



The NUM bar

Together alone.

Advanced Housing Design Graduation Studio
M4H for modern households // Rotterdam

1. Design location

2. Research topic

2.1 Solo-dwellers

2.2 Co-living design strategy

3. Design

1. Design location

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2.1 Solo-dwellers

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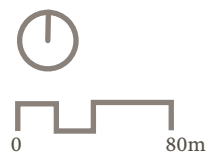
Merwe-vierhavens in Rotterdam



Merwehaven in Rotterdam



Masterplan



Masterplan



1. Design location

2. Research topic

2.1 Solo-dwellers

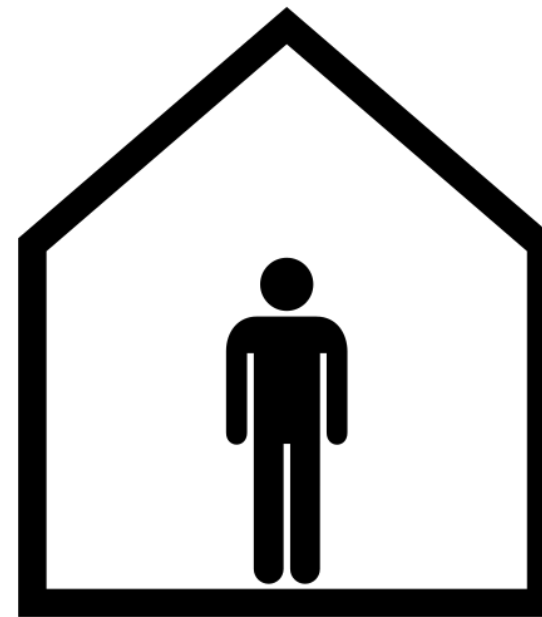
2.2 Co-living design strategy

3. Design

How can co-living design strategies meet the changing needs of the solo-dwellers, both within the collective and private domain of a building?

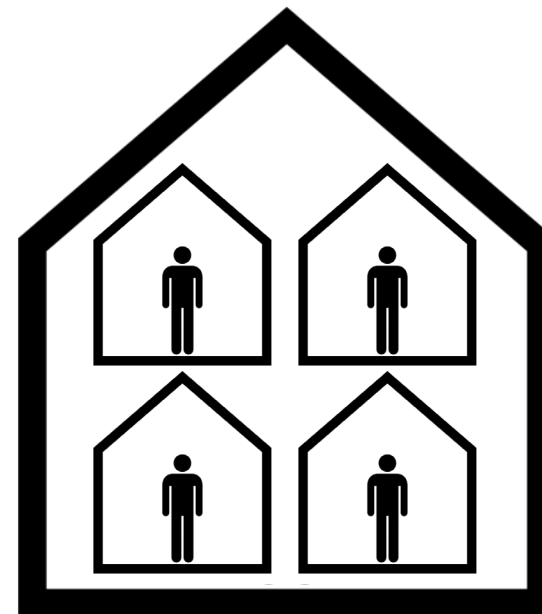
Definition of a solo-dweller

The solo-dweller is someone who lives alone and does not share their dwelling with anyone else (Klinenberg, 2012, p.10).



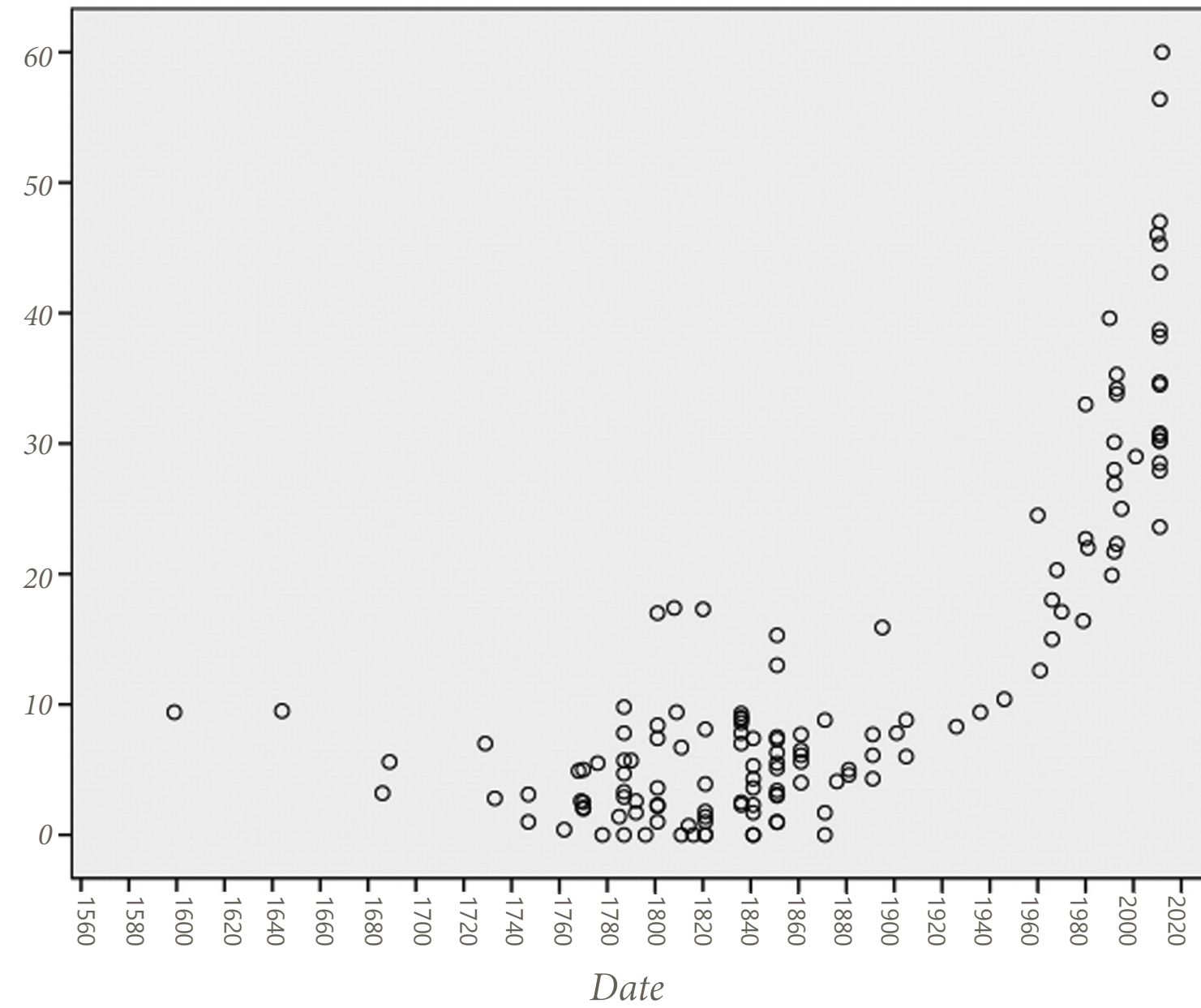
Definition of co-living

Co-living is the practice of living with other people in a group of homes that include some shared facilities.



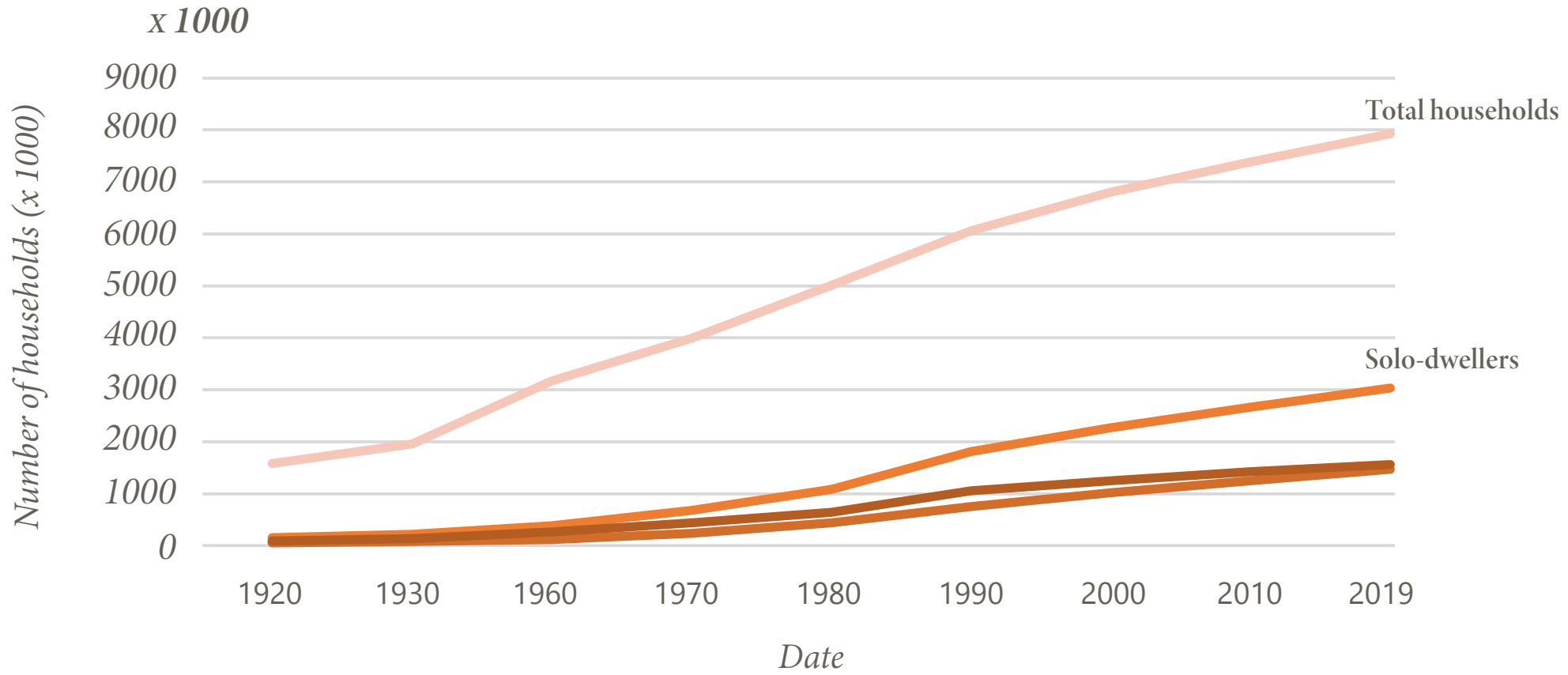
Rising number of solo-dwellers

Solo-dwellers as % of households

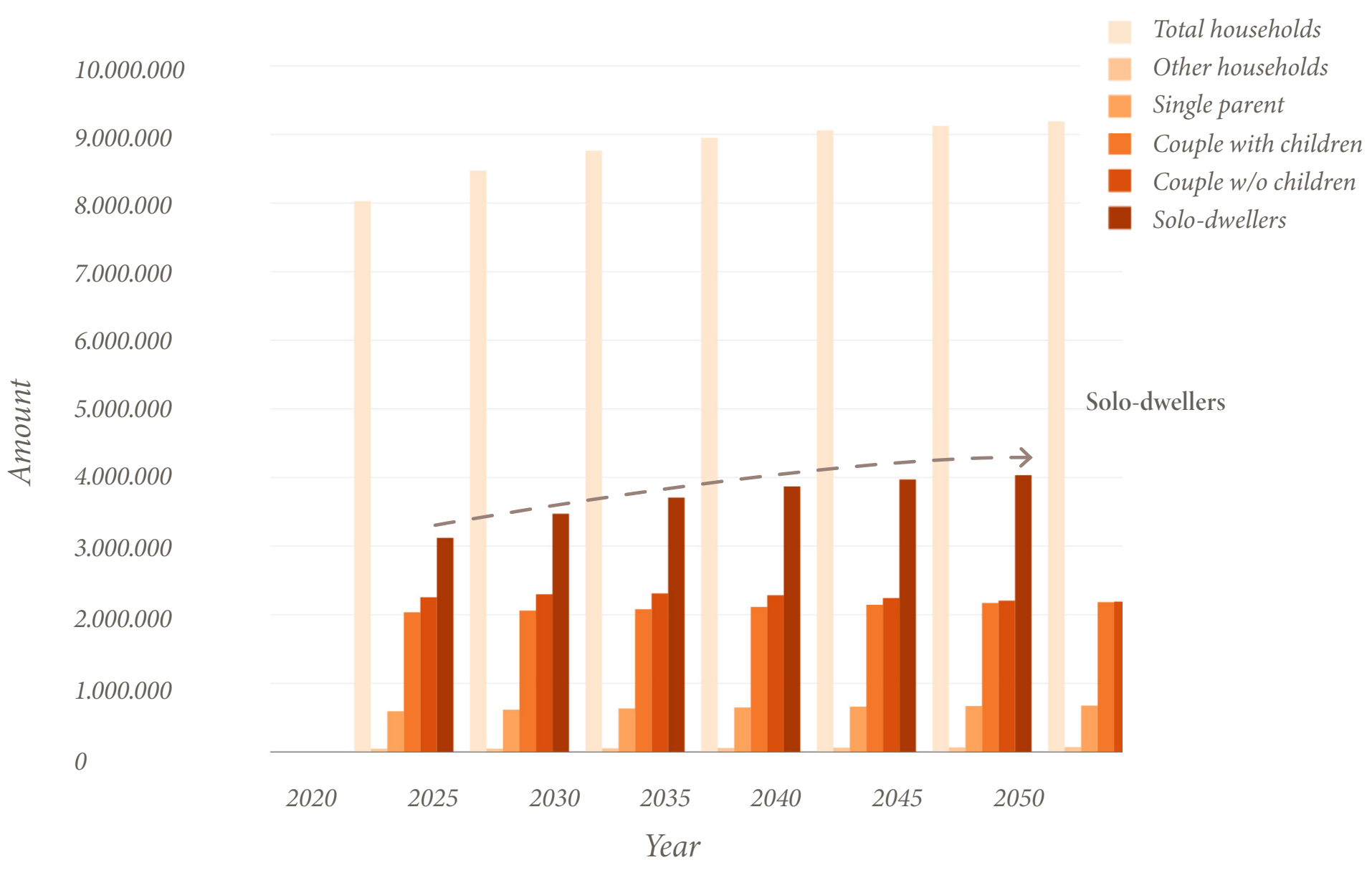


The development of the Solo-dwellers in Europe, North America, Japan, and Britain since 1560 (Snell, 2017).

Rising number of solo-dwellers

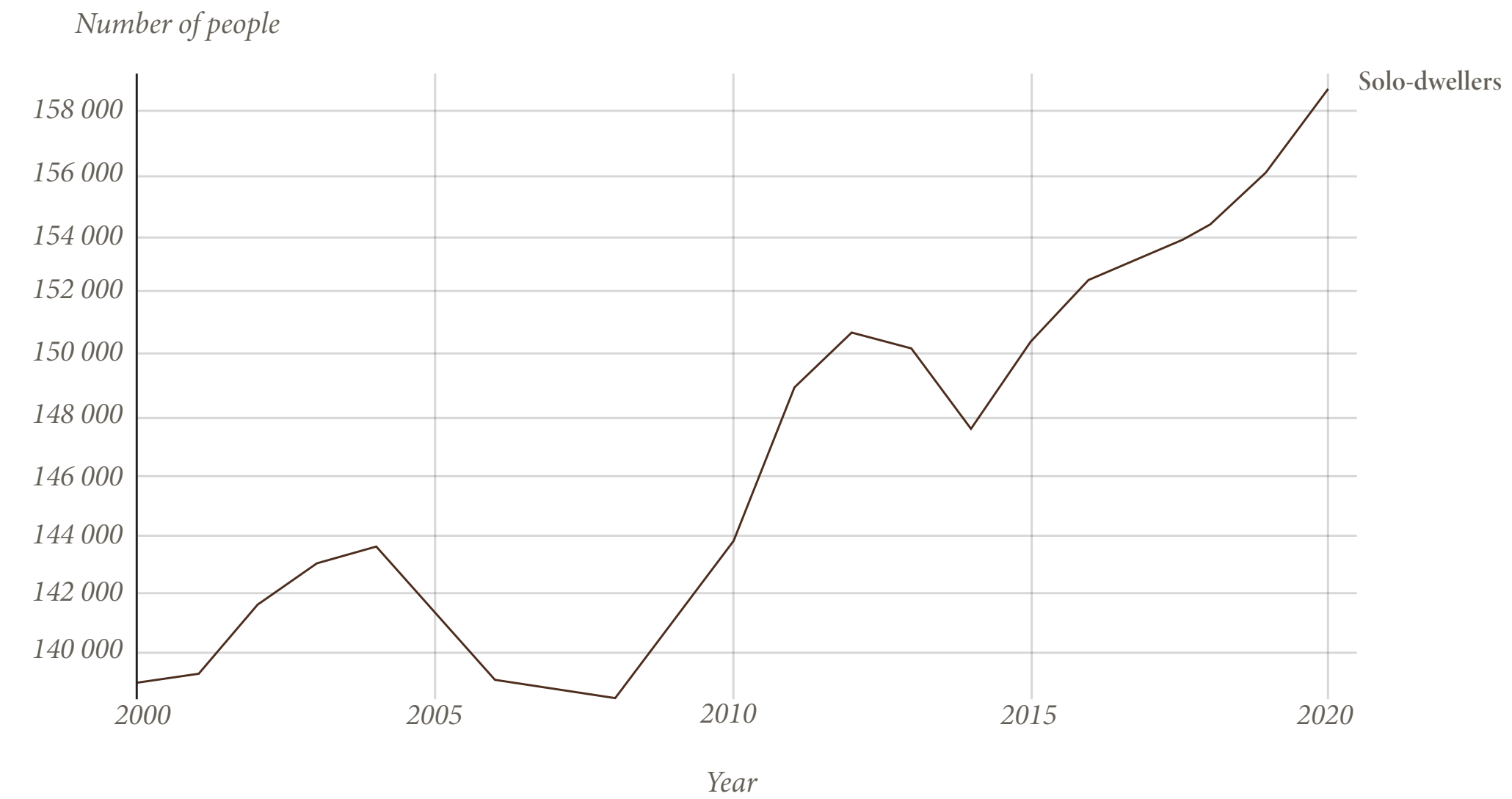


The development of the Solo-dwellers in the Netherlands. Illustration by author based on information from CBS (2021).



