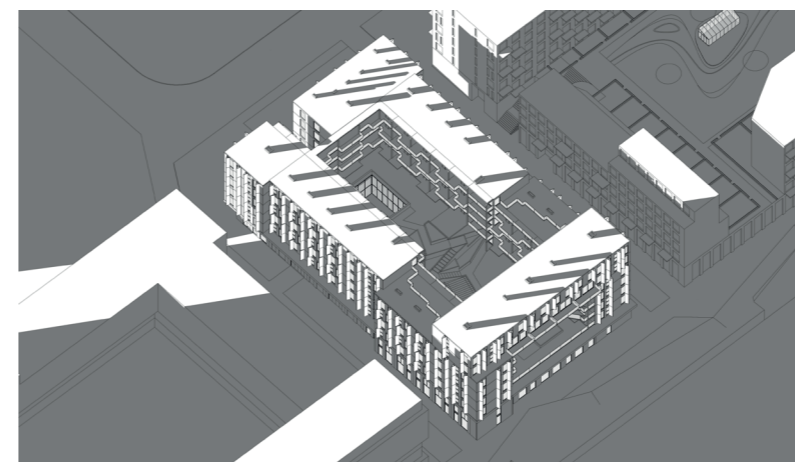
21st of March - 09:00



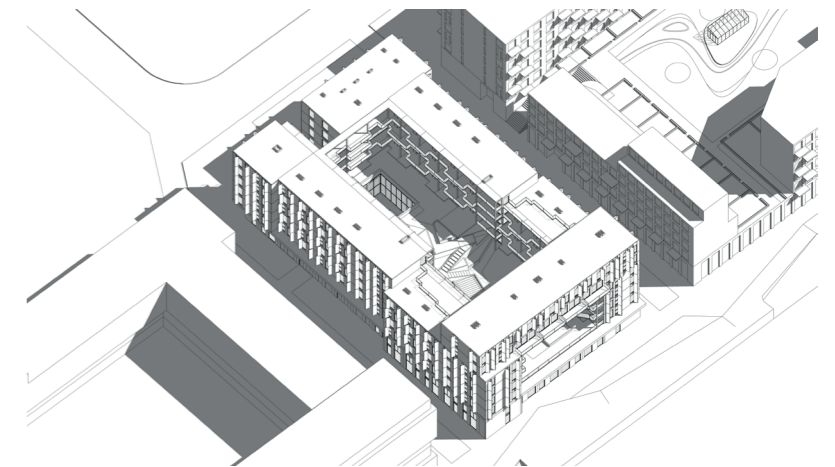
21st of March - 12:00



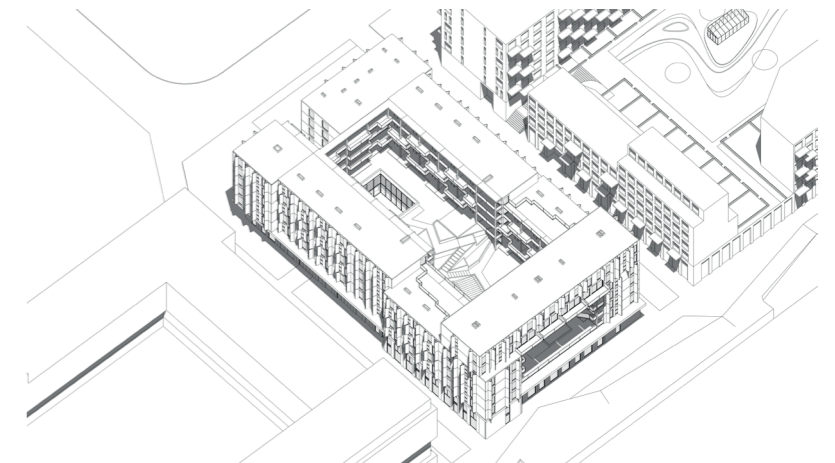
21st of March - 15:00



21st of March - 18:00



21st of June - 09:00



21st of June - 12:00



21st of June - 15:00

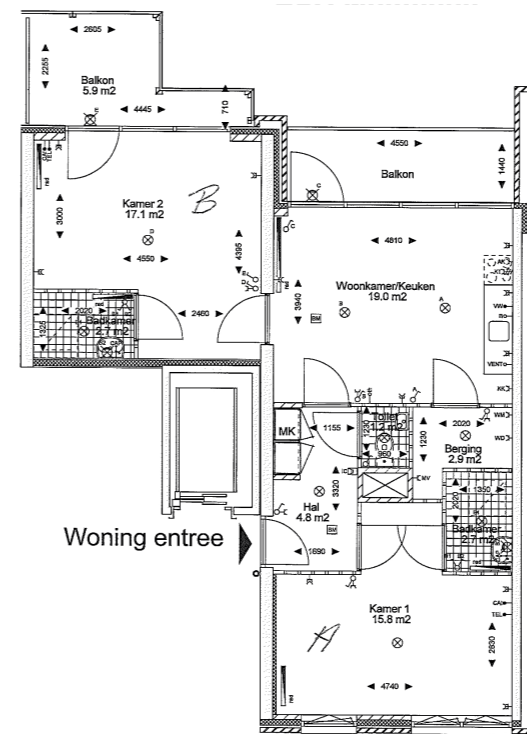


21st of June - 18:00

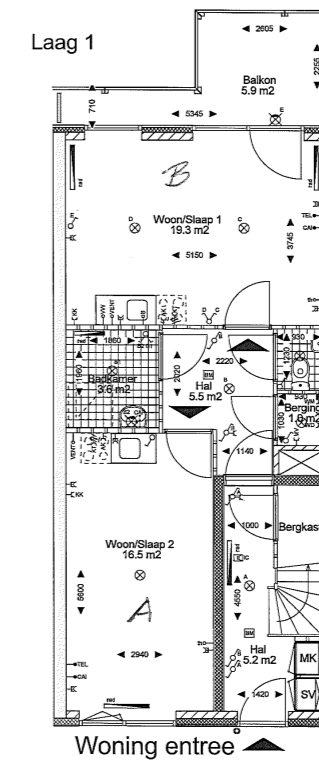
KAMERS MET KANSEN



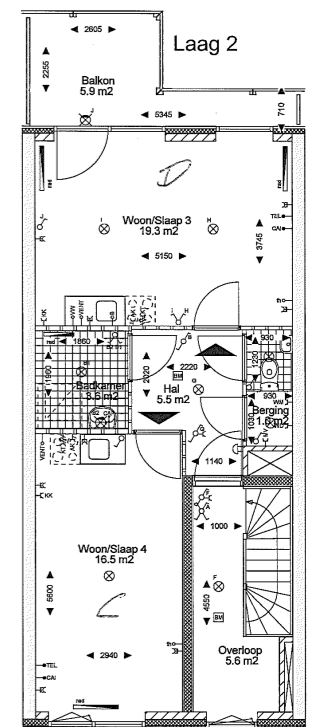
Render from Pieter Calandlaan - © Kamers met Kansen