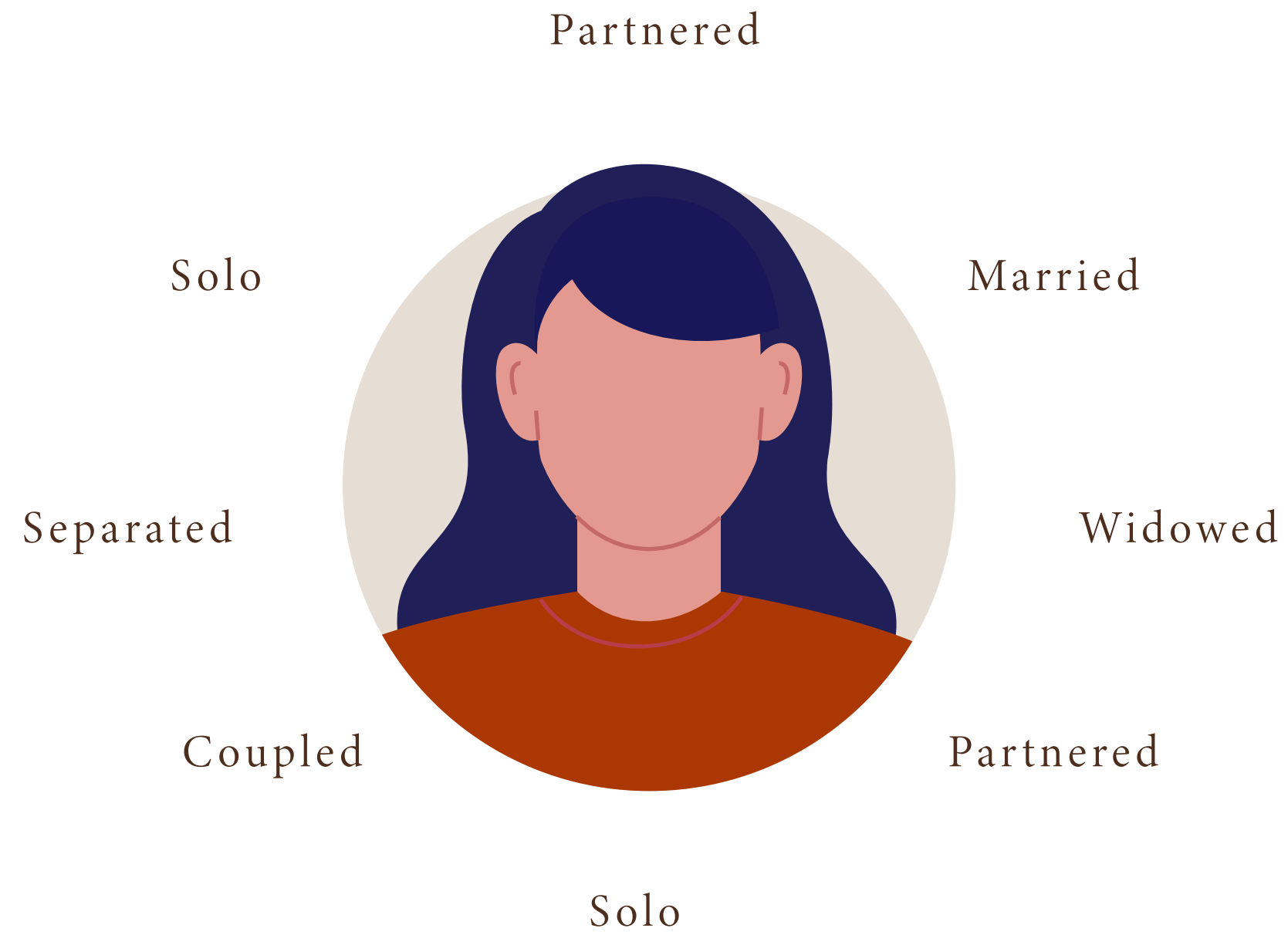
Household developments in the Netherlands (CBS, 2020).

Rising number of solo-dwellers



Total rising number of Solo-dwellers since 2000 in Rotterdam. Illustration by author based on information from CBS (2020).

The solo-dweller and their changing social, marital, and living arrangements.



1. Design location

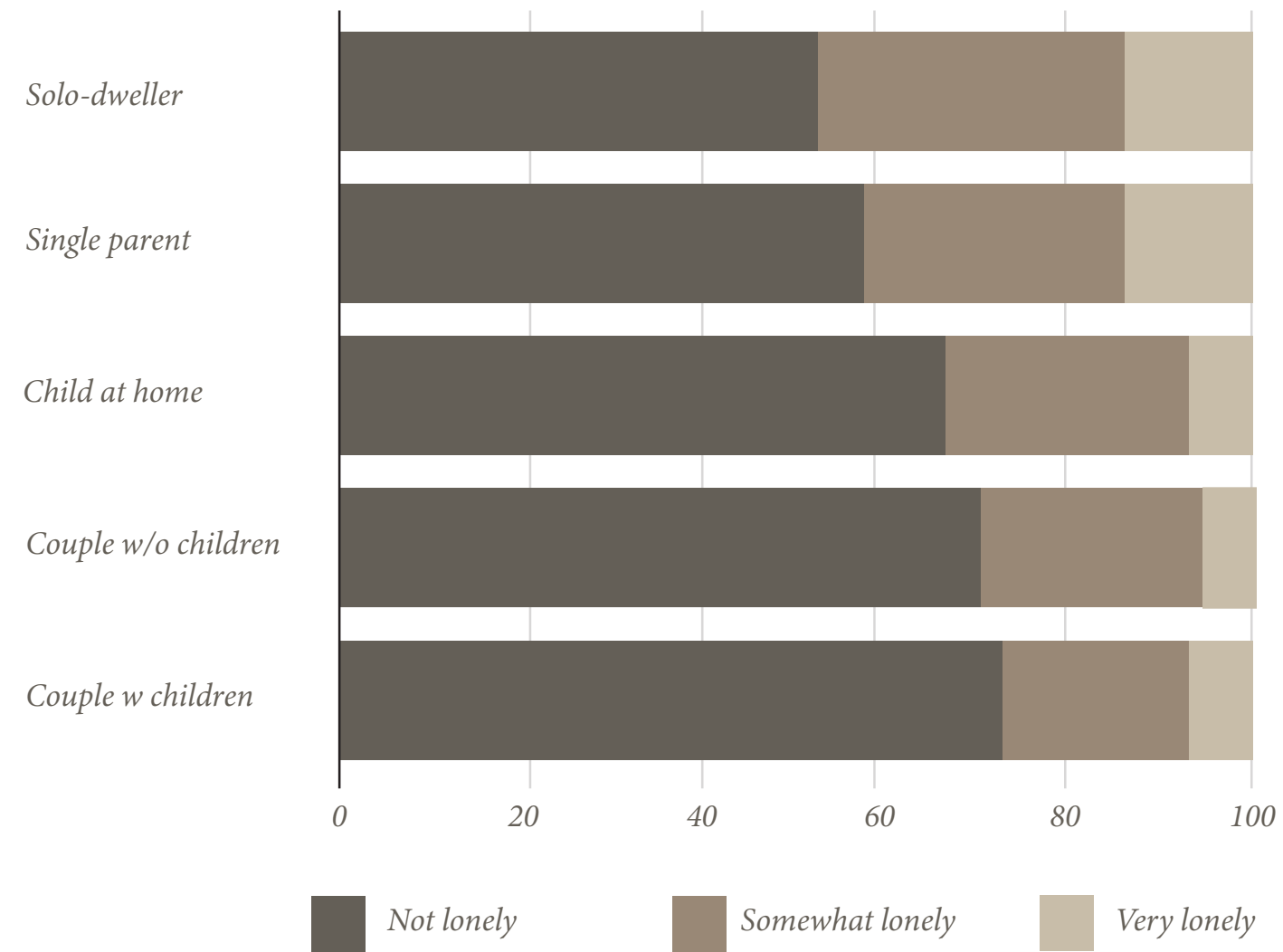
2. Research topic

2.1 Solo-dwellers

2.2 Co-living design strategy

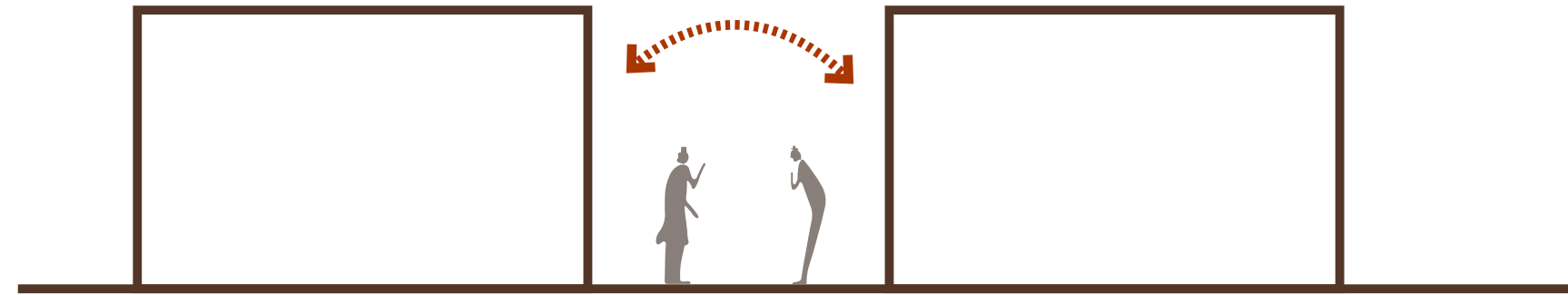
3. Design

Loneliness on the rise among the solo-dwellers



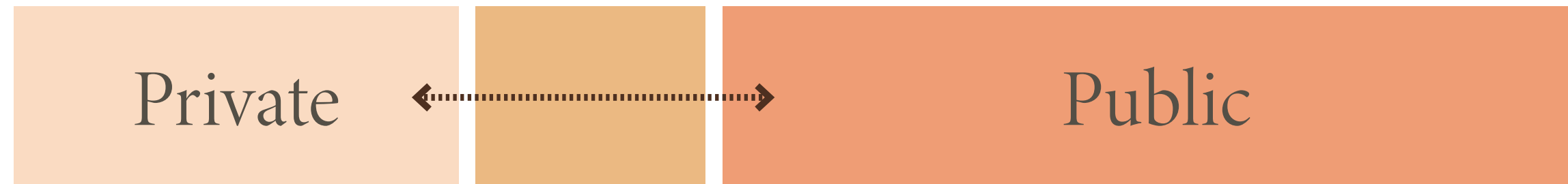
Loneliness among different household types in the Netherlands. Illustration by author based on information from CBS (2019).

Design strategy



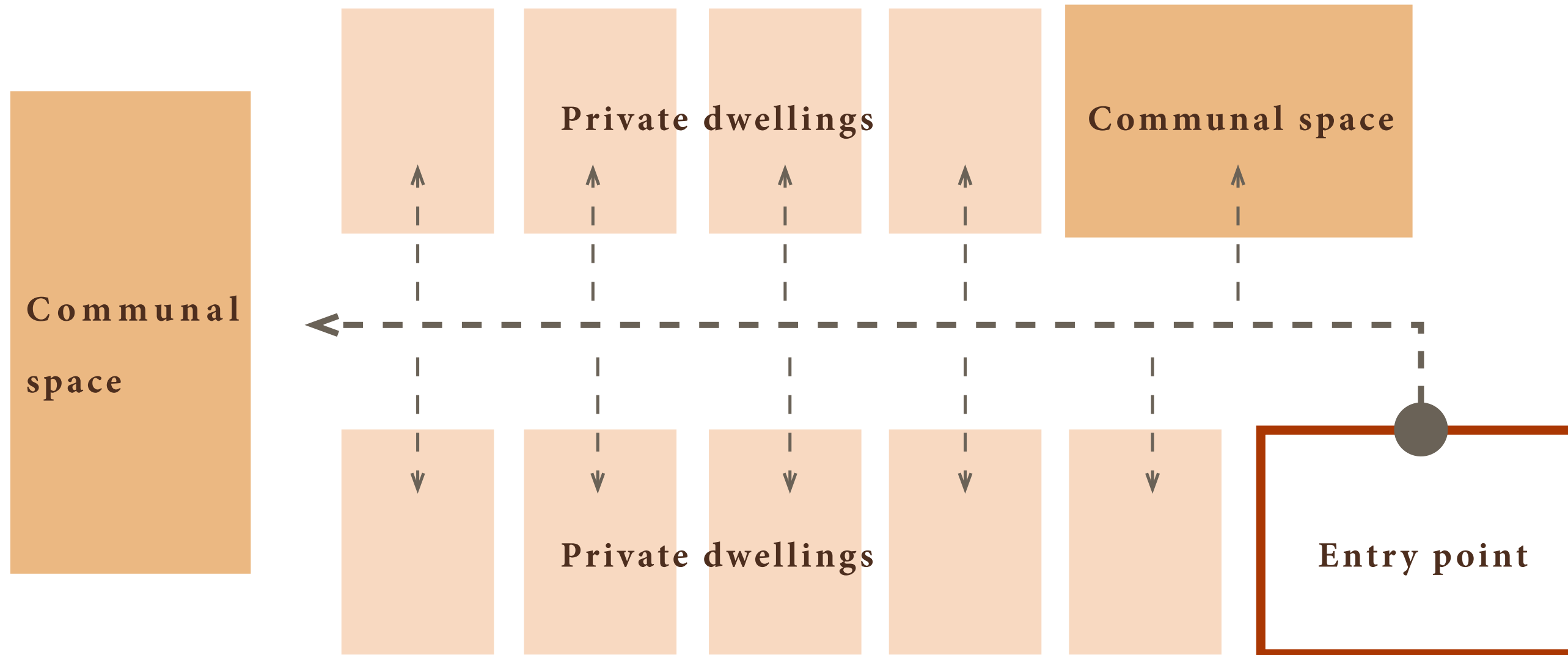
Proximity between residents help to form social relations

Design strategy



Using buffer space between the private and public domain

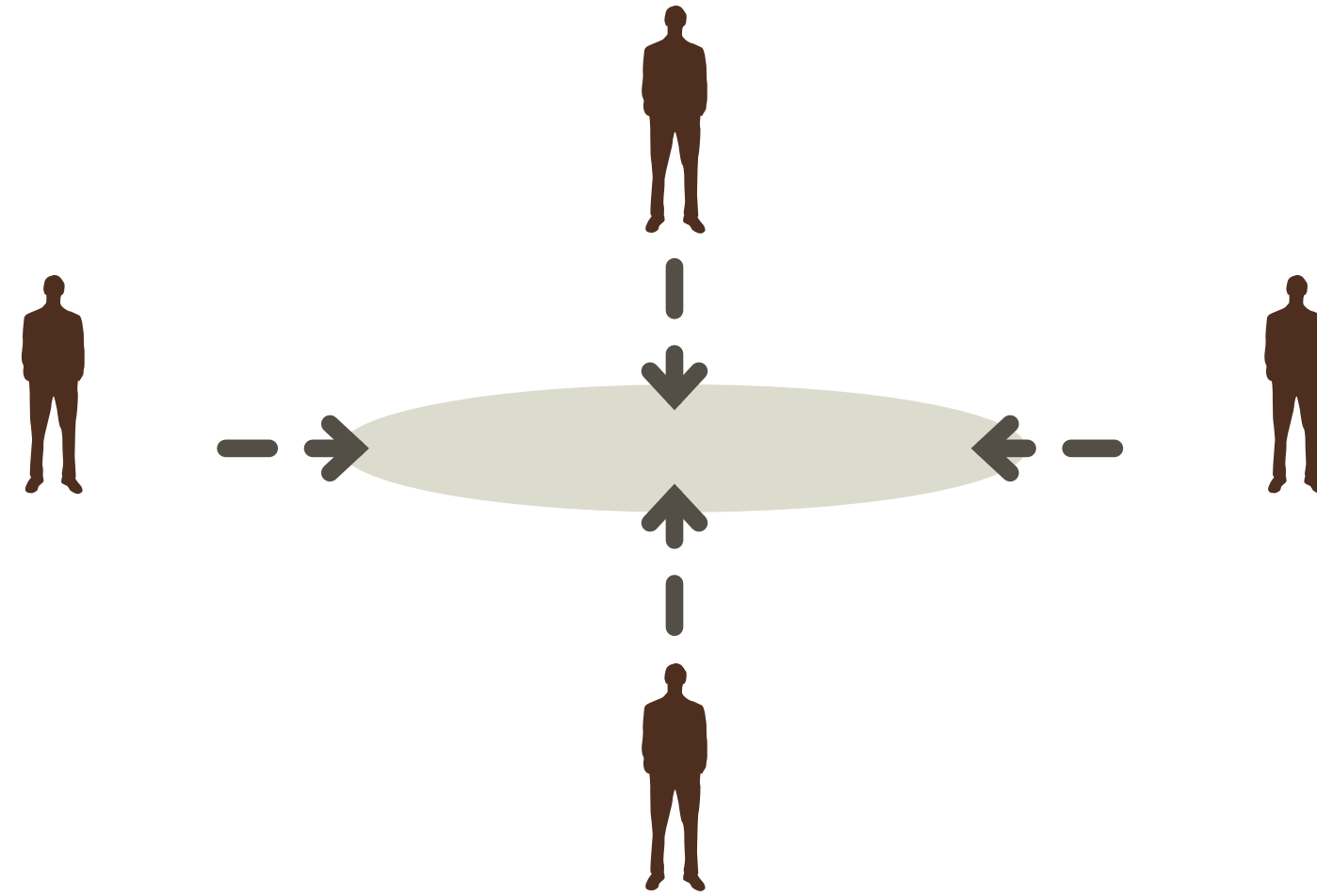
Design strategy



- Private dwelling
- Communal space for clusters
- Circulation space

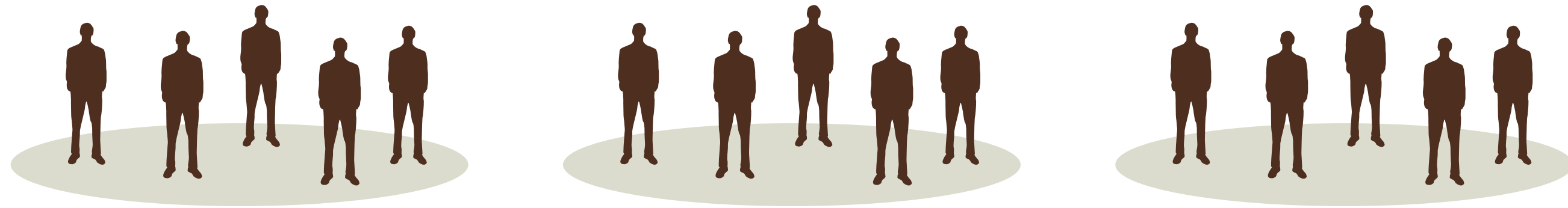
The routing towards the dwellings have to pass or cross a communal space.

Design strategy



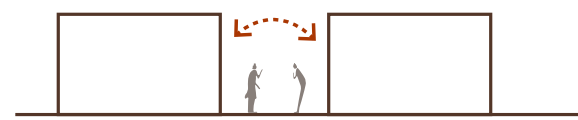
The communal space should have equal accessibility

Design strategy



Clustering the dwellings to create smaller communities to maximize the use of communal spaces

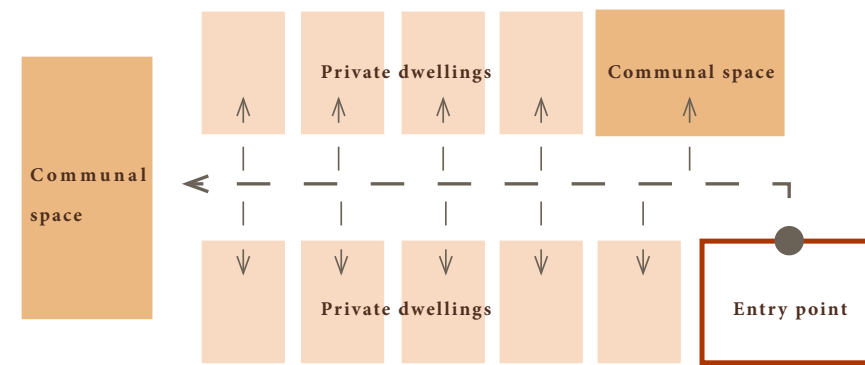
Design strategy



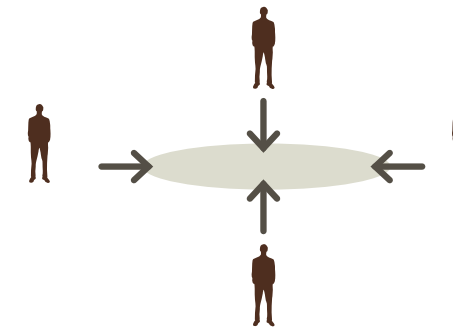
Proximity between residents help to form social relations



Using buffer space between the private and public domain



The routing towards the dwellings have to pass or cross a communal space.



The communal space should have equal accessibility



Clustering the dwellings to create smaller communities to maximize the use of communal spaces

1. Design location

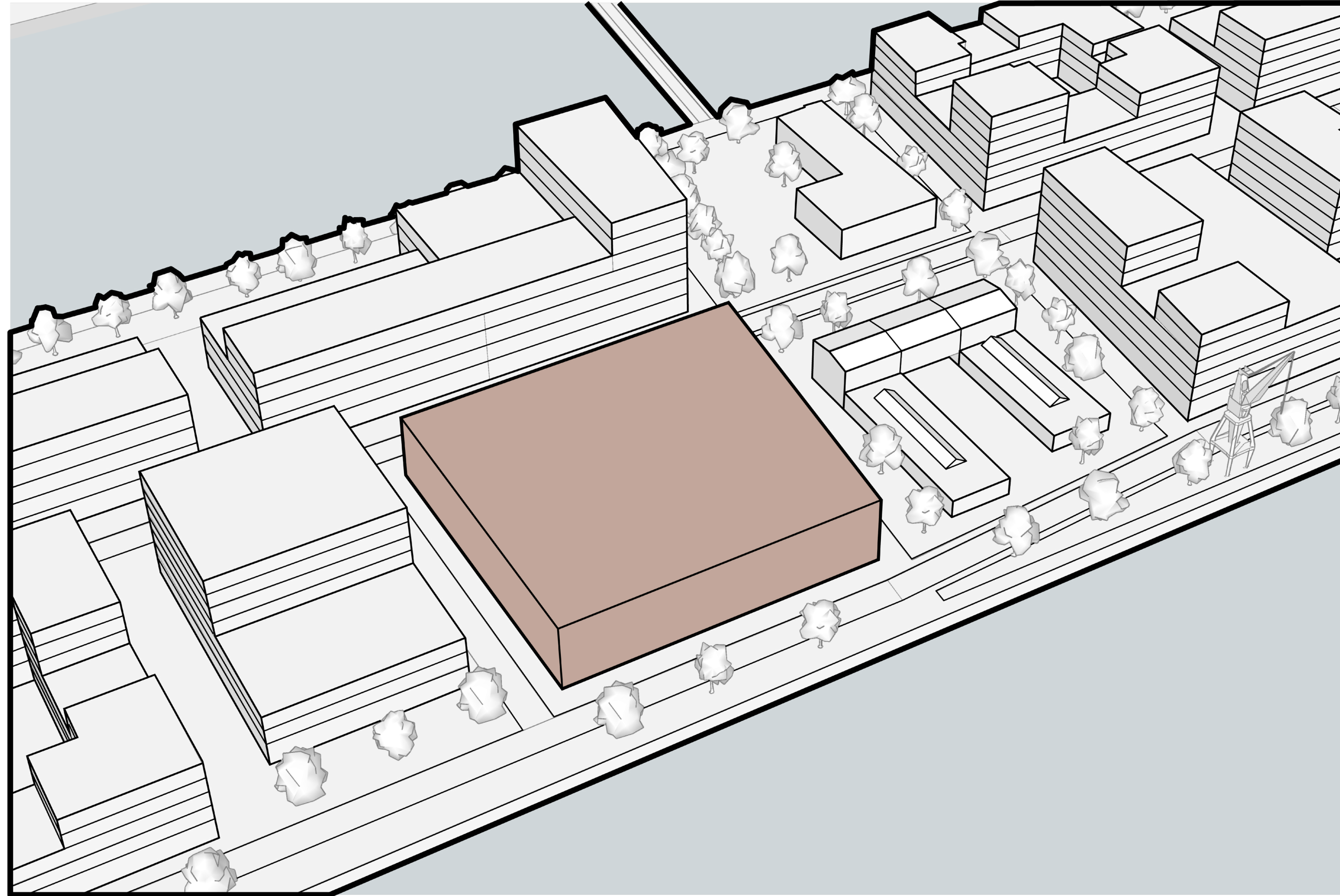
2. Research topic

2.1 Solo-dwellers

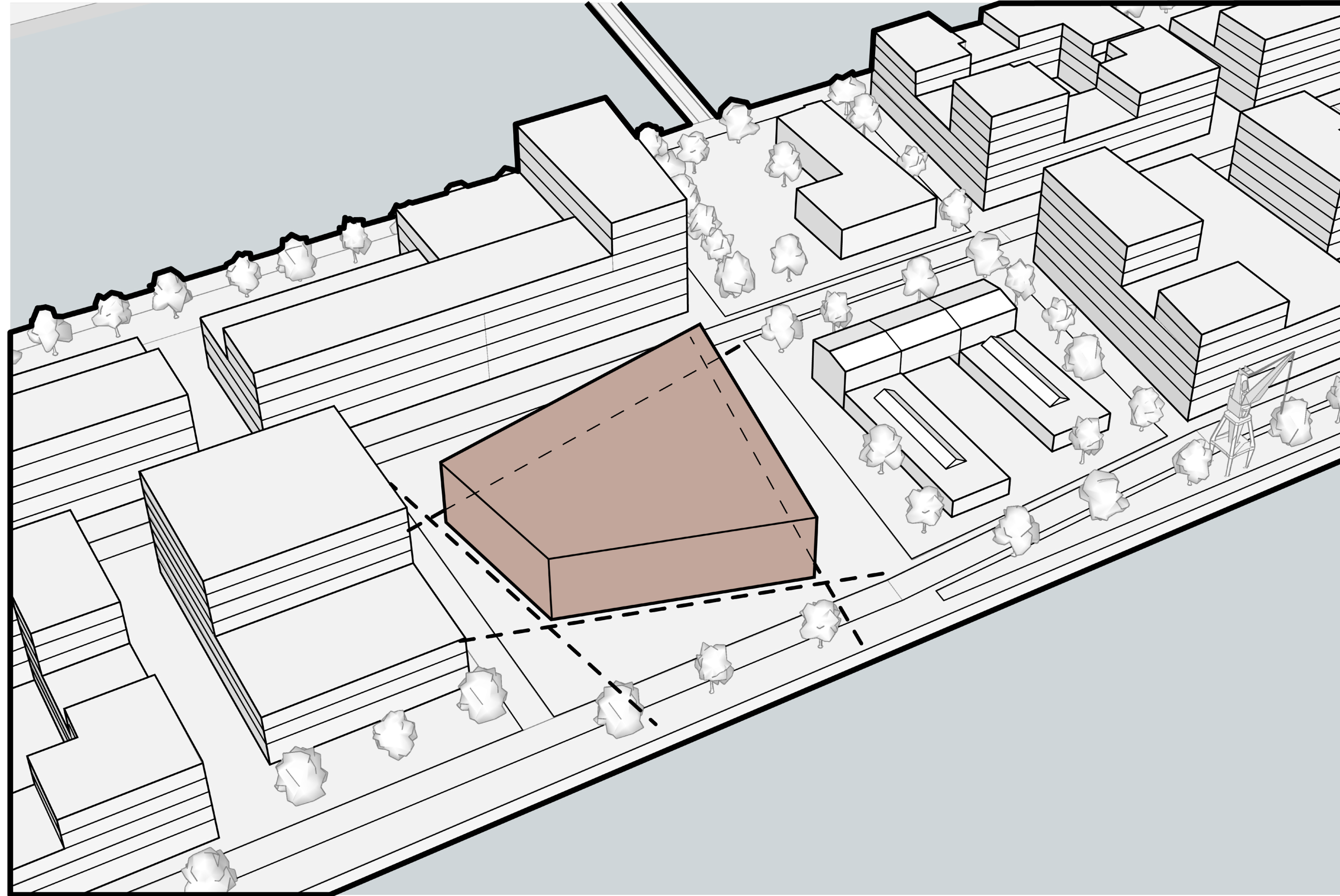
2.2 Co-living design strategy

3. Design

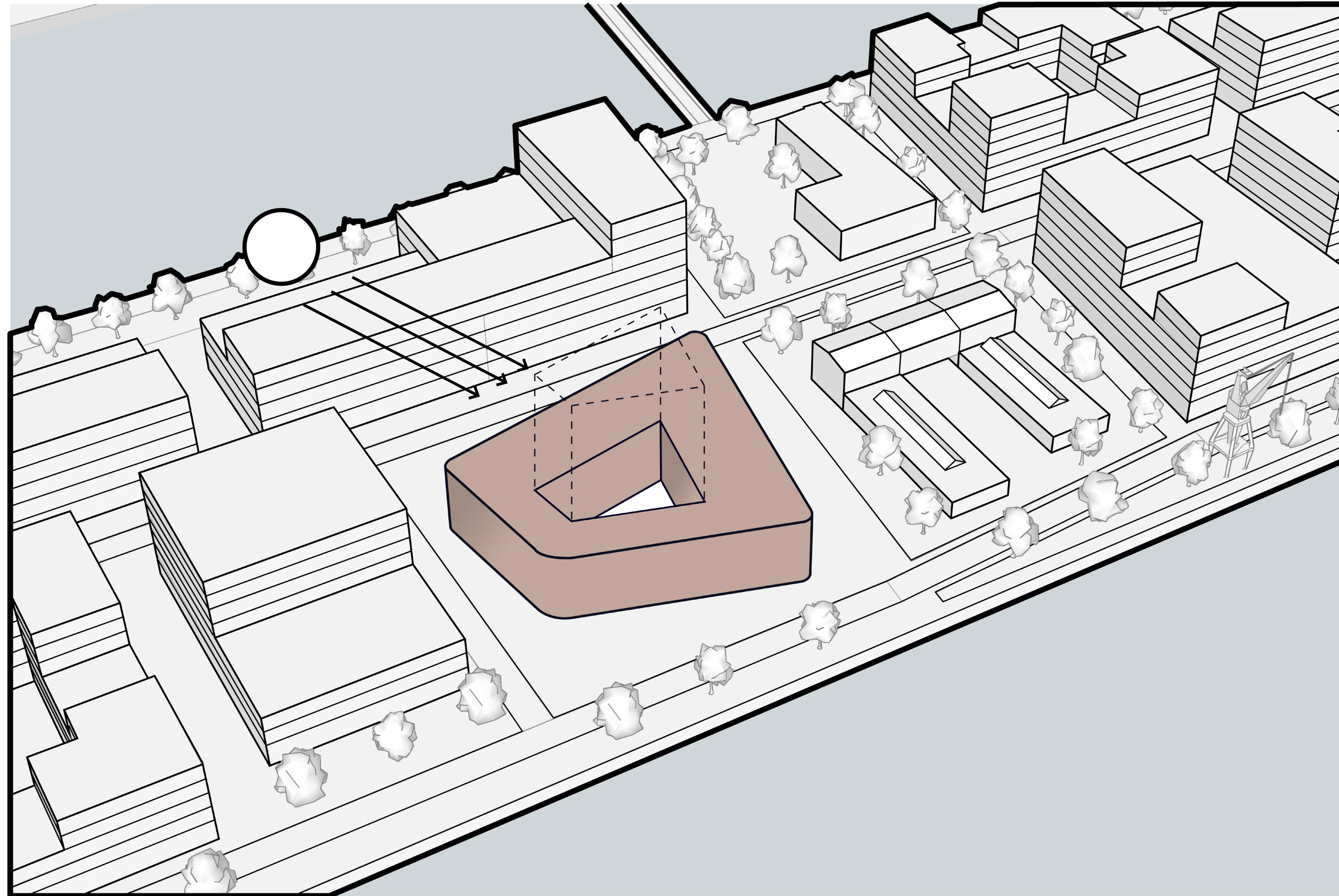
Design concept



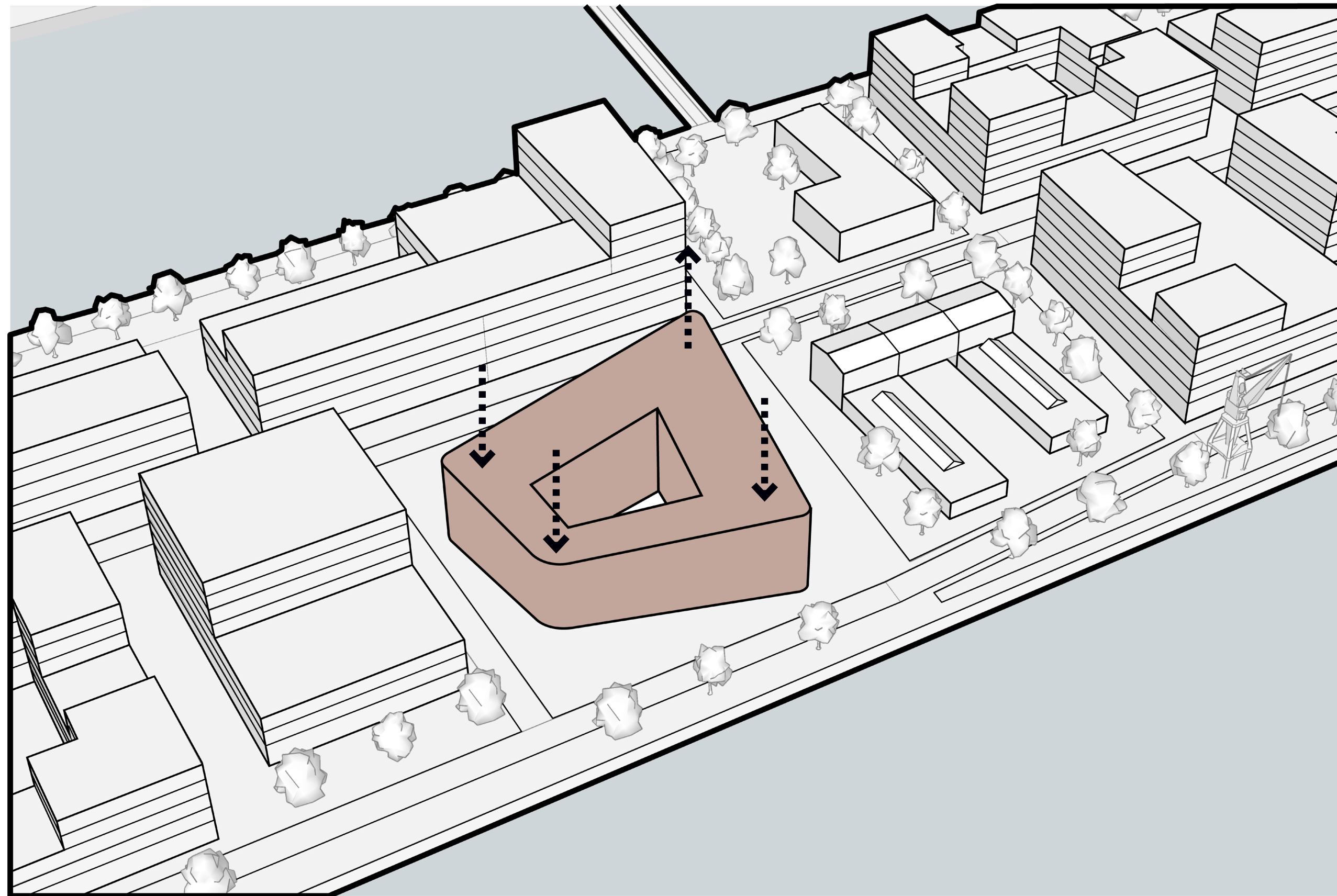
Design concept



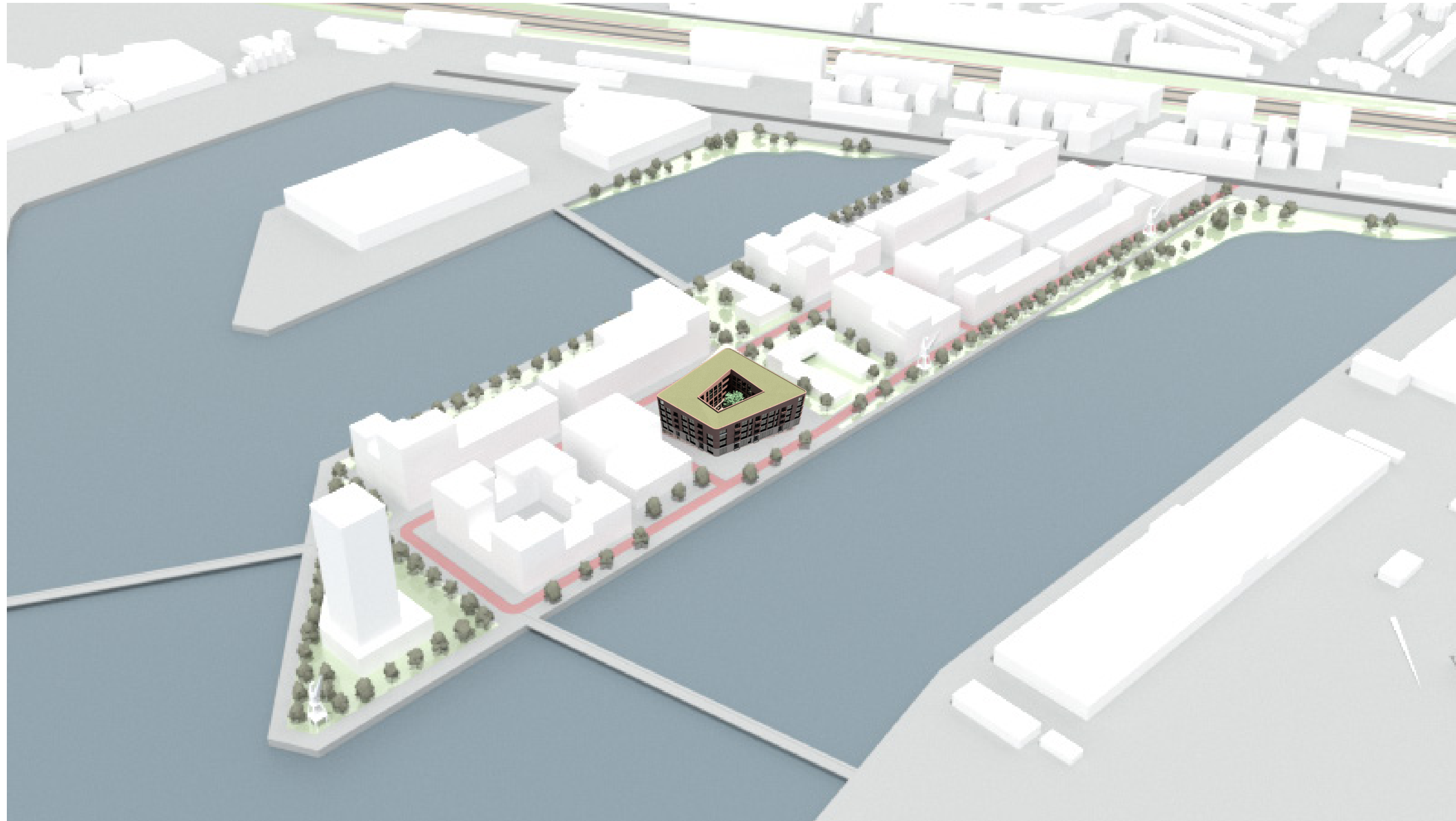
Design concept



Design concept



Context



Meet the solo-dwellers!