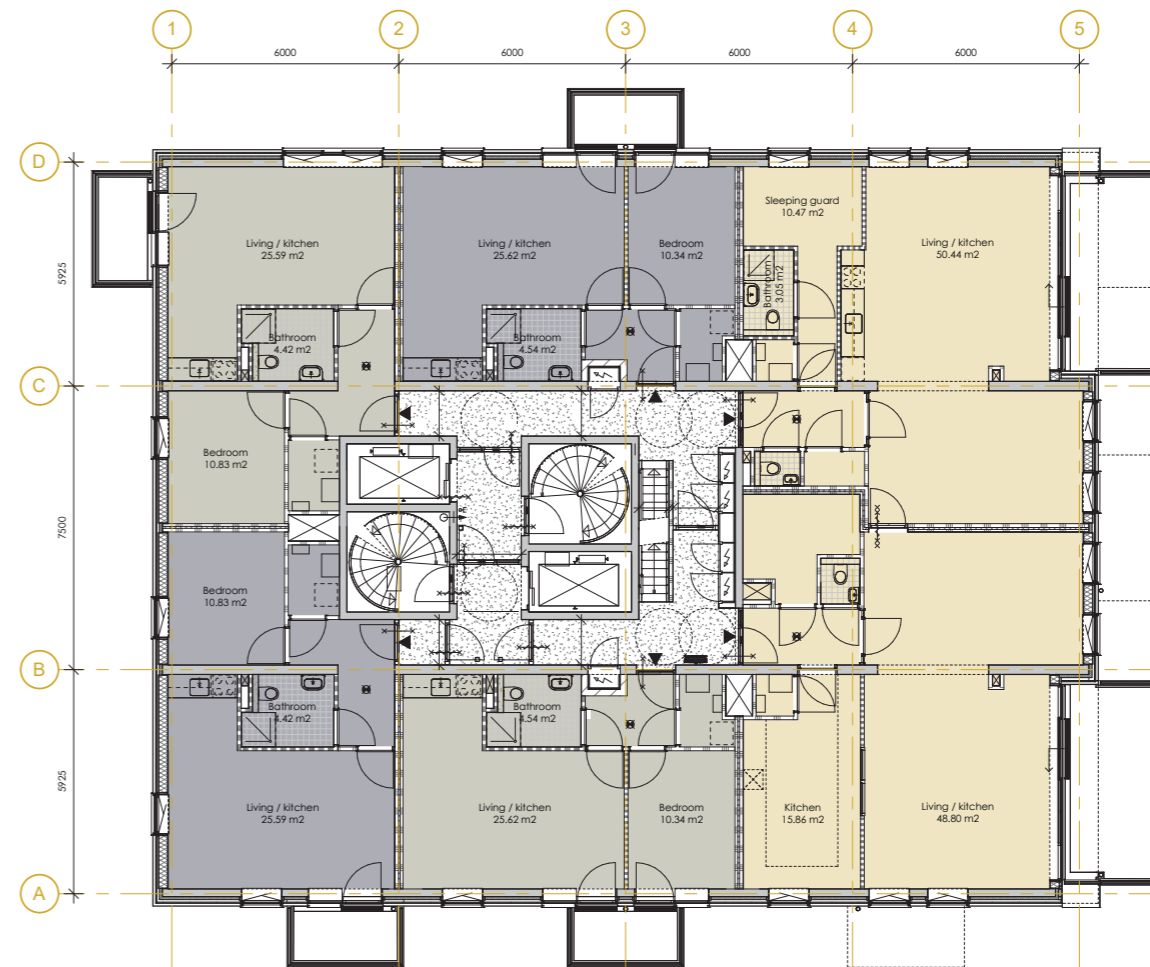
HBO Apartment - © Kamers met Kansen



MKM Apartment - © Kamers met Kansen

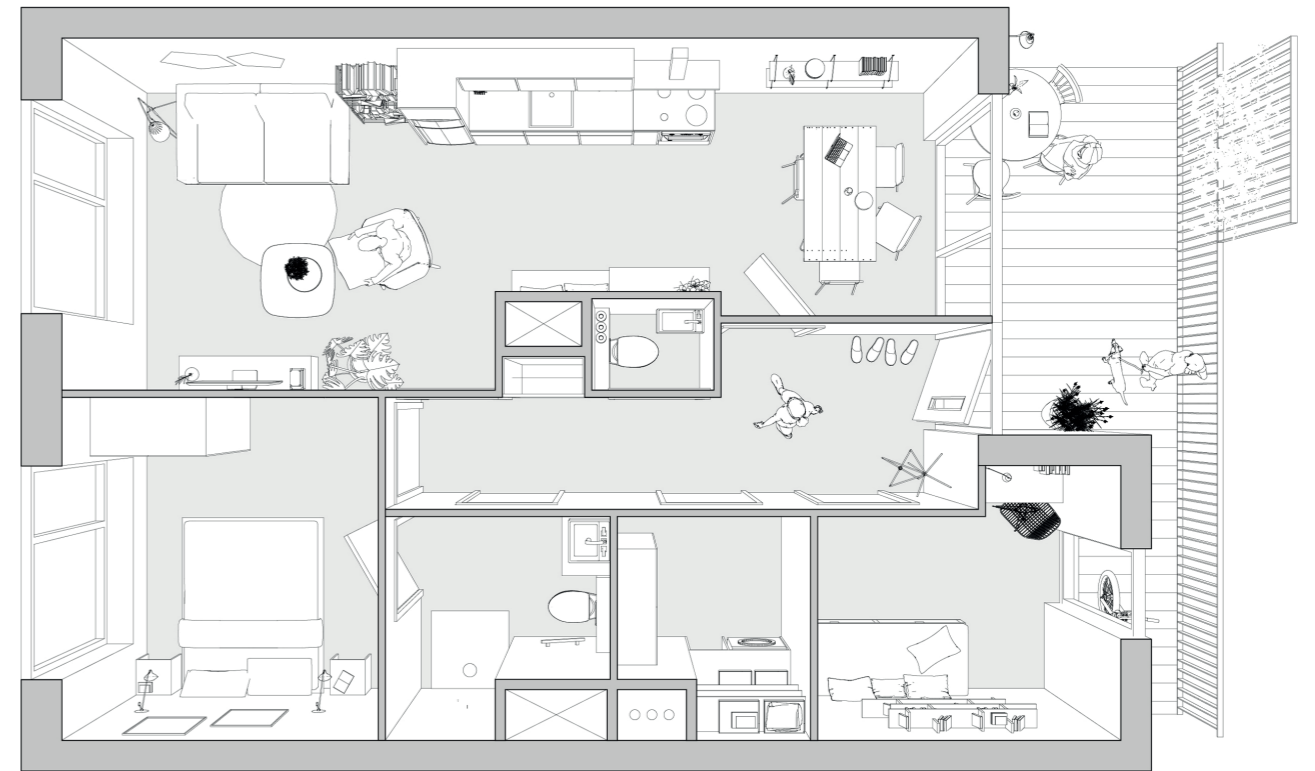


WESTKAAP