Sophia is a Functional adventurer

- Spends most of her time outside
- Prefers the urban environment
- Close to the active center
- Budget-conscious individual with a limited capital
- Prefers to pay for specific experiences
- Smaller dwelling
- No demands on dwelling layout



Noah is a Solid homebody

- Spends most of his time inside
- Prefers the suburban area
- Space for their stuff and guests
- Extra office space
- Larger dwelling
- Needs a private outdoor space



Alex is in a LAT relationship

- Couples living apart together (LAT) have an intimate relationship but live at separate addresses
- Individual wants to keep their freedom and privacy
- May have a guest or be absent for a few days a week
- Needs extra space for a guest



“Friends”

- Two-income household
- Two separate bedrooms
- Shares tasks and responsibilities
- Needs a shared outdoor space
- Dwelling should allow communal activities as well as assure individual privacy.

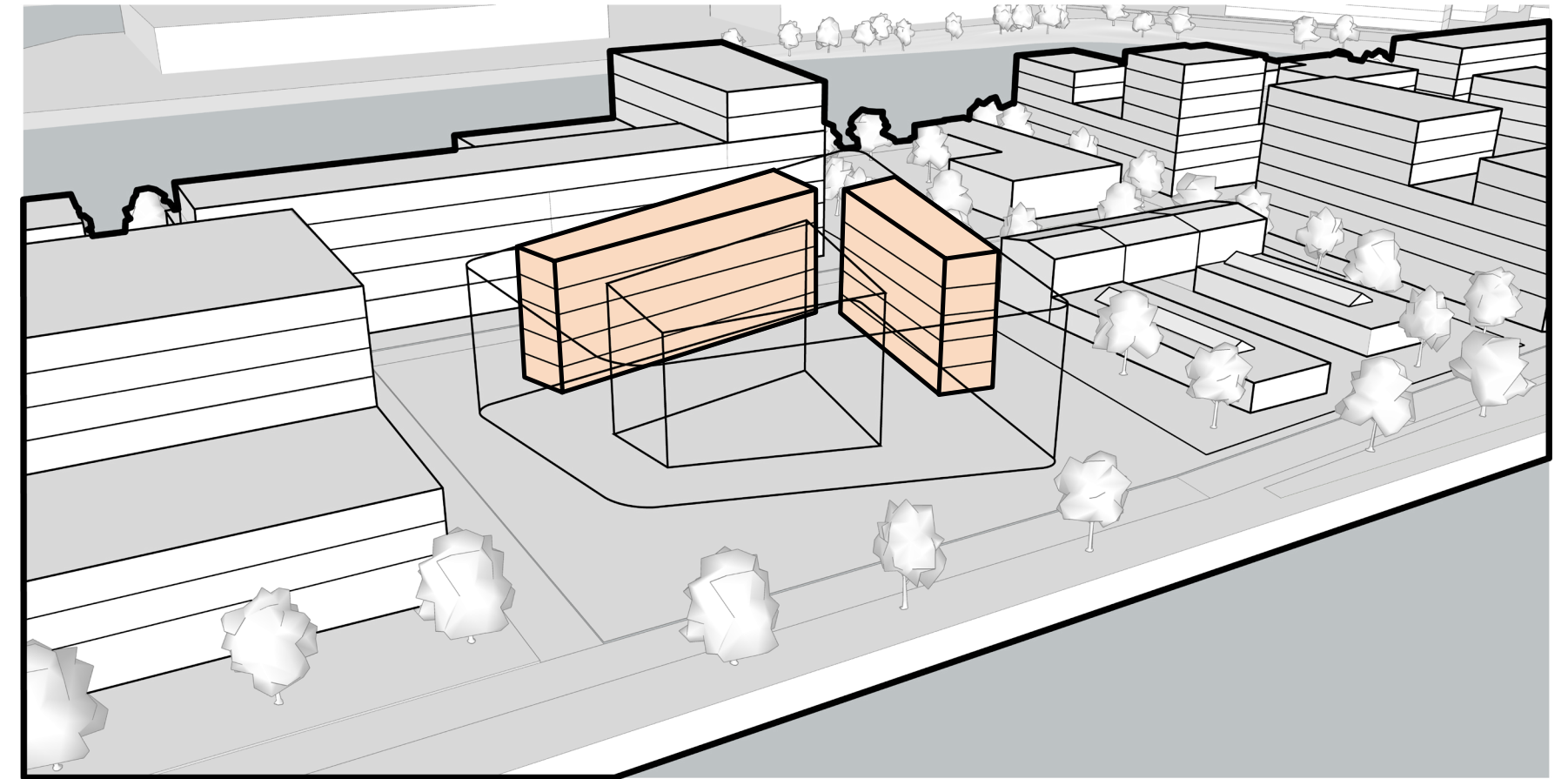
Functional adventurer

23m²



Sophia

- Spends most of her time outside
- Prefers the urban environment
- Close to the active center
- Budget-conscious individual with a limited capital
- Prefers to pay for specific experiences
- Smaller dwelling
- No demands on dwelling layout

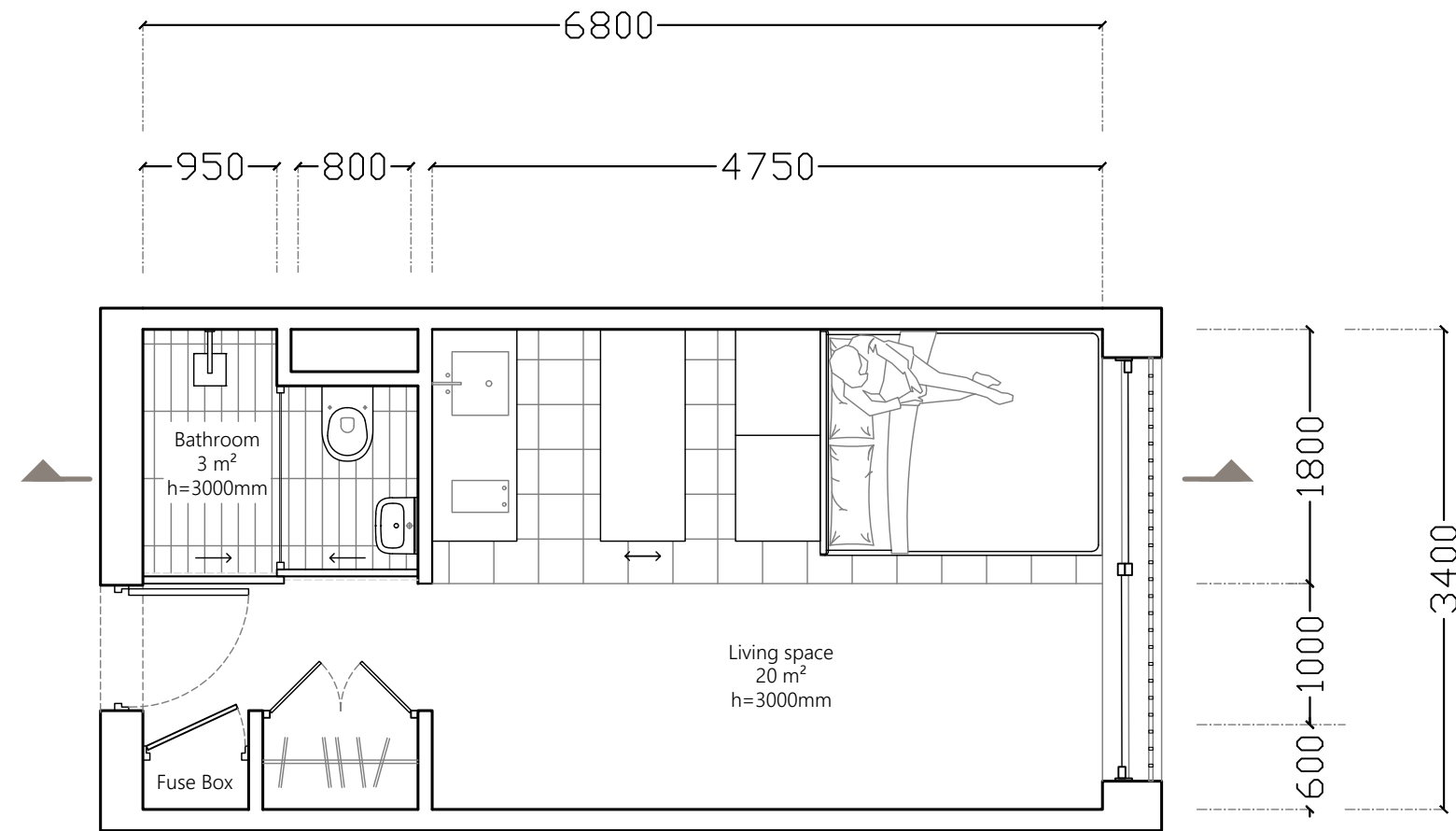
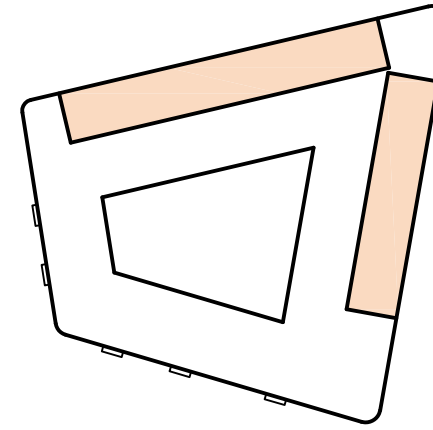


Functional adventurer

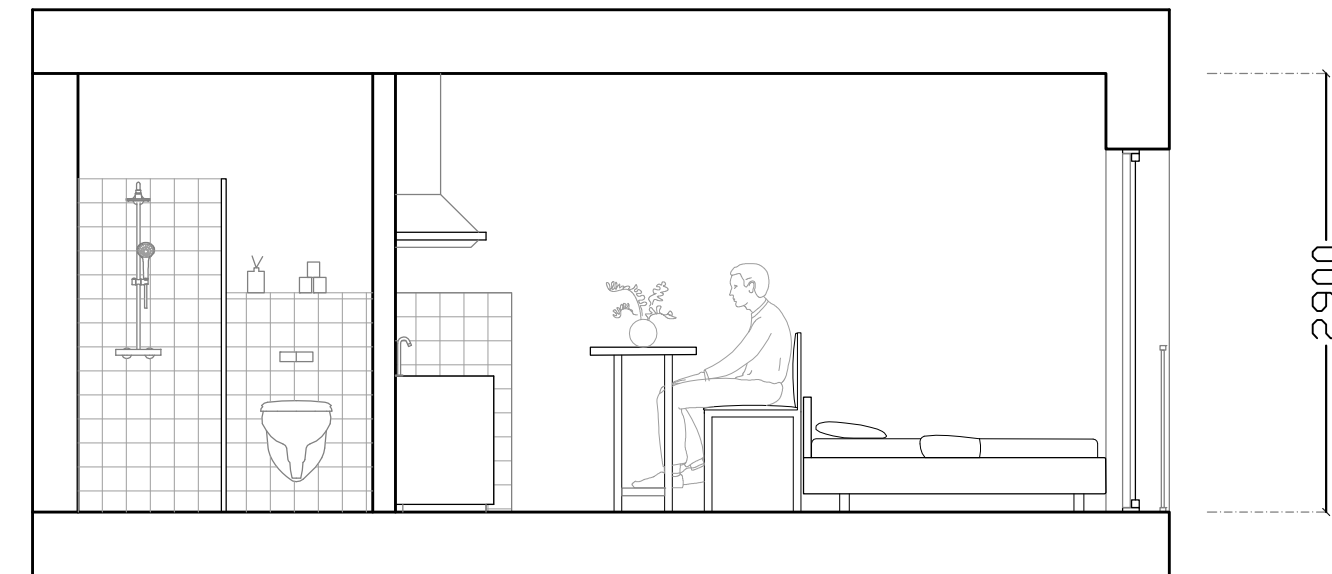
- 23m²
- In total there are 76 dwellings of this type
- This type makes up 70% of the total dwellings in the building.

Functional adventurer

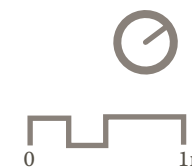
23m²



Dwelling floorplan



Dwelling section



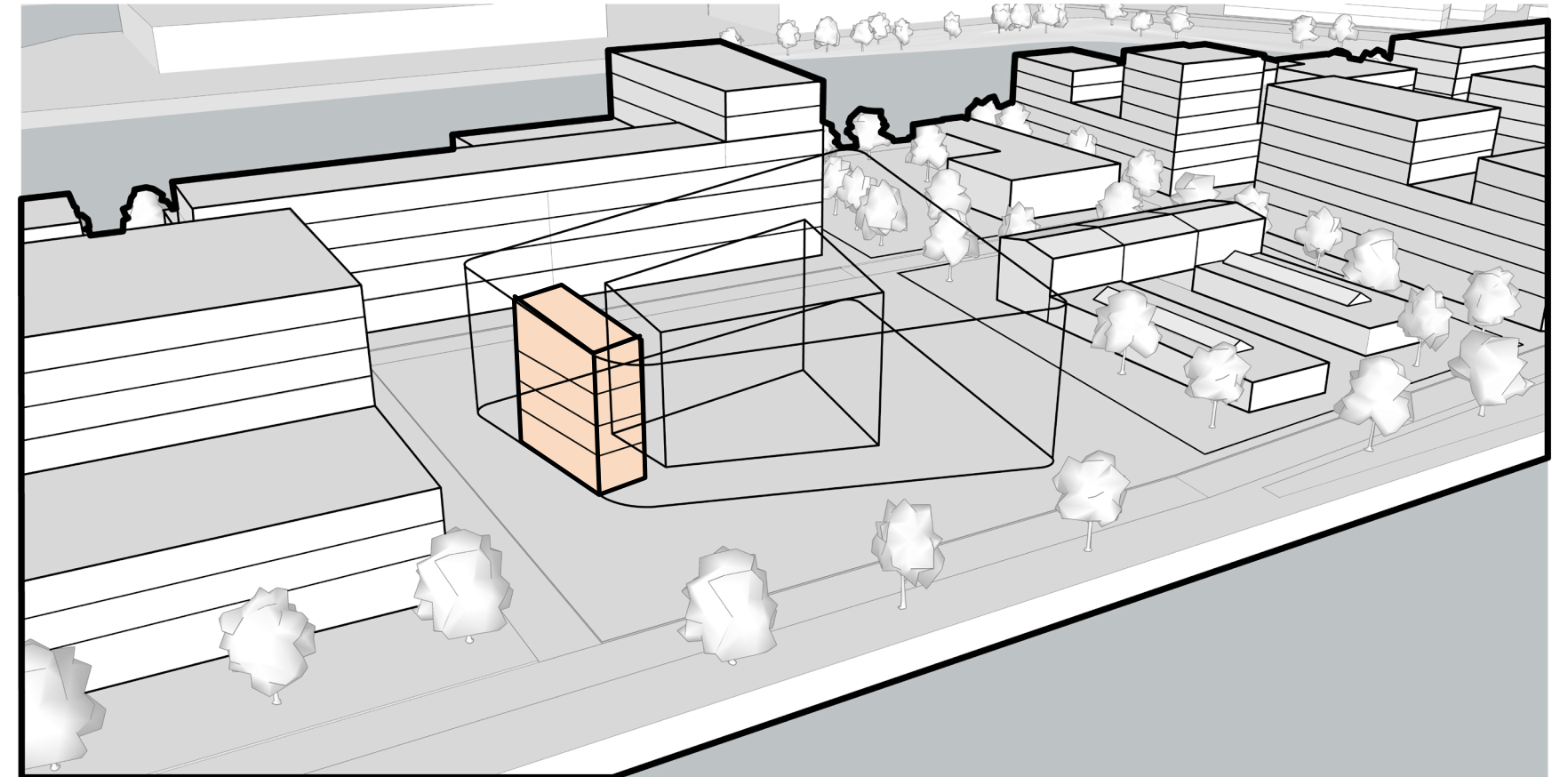
Solid homebody

44m²



Noah

- Spends most of his time inside
- Prefers the suburban area
- Space for their stuff and guests
- Extra office space
- Larger dwelling
- Needs a private outdoor space