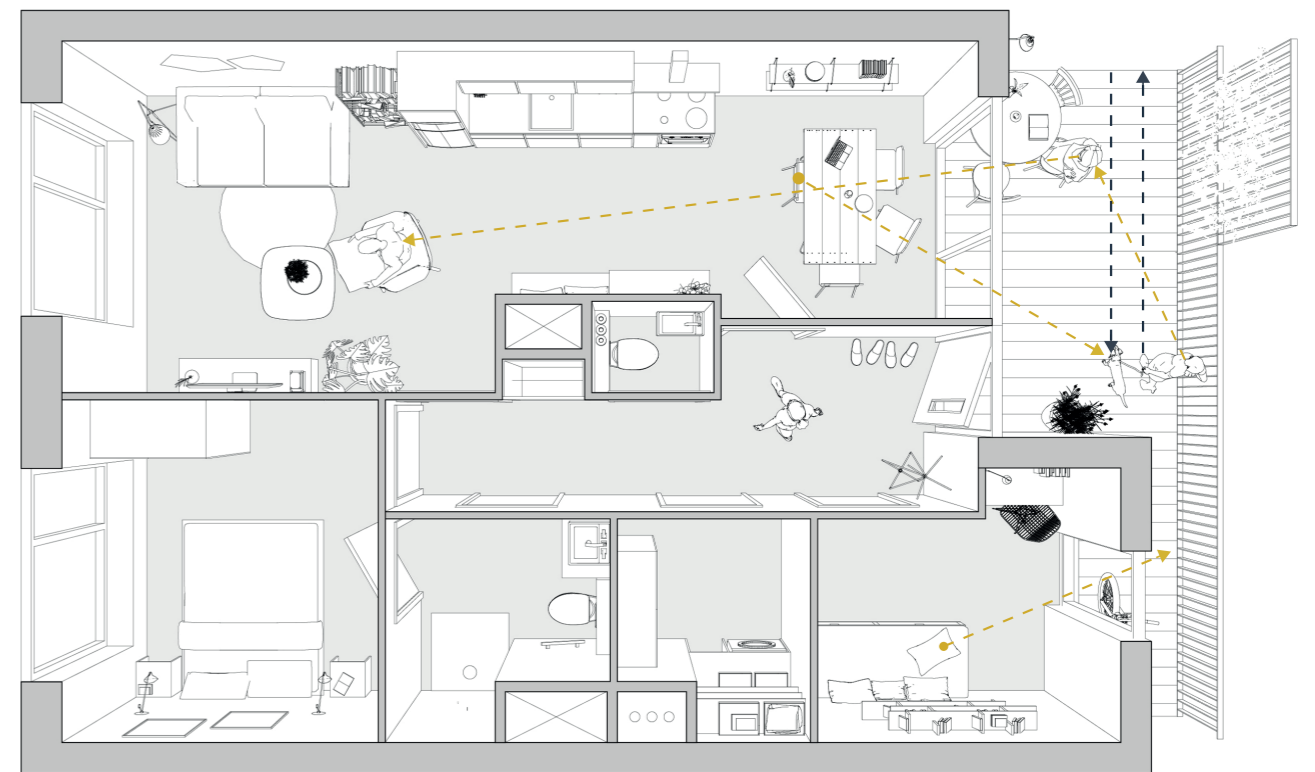


2nd Floor Westkaap - Scale 1:200

KRAMATWEG



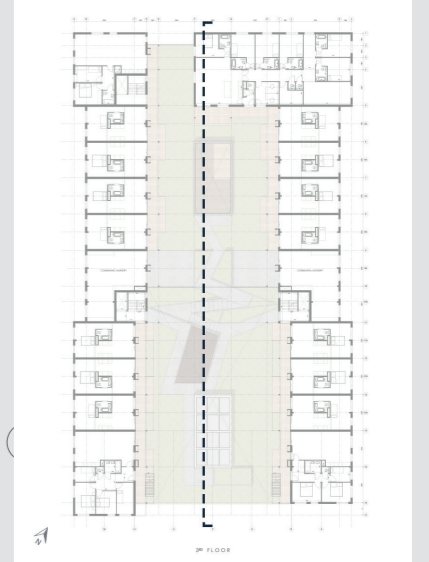
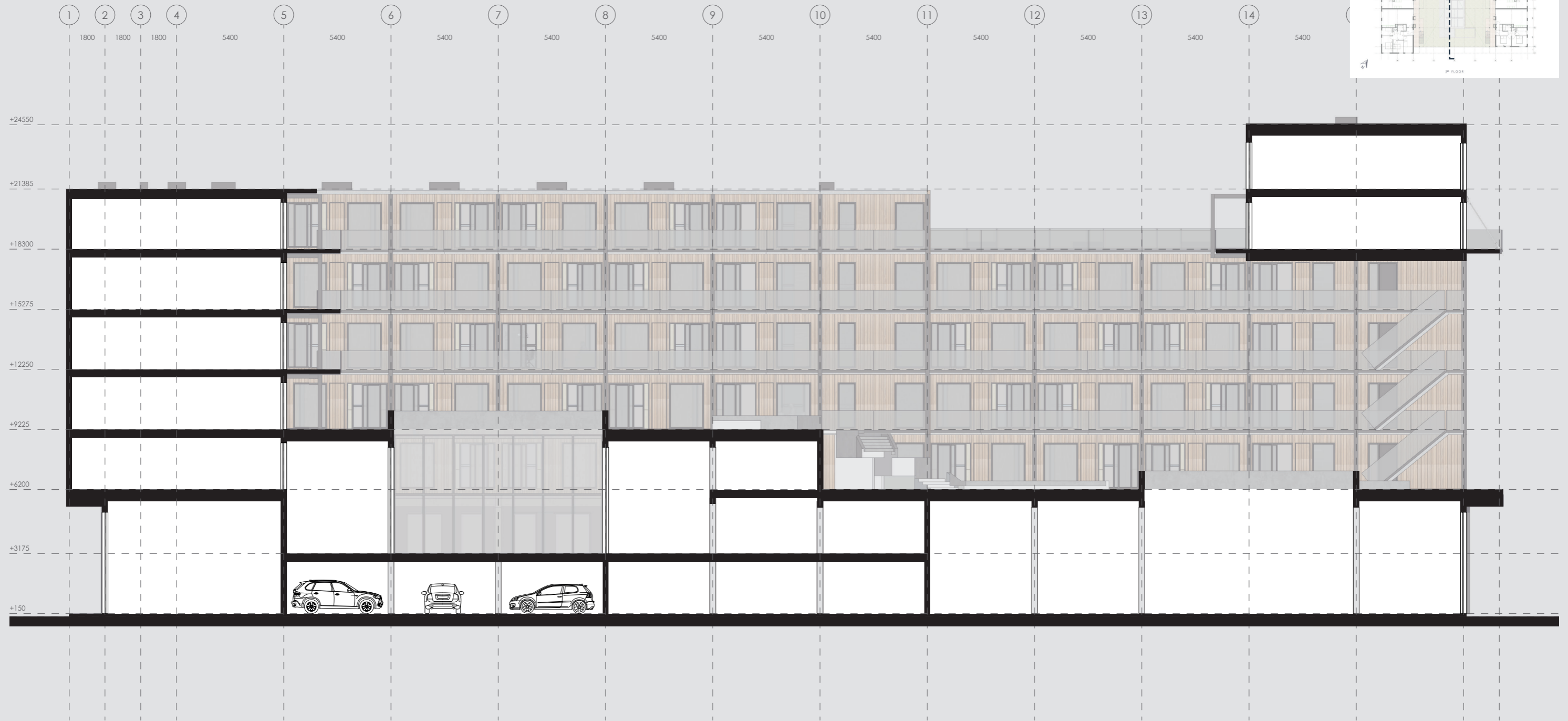
Dwelling Plan - © ANA (2020)