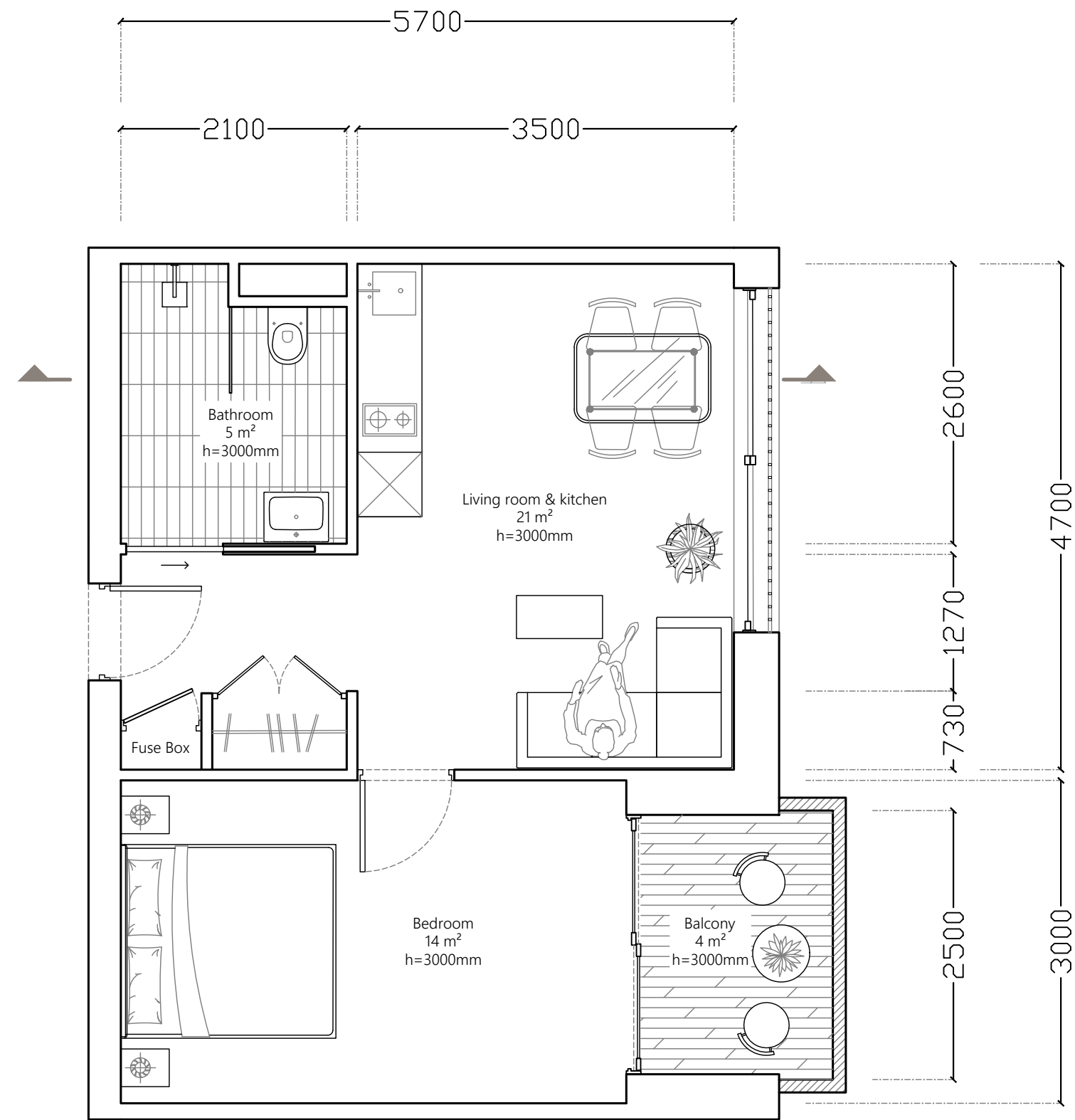


Solid homebody

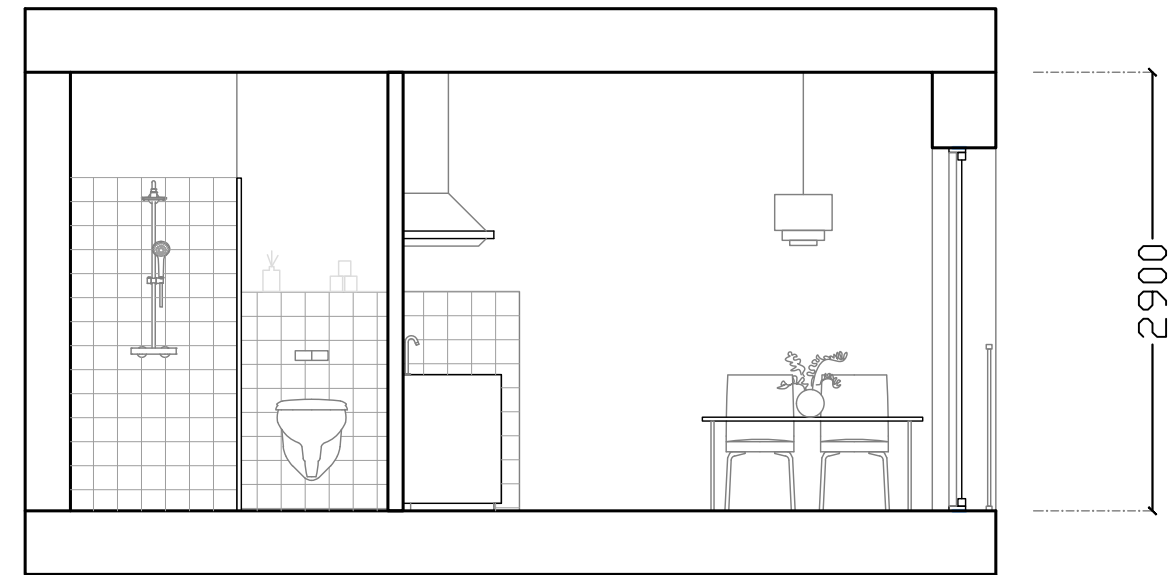
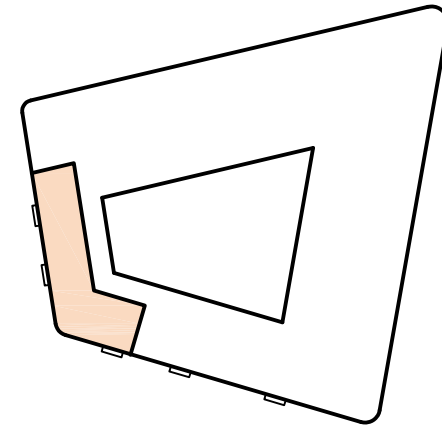
- 44m²
- In total there are 7 dwellings of this type
- This type makes up 6% of the total dwellings in the building.

Solid homebody

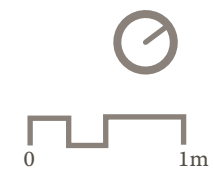
44m²



Dwelling floorplan



Dwelling section



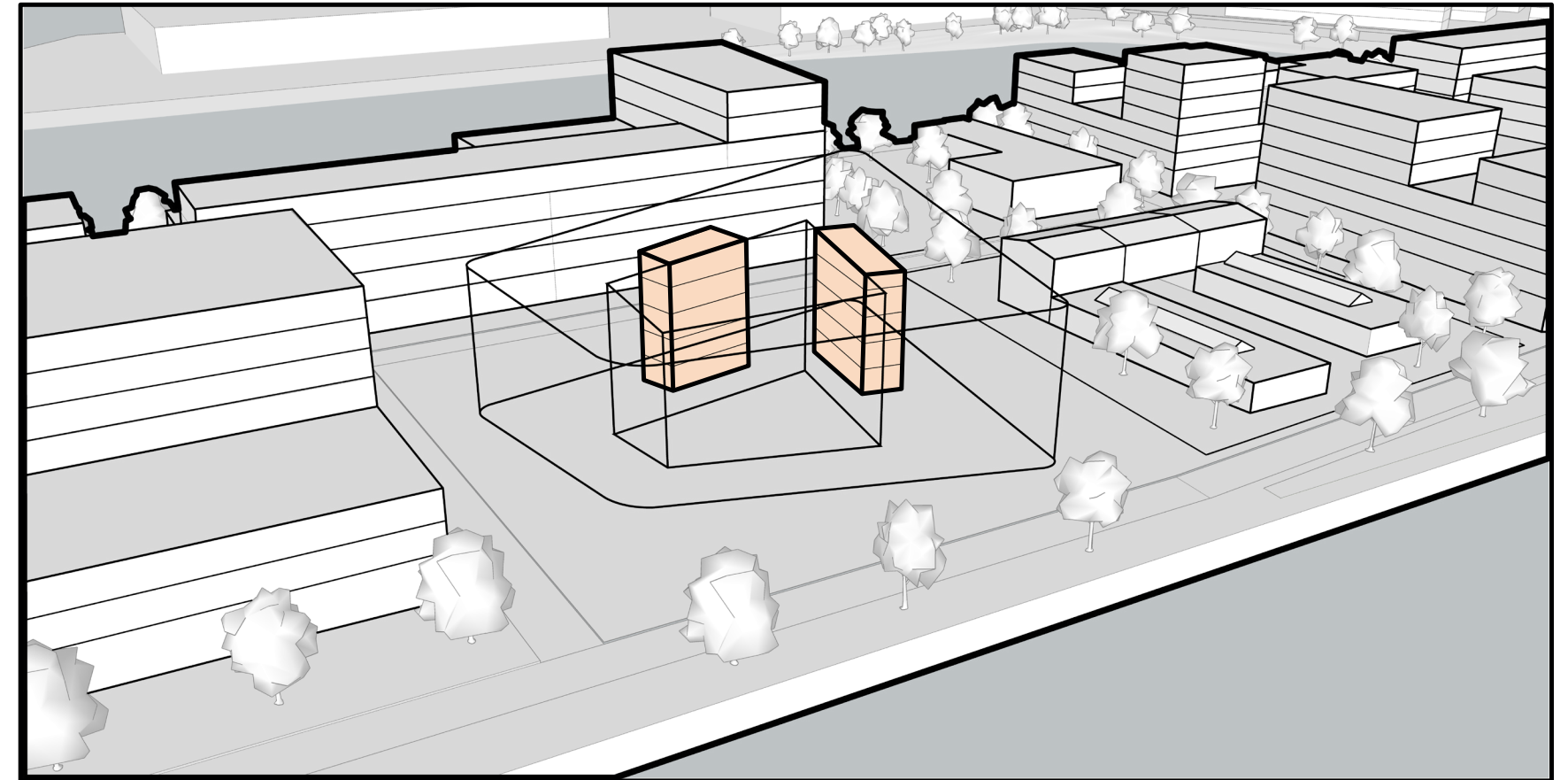
LAT relationship

26m²



Alex

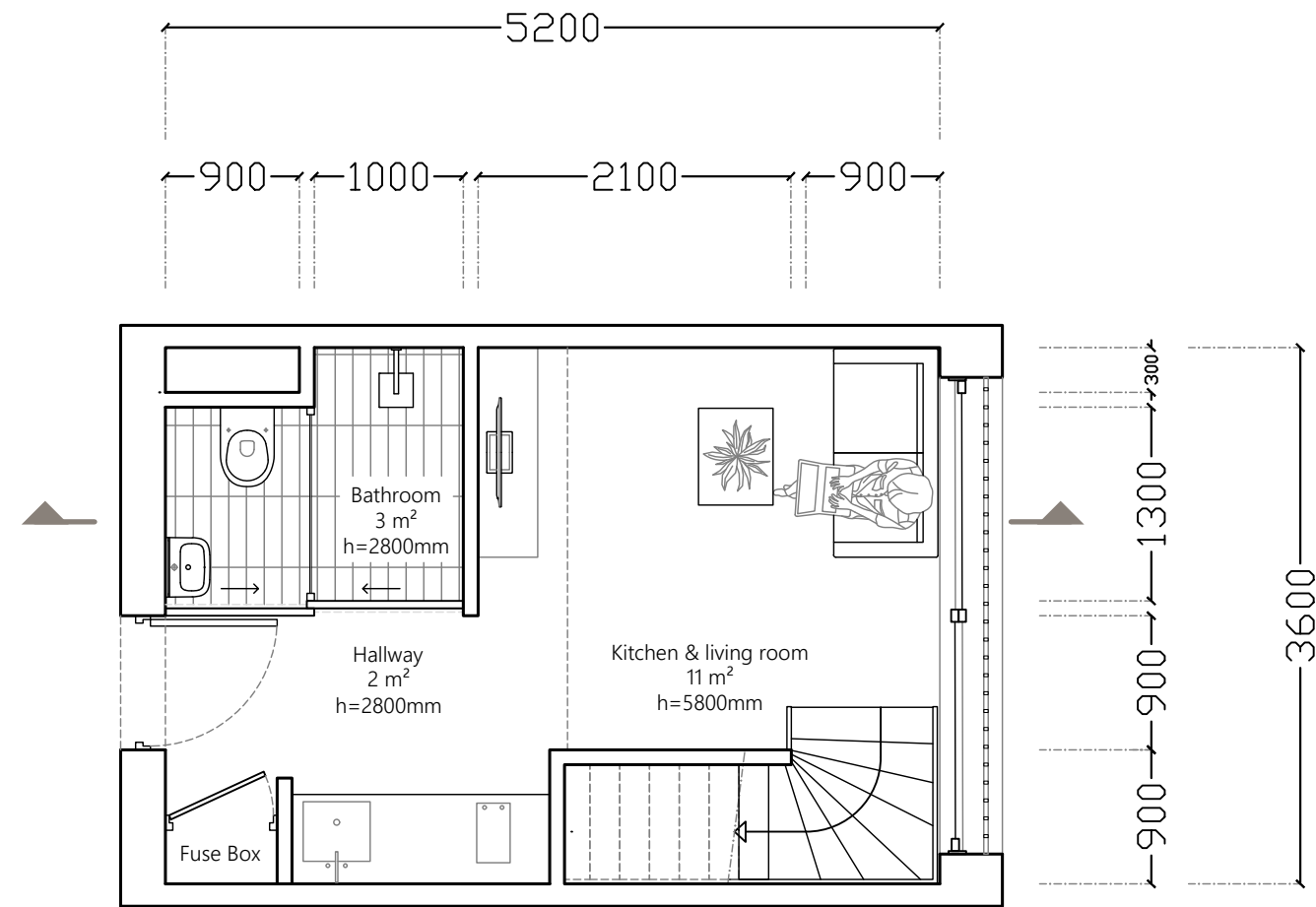
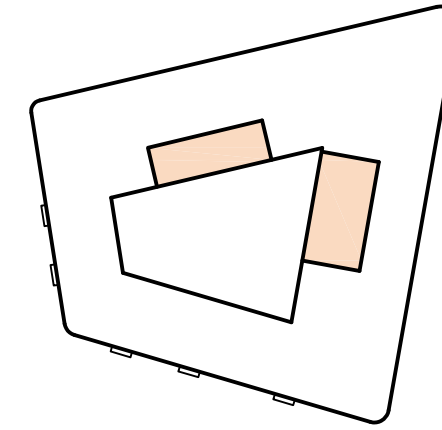
- Couples living apart together (LAT) have an intimate relationship but live at separate addresses
- Individual wants to keep their freedom and privacy
- May have a guest or be absent for a few days a week
- Needs extra space for a guest



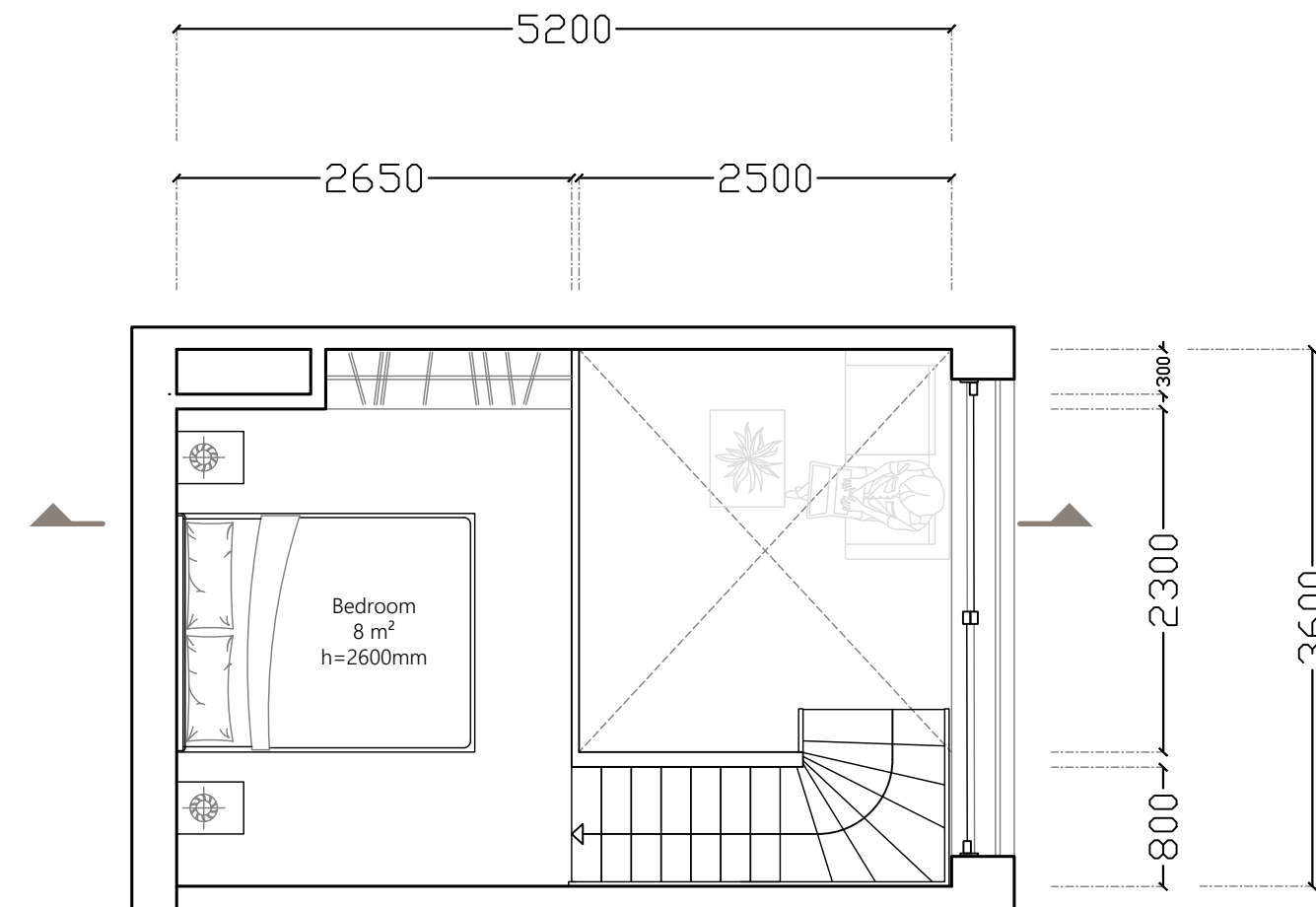
LAT relationship

- 26m²
- In total there are 14 dwellings of this type
- This type makes up 13% of the total dwellings in the building.