Social Interaction - Own Illustration

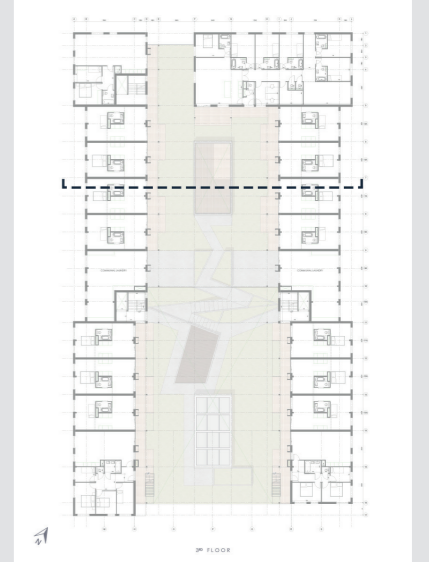
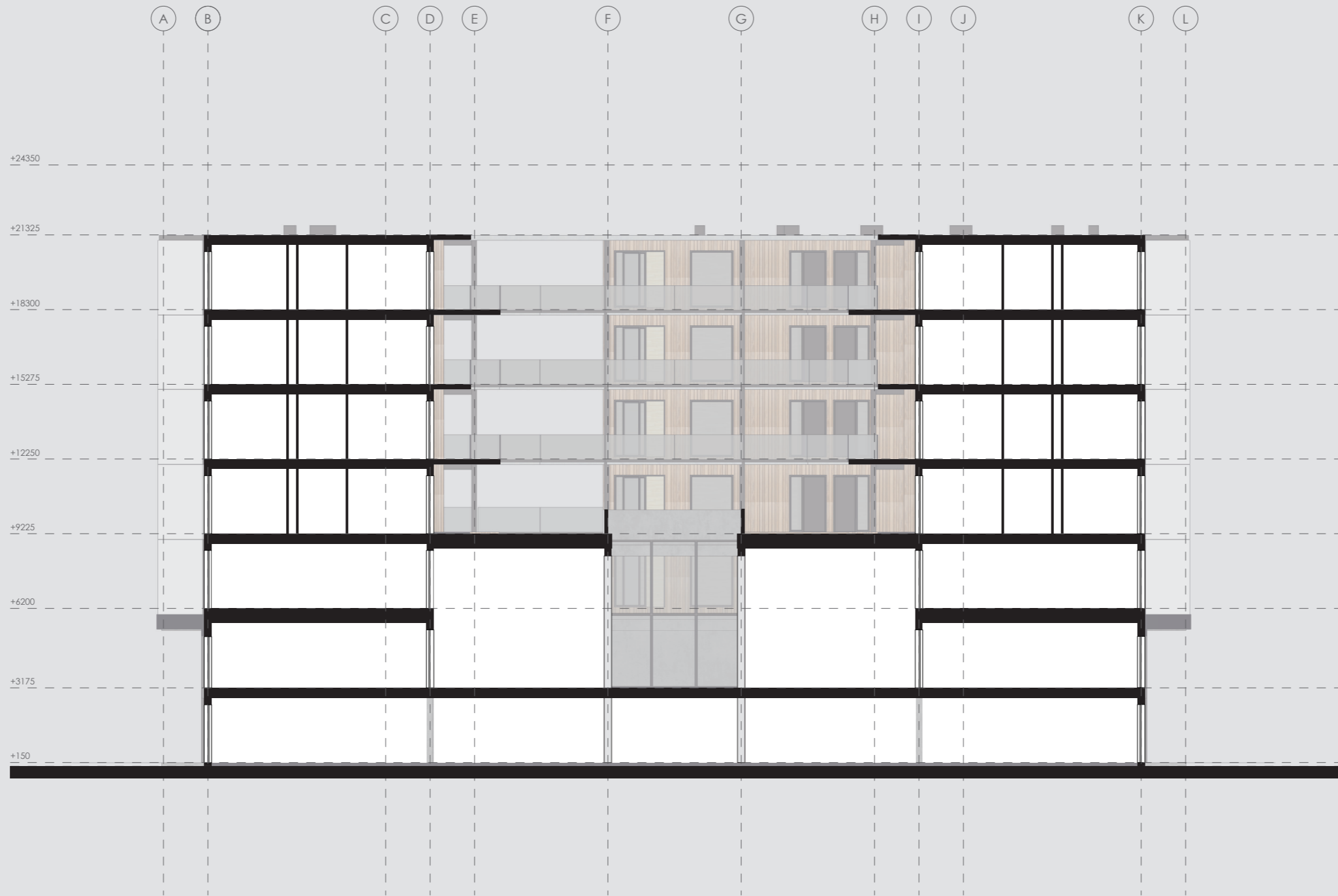
SECTION A-A 1:200

Longitudinal Section



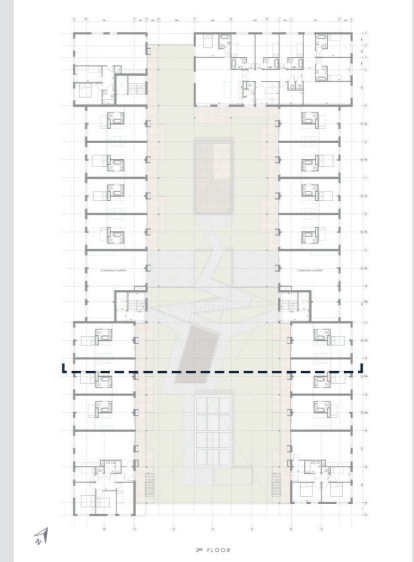
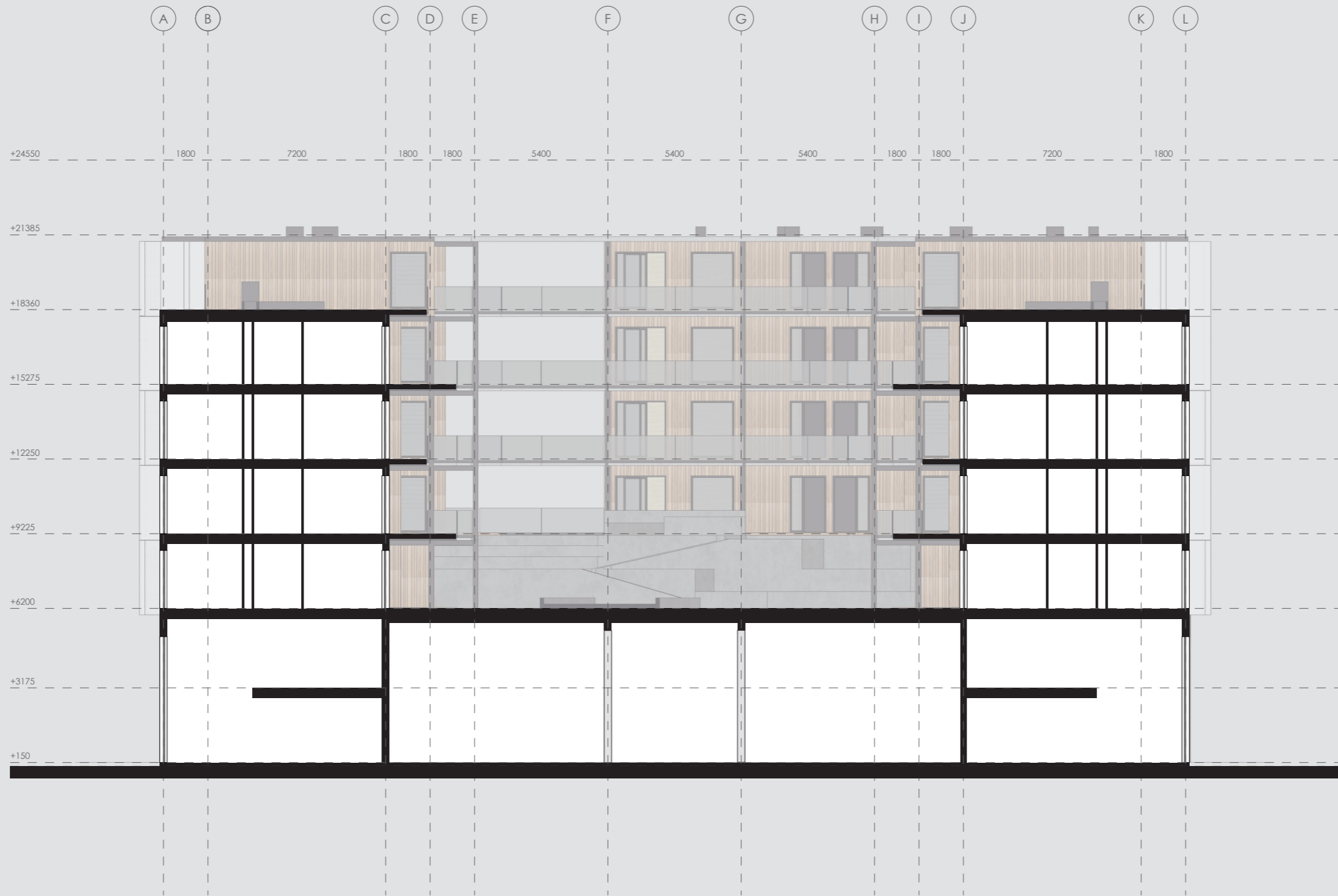
SECTION B-B 1:200

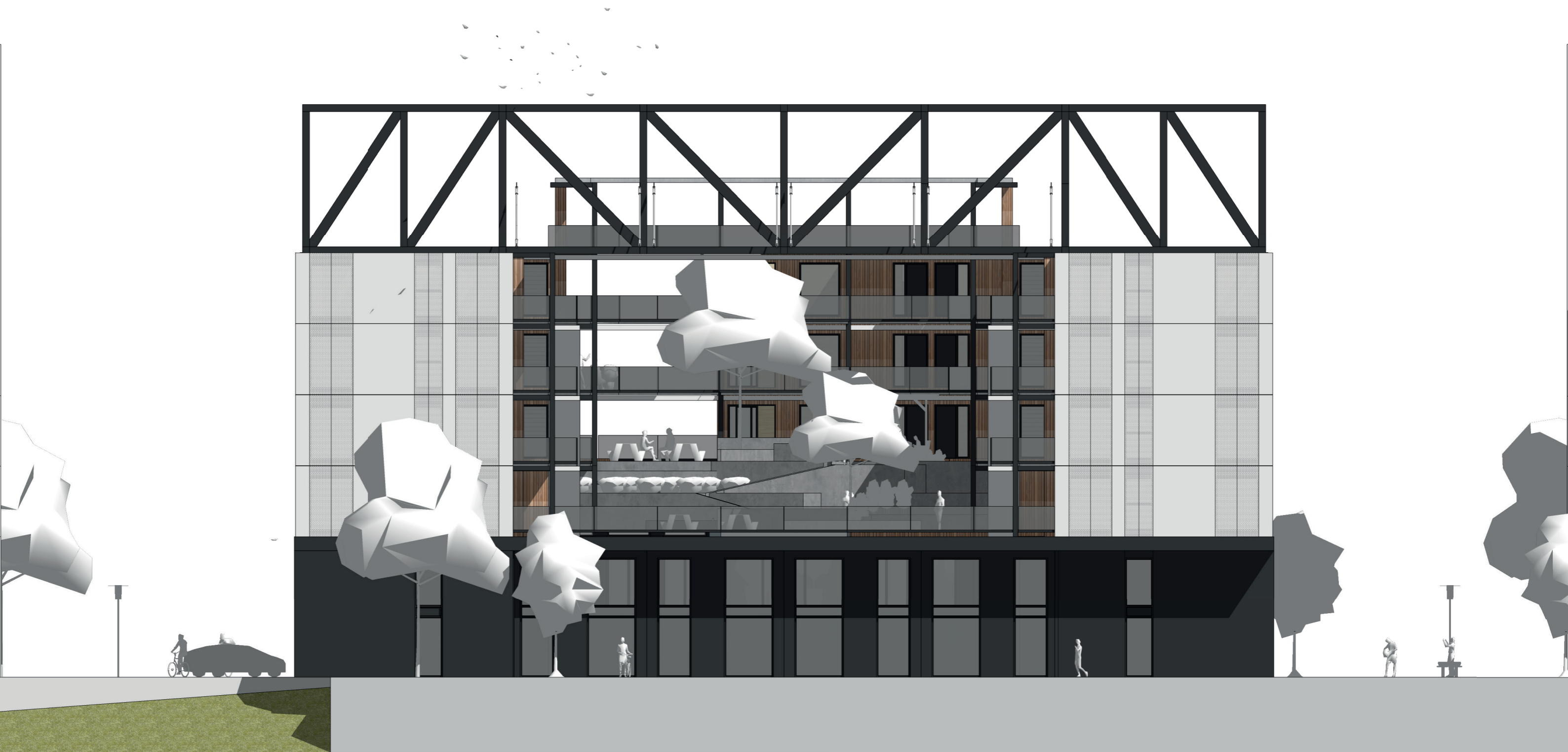
Cross Section



SECTION C-C 1:200

Cross Section





VENTILATION

Ventilation System C

SPECIFICATIONS

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 dm ³ /s |
|--------------------------|-----------------------|
| - Kitchen | 21 dm ³ /s |
| - Bathroom | 14 dm ³ /s |
| - Toilet | 7 dm ³ /s |

Minimum = $(39,5 + 3,1m^2) \times 0,9 \text{ dm}^3/s = 38,3 \text{ dm}^3/s$

Chosen is for a preheated ventilation grille from DUCO, which will be set on top of the aluminum 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 | 12 dm ³ /s/m |
|------------------------|-------------------------|
| - Ventilation Capacity | |