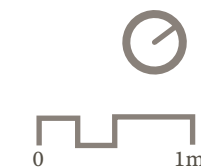
LAT relationship
 26m^2



Dwelling floorplan 1

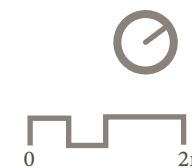
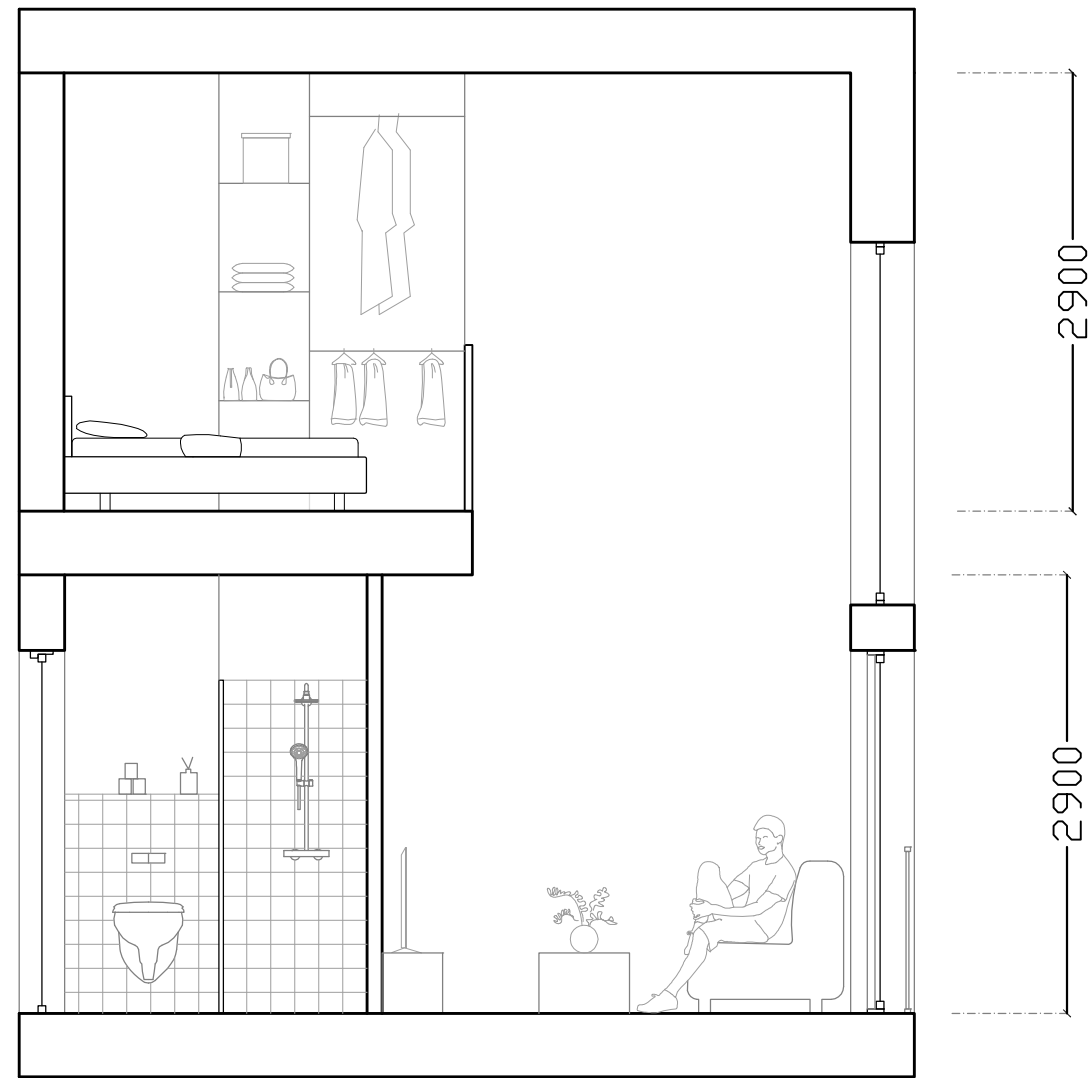
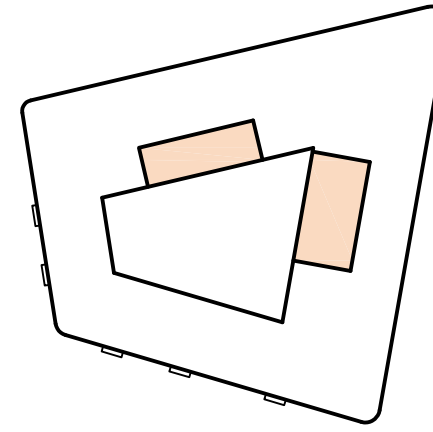


Dwelling floorplan 2



LAT relationship

26m²



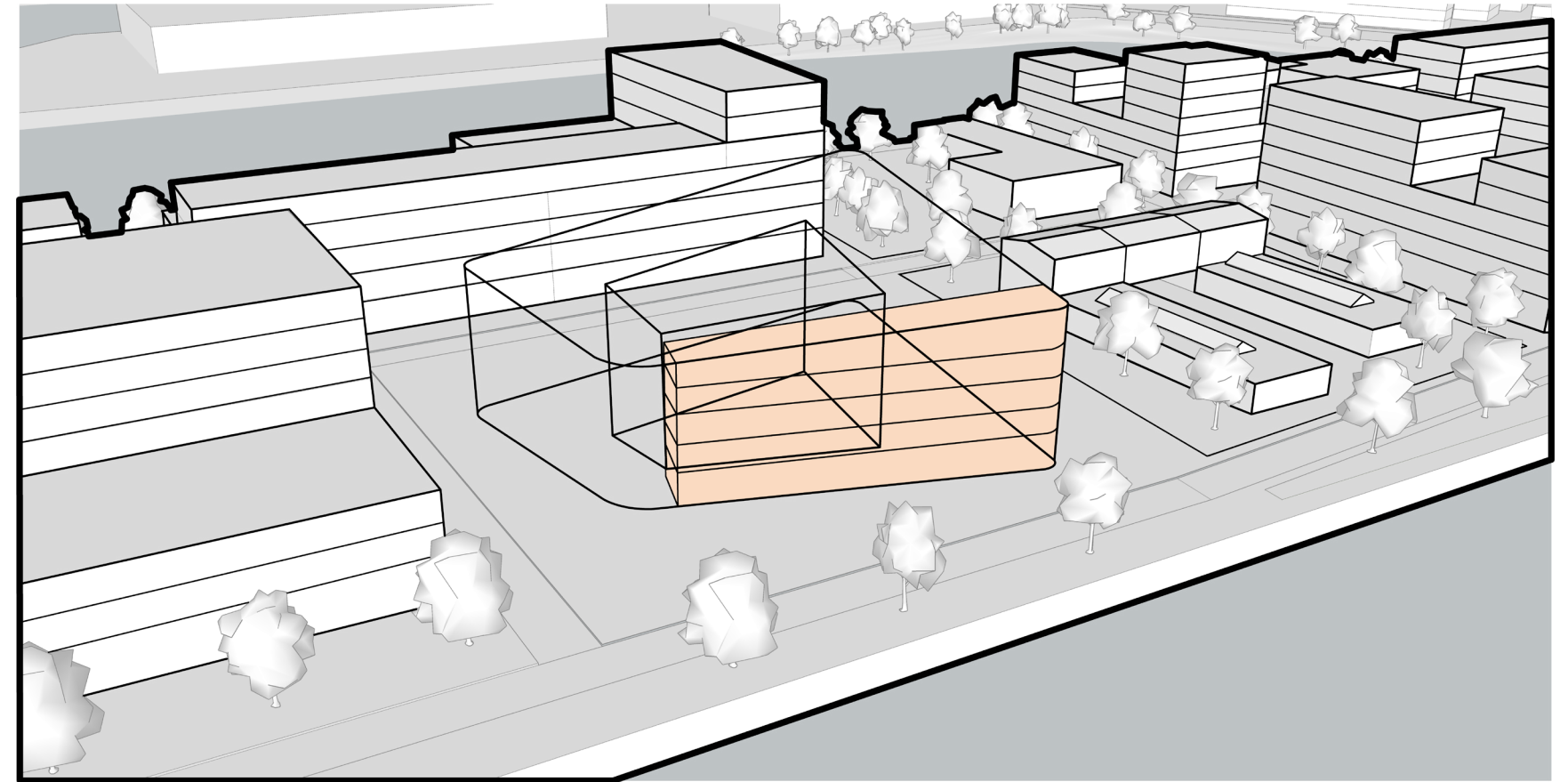
Friends

70m²



Zoë & Rosie

- Two-income household
- Two separate bedrooms
- Shares tasks and responsibilities
- Needs a shared outdoor space
- Dwelling should allow communal activities as well as assure individual privacy.

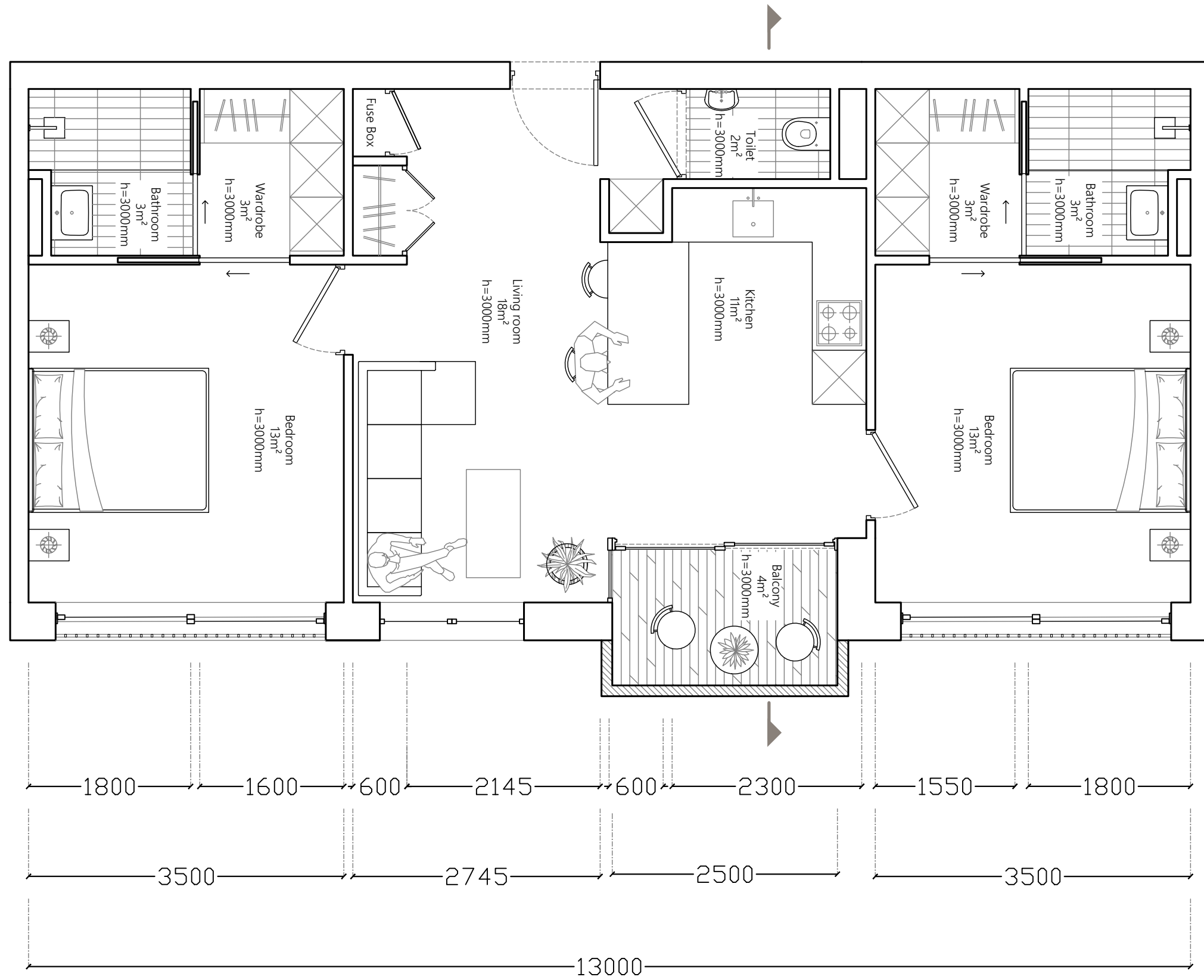


Friends

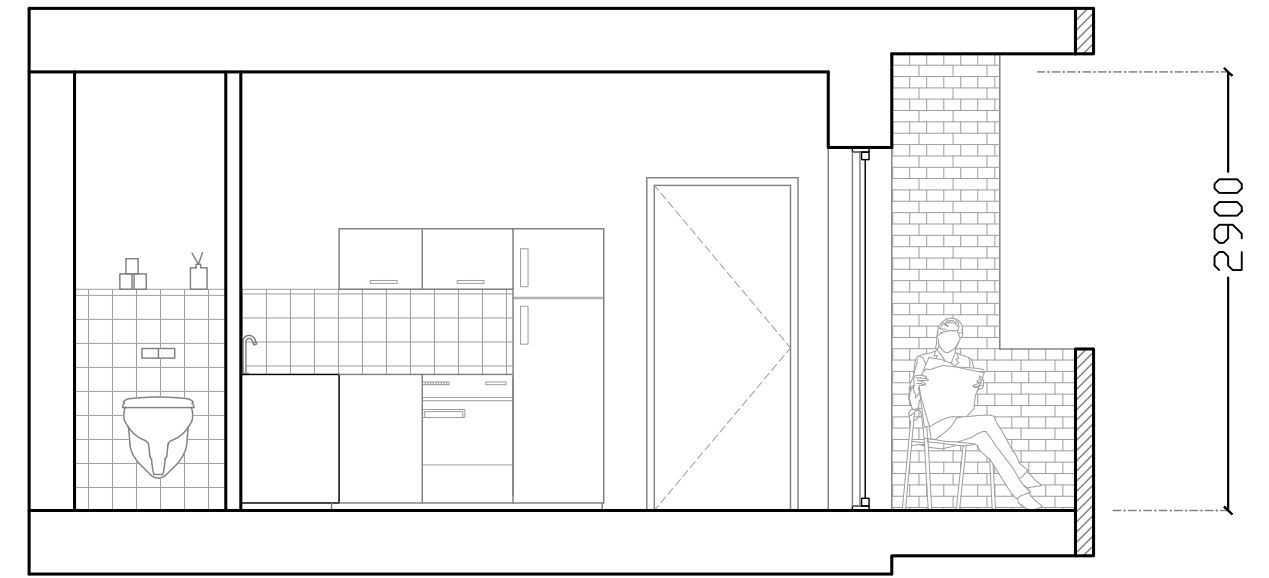
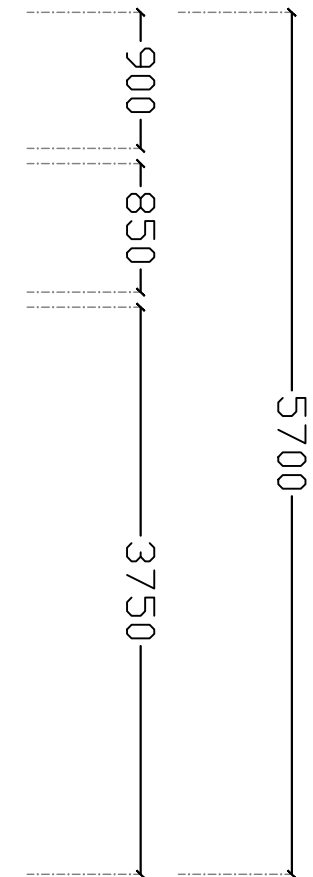
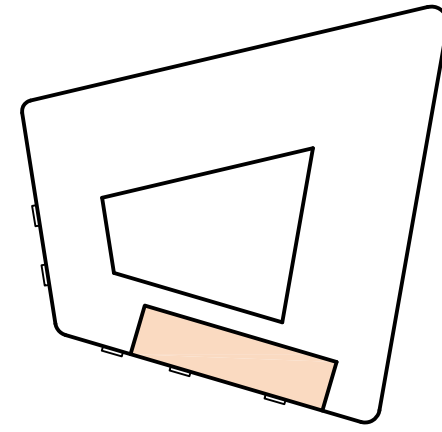
- 70 m²
- In total there are 12 dwellings of this type
- This type makes up 11% of the total dwellings in the building.

Friends

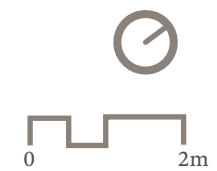
70m²



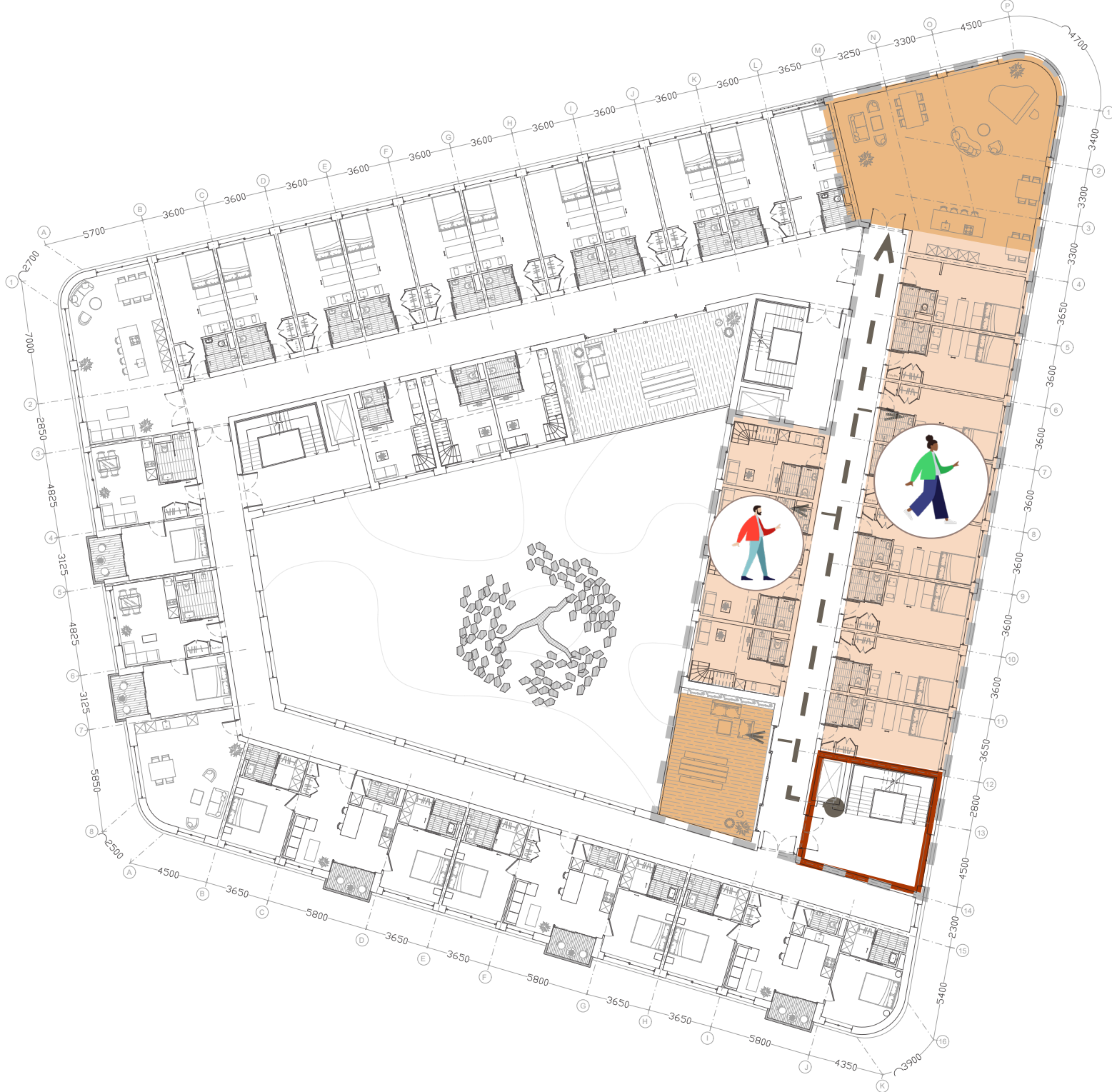
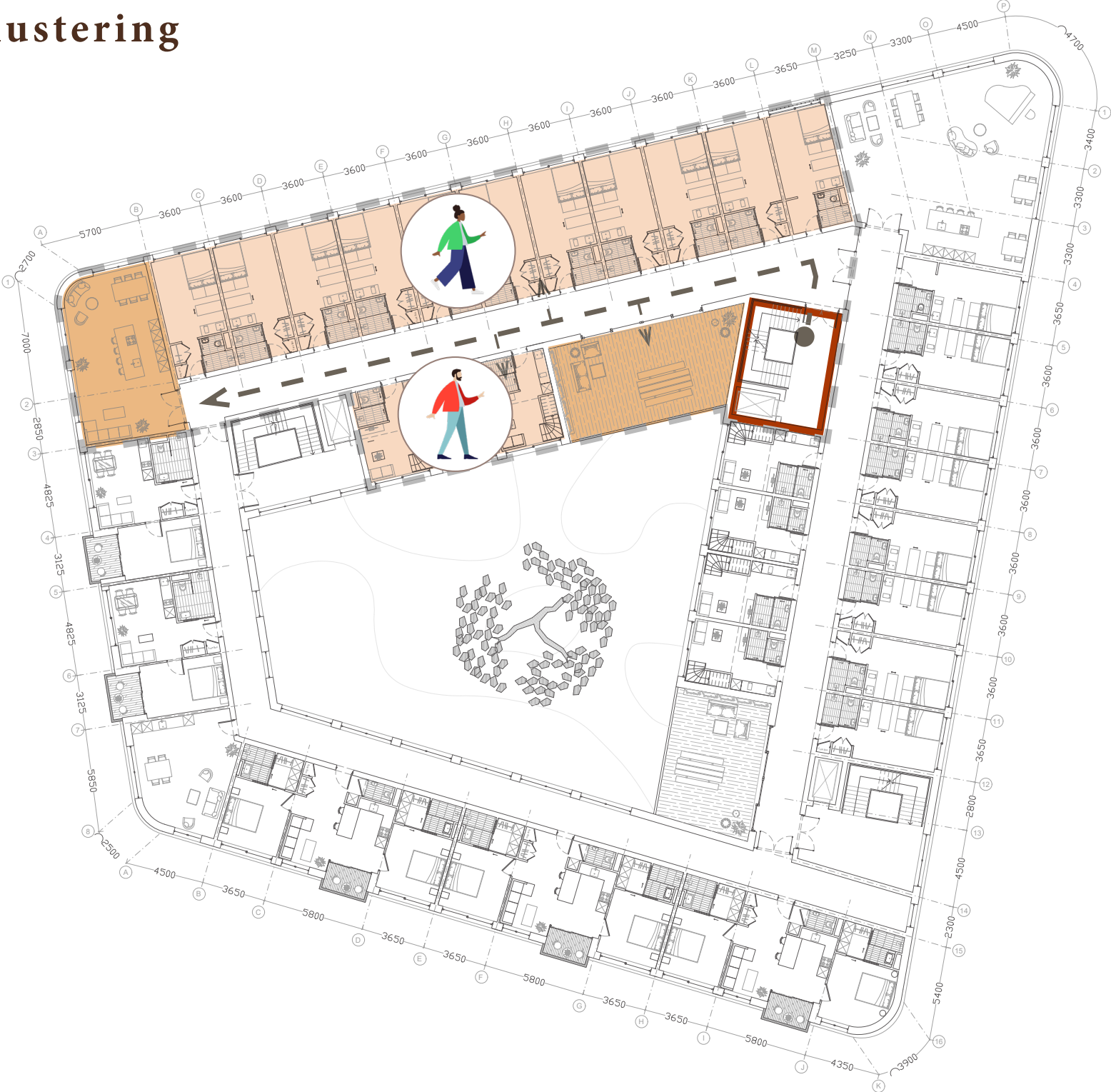
Dwelling floorplan



Dwelling section



Clustering

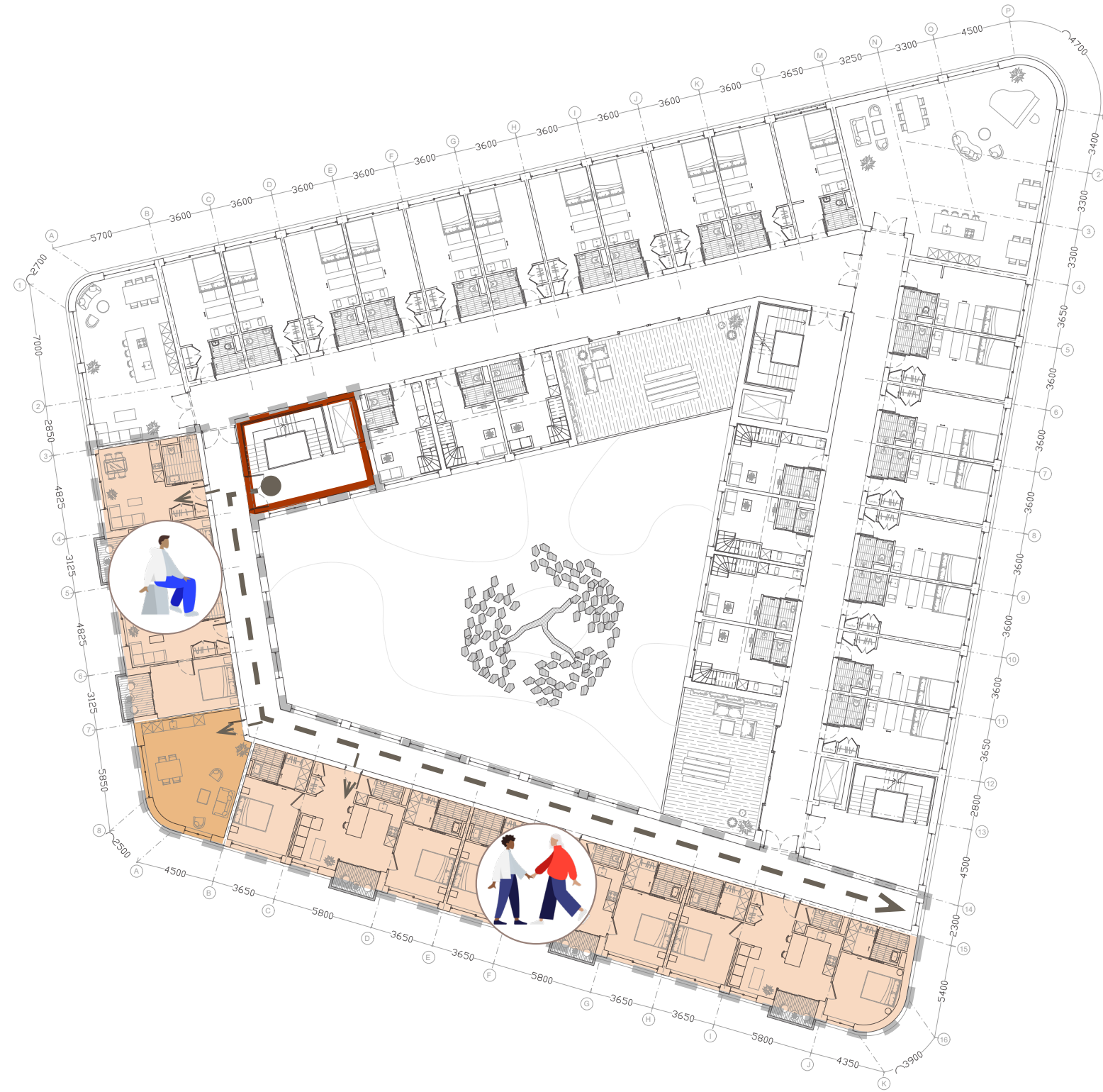


Cluster A

Cluster B

- Private dwelling
- Communal space for clusters
- Circulation space

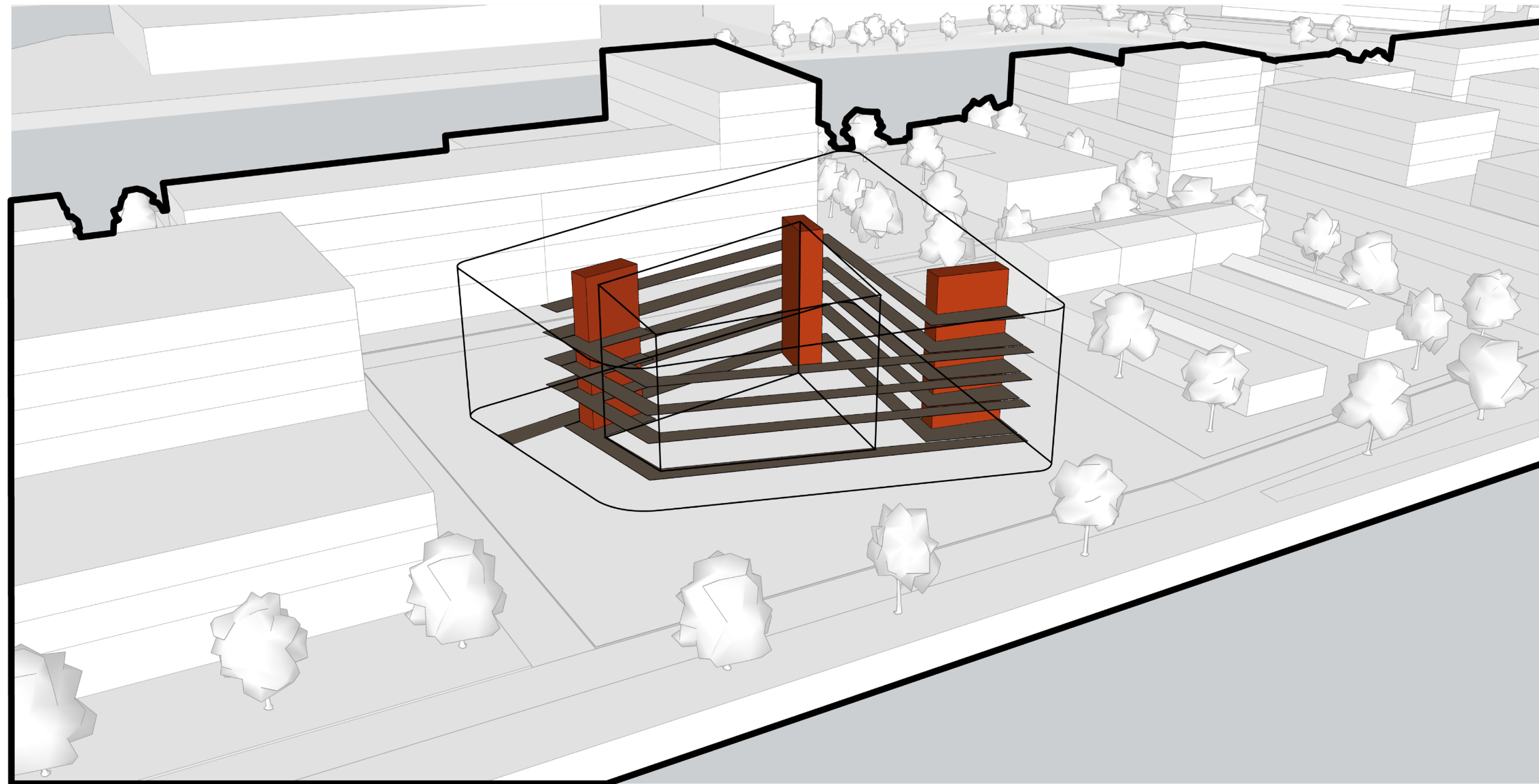
Clustering



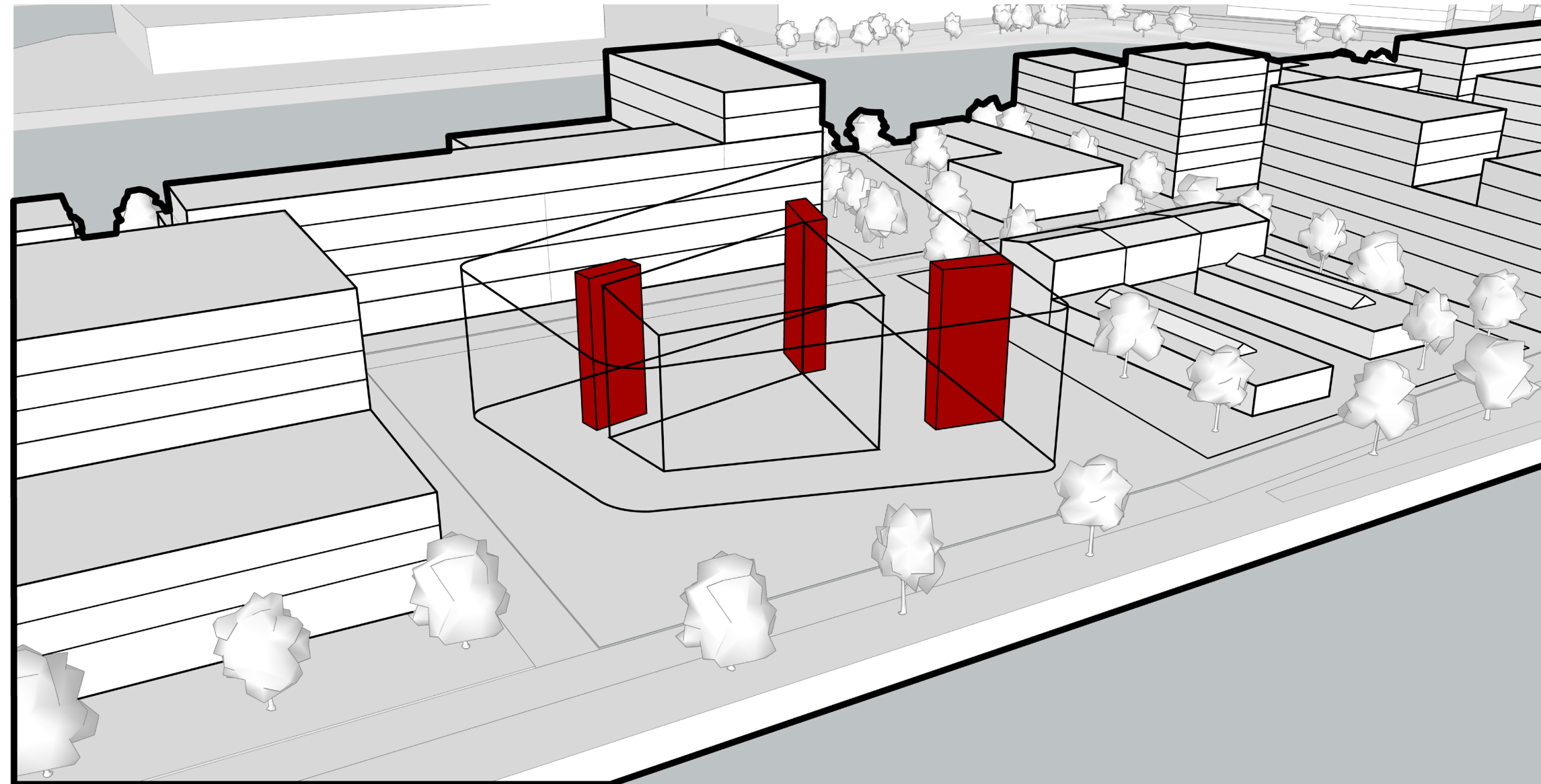
Cluster C

- Private dwelling
- Communal space for clusters
- Circulation space

Circulation

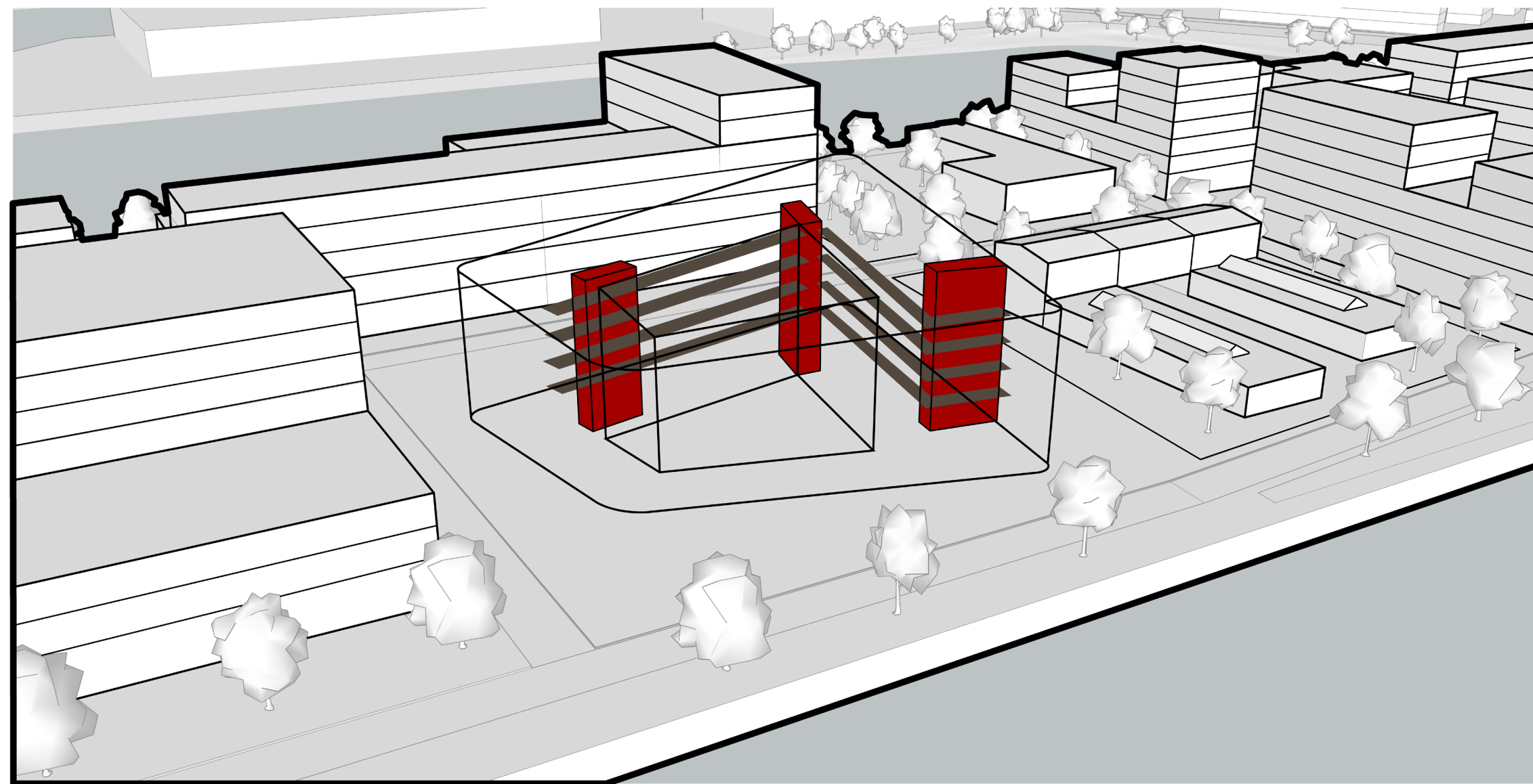


Circulation



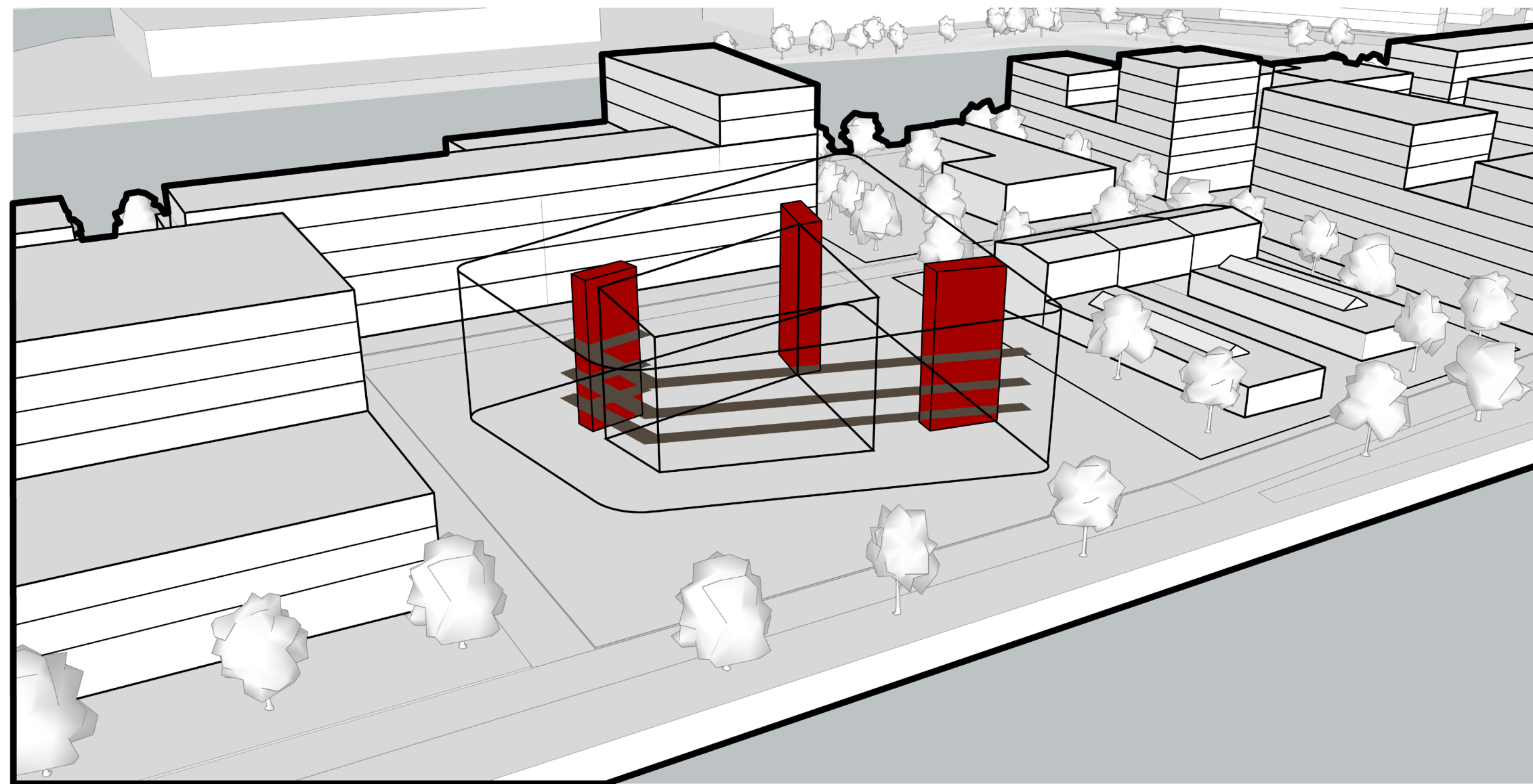
Staircase and elevators

Circulation cluster A and B.