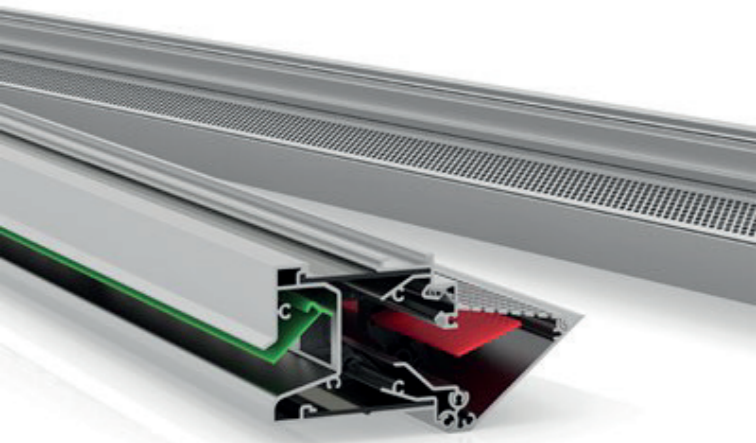
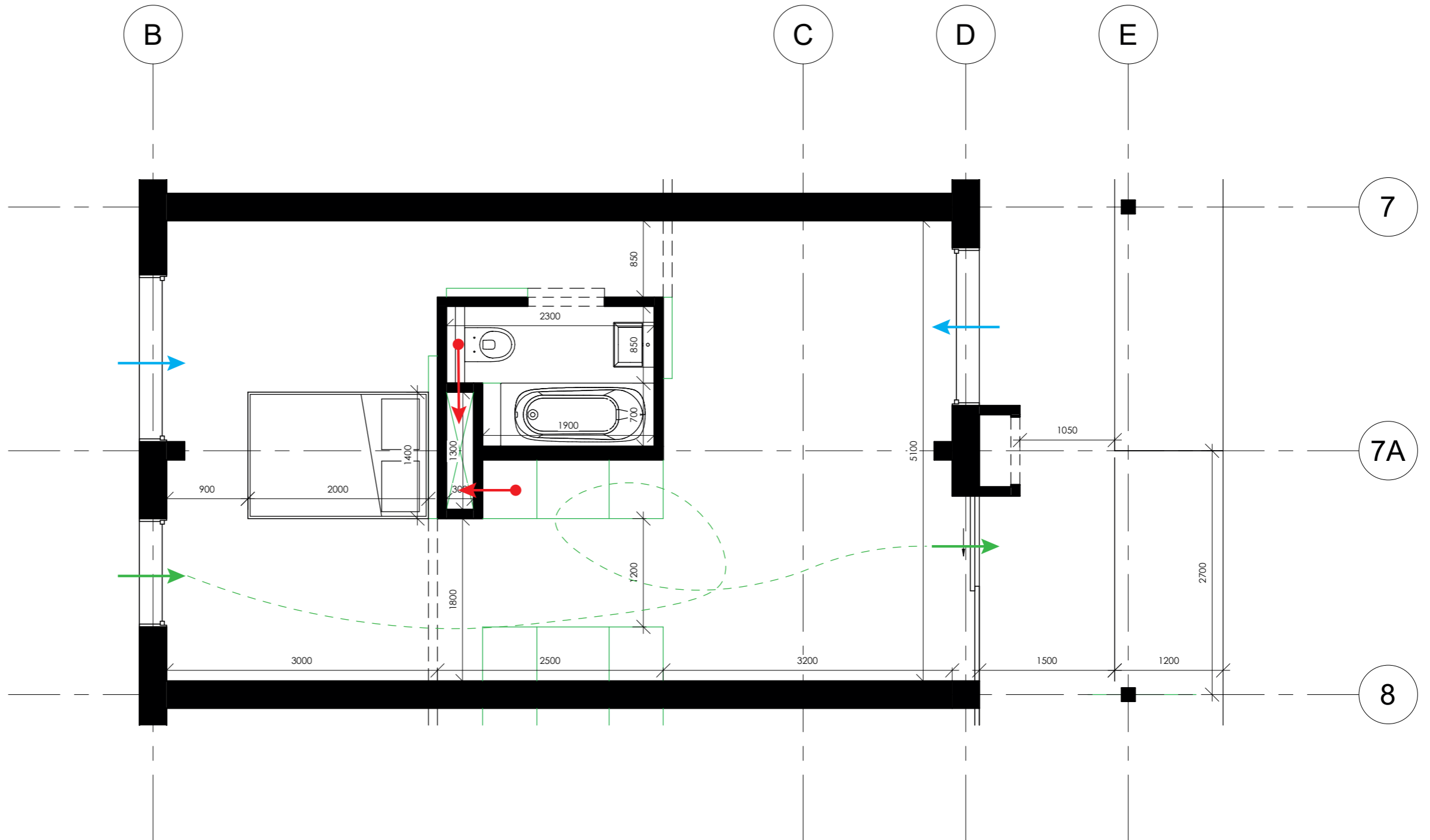
The large windows on both side of the apartments will have the ventilation grill with a total width of $1850 + 1750 = 3600 \text{ mm}$, which will be enough to ventilate.

Needed Ventilation Width = $42 / 12 = 3,5 \text{ m}$

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 fill. Together with the sliding door on the gallery it is possible to ventilate.



SOLAR PANELS

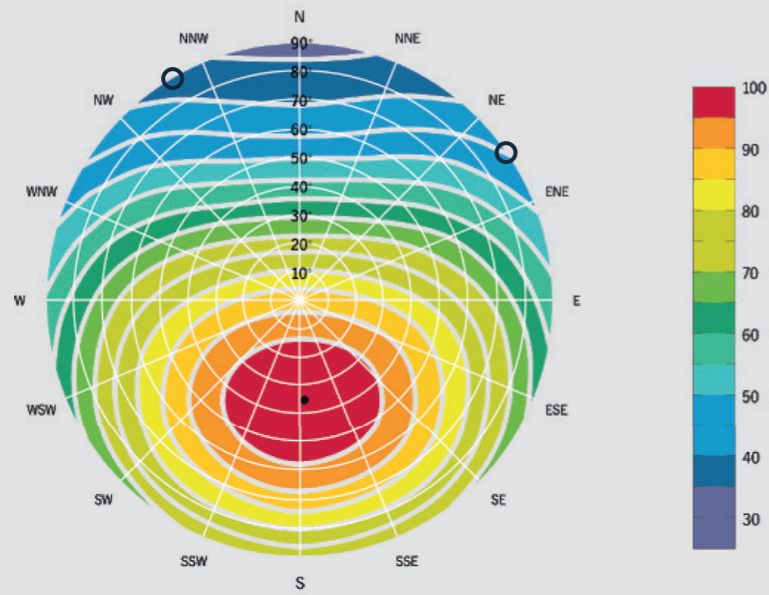
Output & Requested Energy

| | | |
|--------------------------|---------------|------------|
| 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

BIPV Solaxess - North Facades



| <i>NORTH WEST FACADE</i> | | |
|---------------------------------|--------------|------------|
| ORIENTATION | 32.4 | NW |
| TOTAL SURFACE | 377.35 | M2 |
| OUTPUT WP | 41509 | WP |
| IRRADIANCE FACTOR | 85% | |
| LOSS FACTOR | 35% | |
| OUTPUT AFTER LOSS | 12349 | KWH |



| <i>NORTH EAST FACADE</i> | | |
|---------------------------------|--------------|------------|
| 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 CO₂-problem.



ISOVLAS

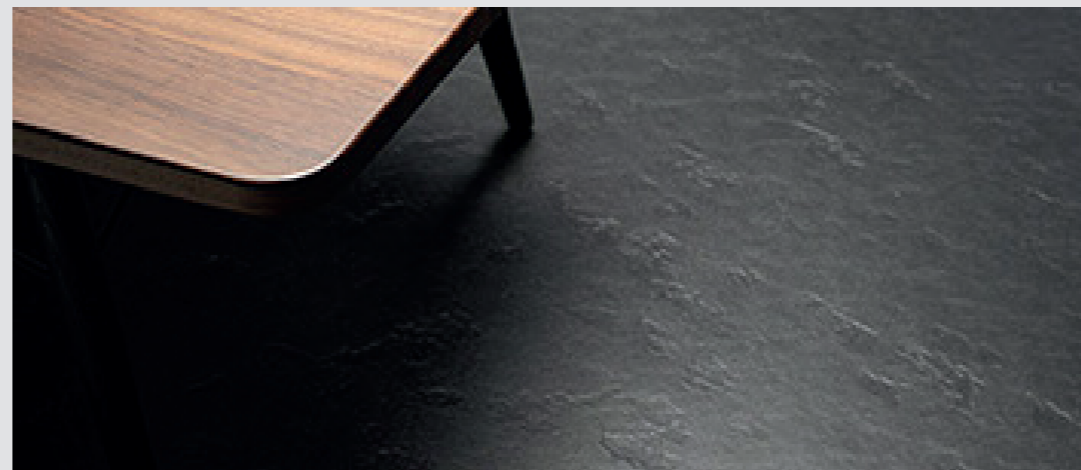
The prefab HSB elements are filled with Isovlas insulation, a biobased innovation, which is a natural product. Like wood, it stores CO₂ and it is a renewable building material.



MARMOLEUM

The floors of the studio's are made out of marmoleum. Marmoleum gives the apartments a modern look, but is a natural and CO₂-neutral floor. This floor is impact and scratch resistant.

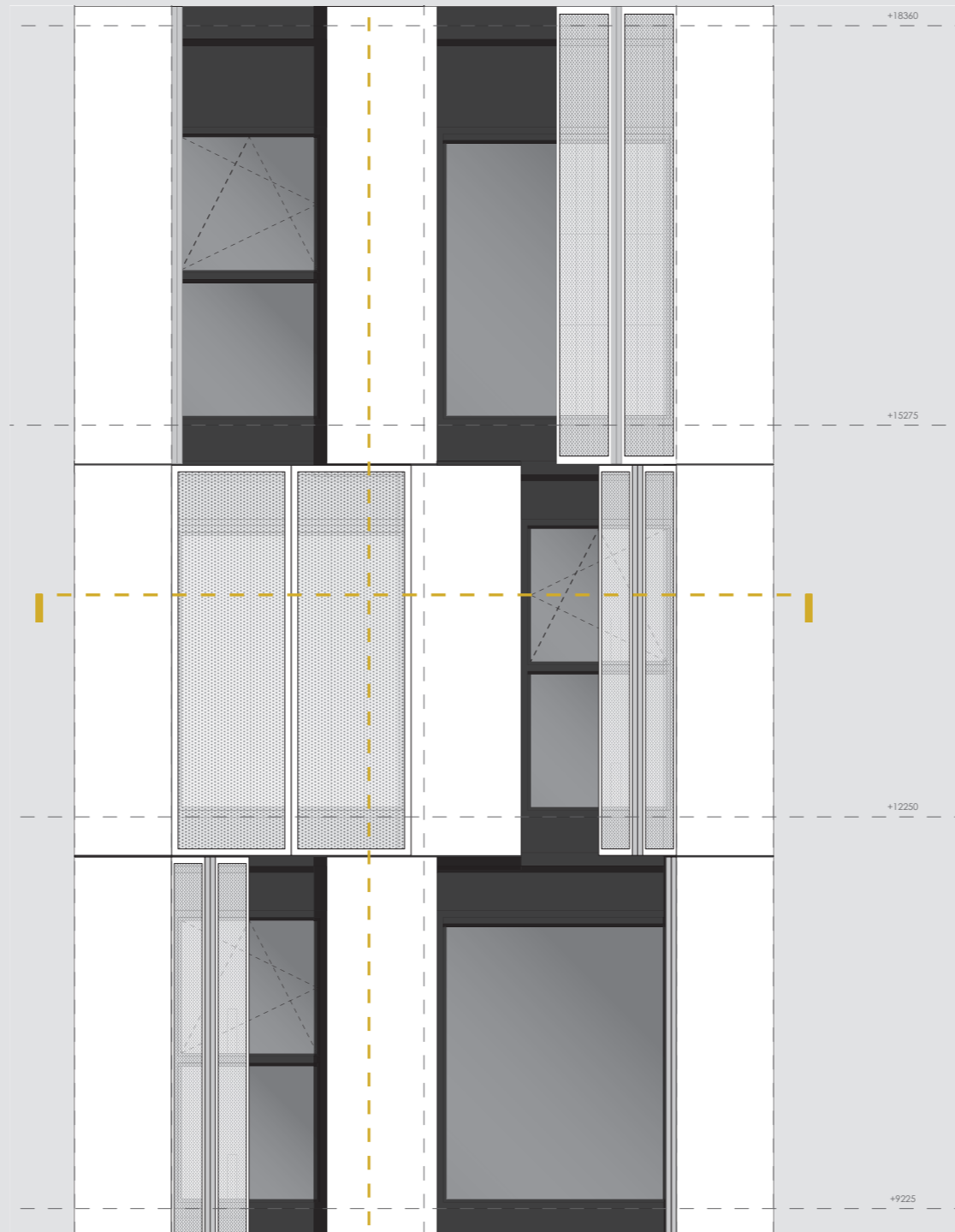
This will not damage the floor, when my user group unexpectedly drops something in the kitchen.

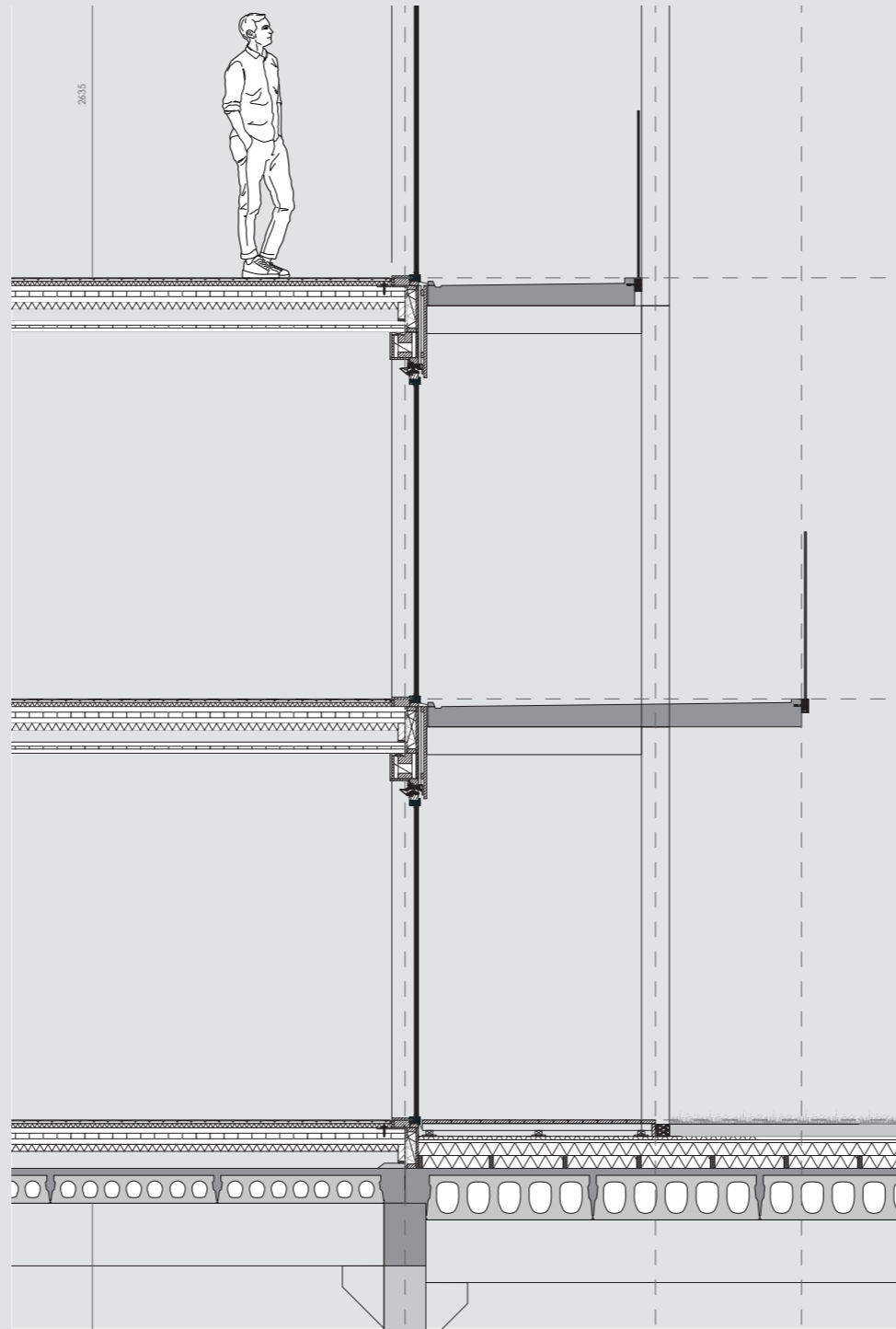


NOBELWOOD

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.



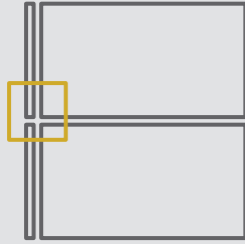






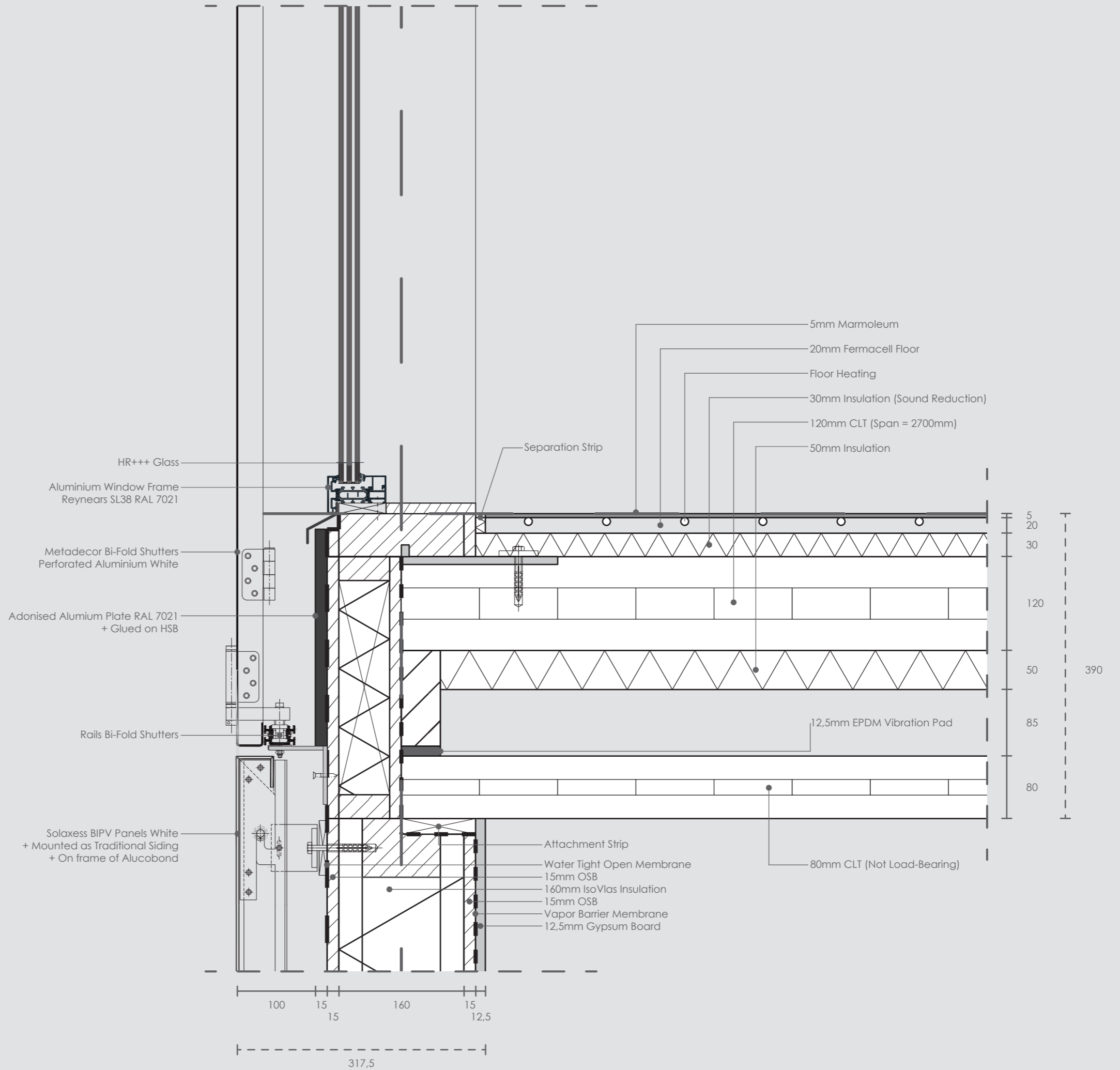
FACADE DETAIL 1:5

Exterior Facade Bottom Window Frame



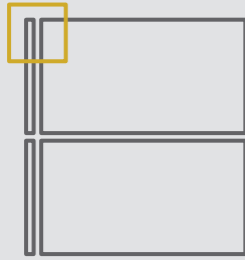
CALCULATIONS

| 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 Membrane | - | - |
| Ventilated Cassette System | - | - |
| Rse | - | 0,04 |
| OUTSIDE | - | - |
| Rc-Value | 4,7 m2K/W | |



ROOF DETAIL 1:5

Intersection Facade w/ Roof



CALCULATIONS

| INSIDE | λ | 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 | |

Solaxess BIPV Panels White
+ Mounted as Traditional Siding
+ On frame of Alucobond