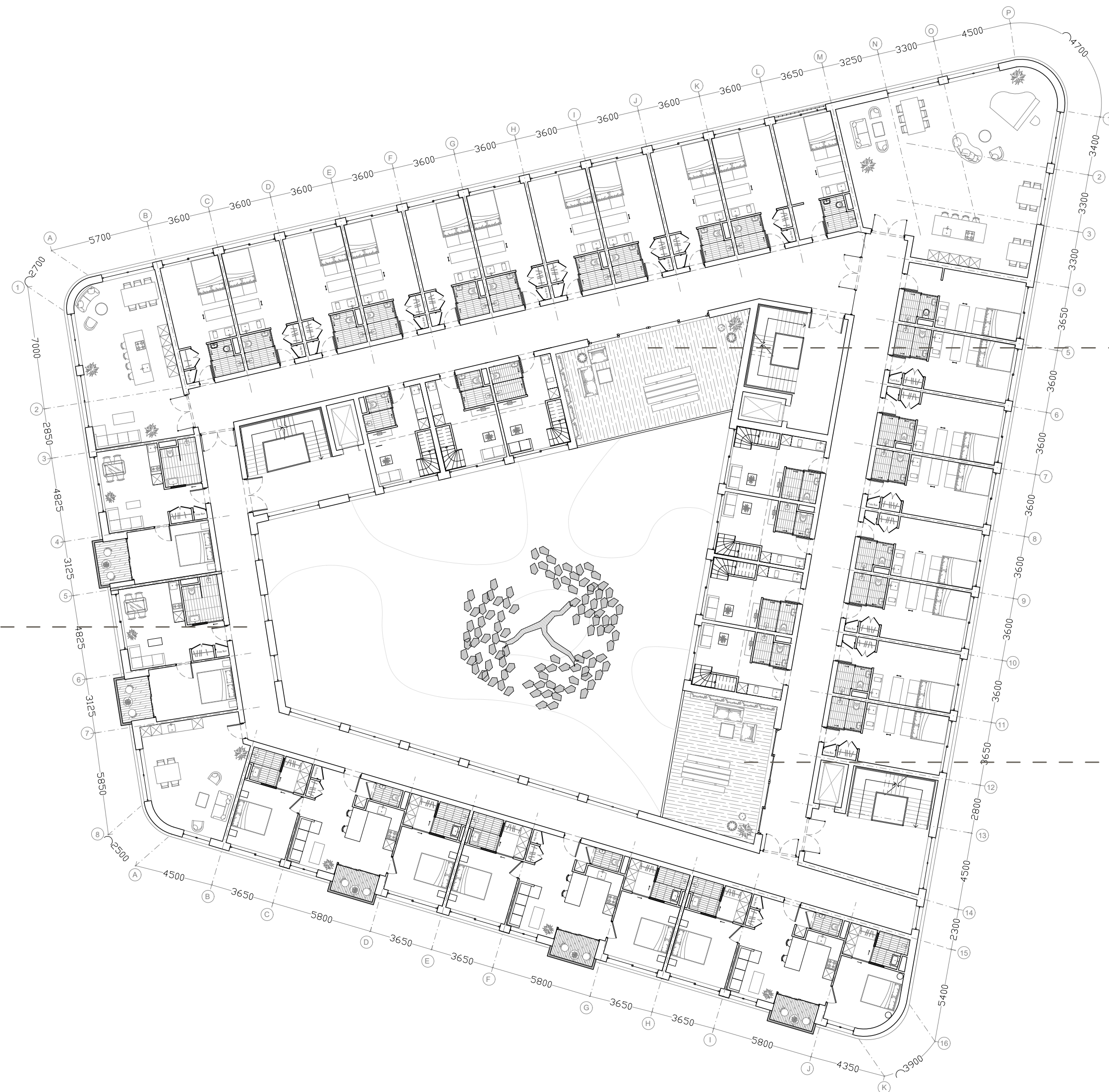
Corridor

Circulation cluster C



Indoor gallery

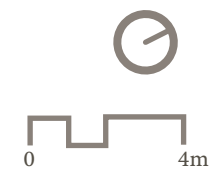
First floorplan



The indoor gallery is oriented towards the courtyard.

Communal outdoor space with a view on the courtyard

Communal outdoor space with a view on the courtyard



The corridor in cluster A and B.

Increasing the sense of proximity by creating a visual connection with the residents on the floor above.

Visual connection with the communal outdoor space.



Visual connection with the communal living room/ kitchen.

The indoor gallery in cluster C.

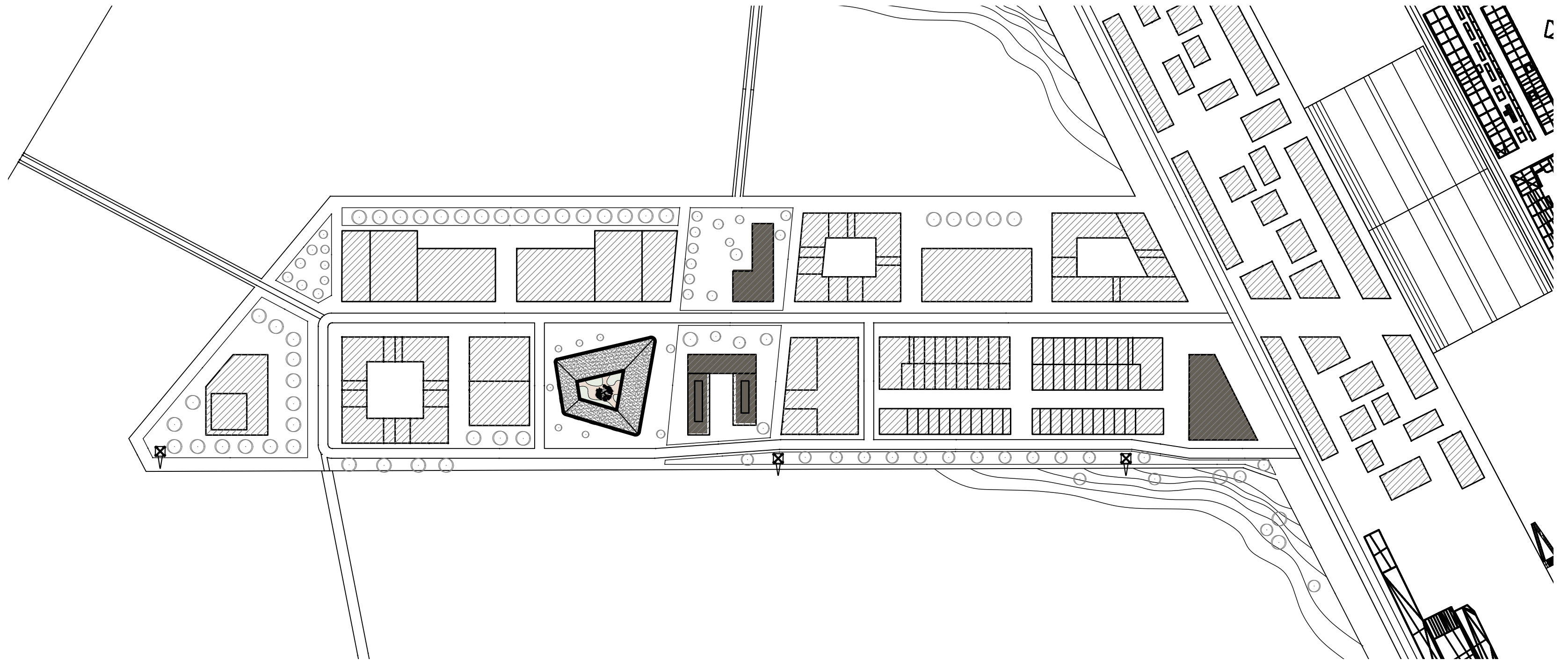
Increasing proximity by creating a visual connection with the communal outdoor spaces of cluster A and B.

Visual connection with the communal courtyard.



Windows are set back to enlarge the space and provide an informal resting spot while socializing with your neighbour.

Context



■ Characteristic buildings



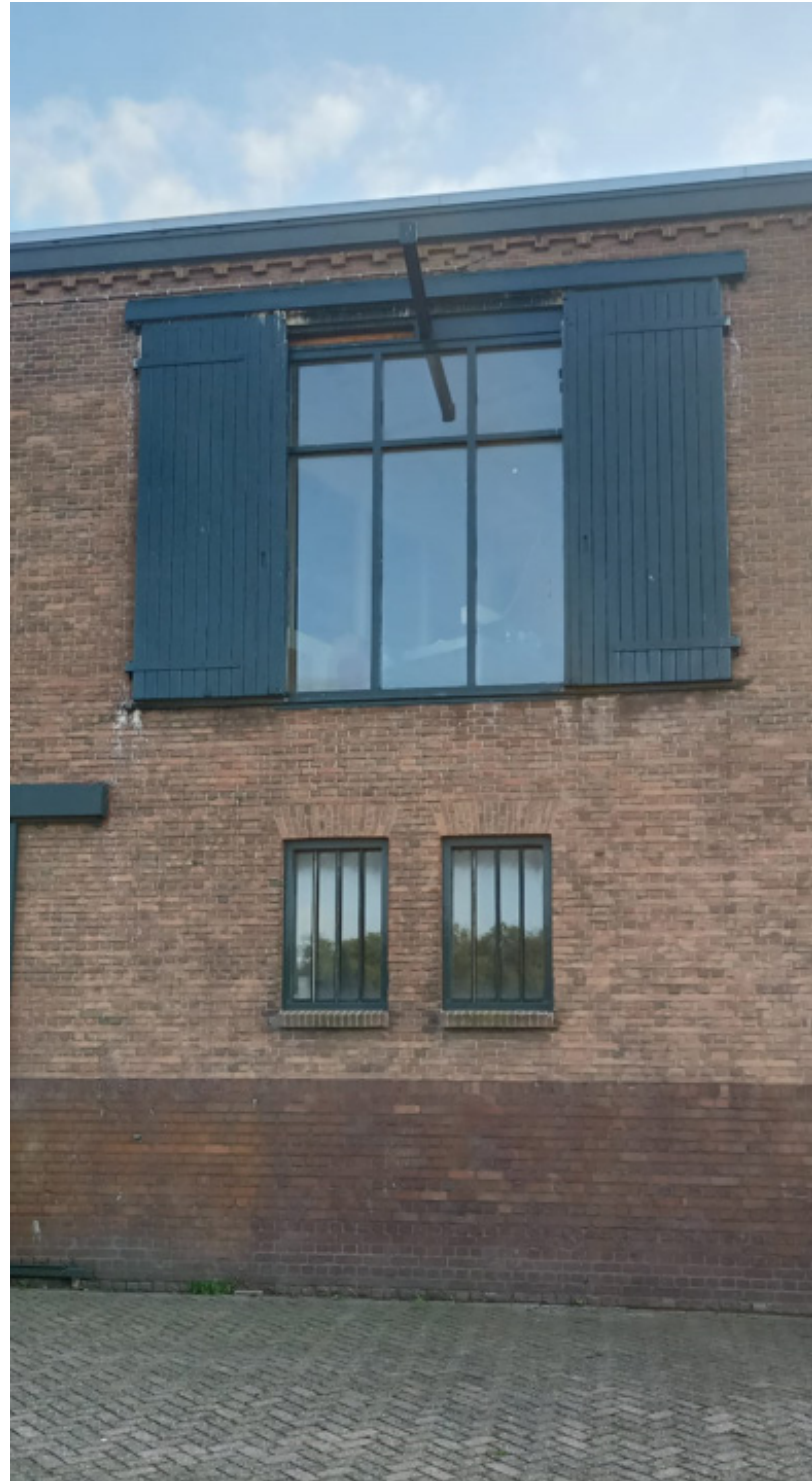
Materiality



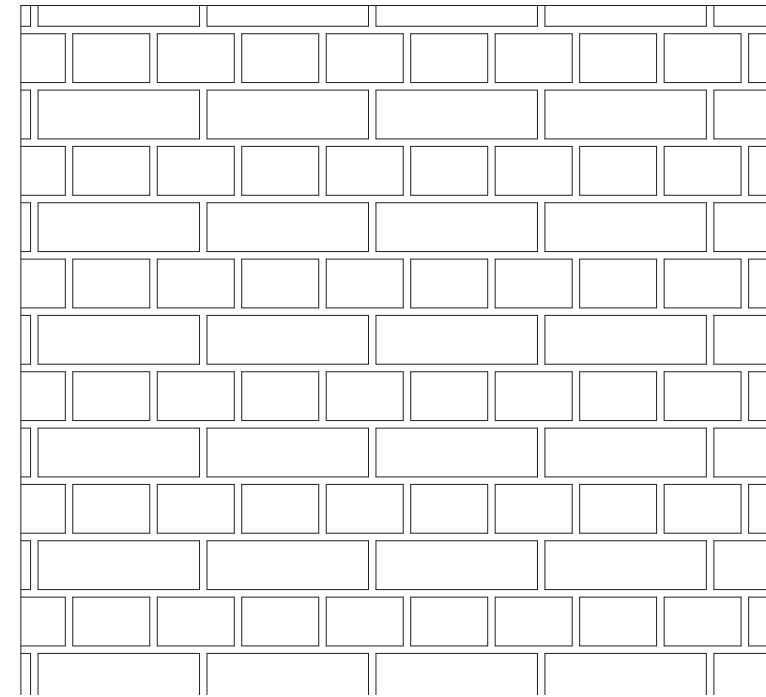
Merwevierhavens, Rotterdam

The iconic and characteristic buildings that remain in the masterplan are used as a references for the brick pattern.

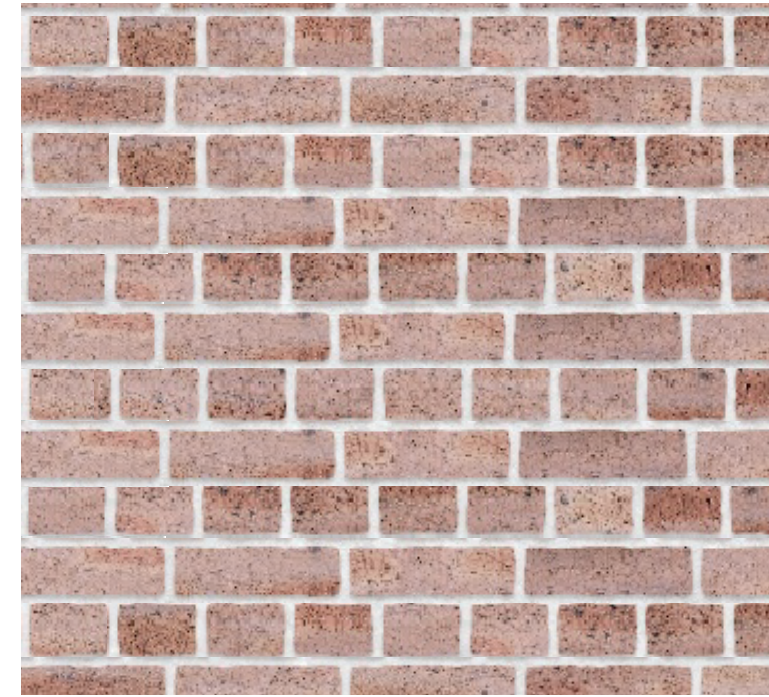




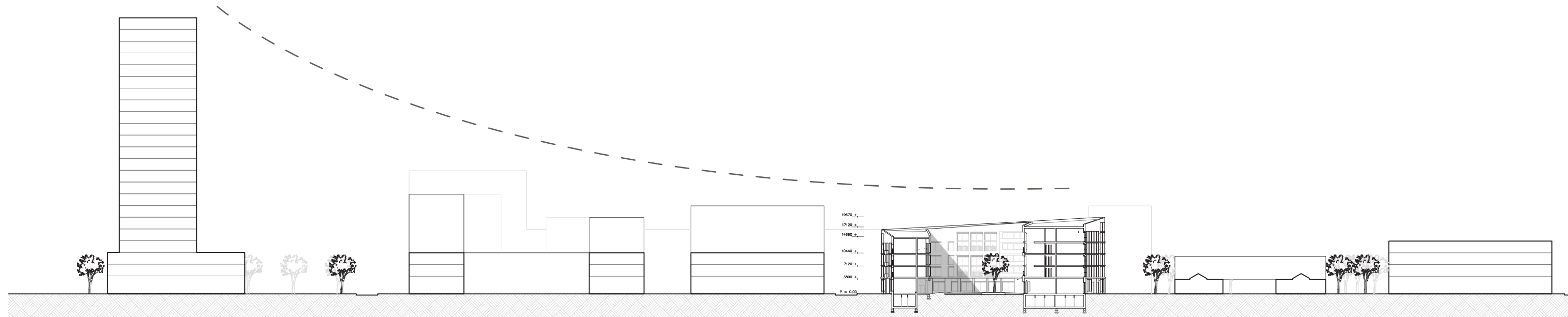
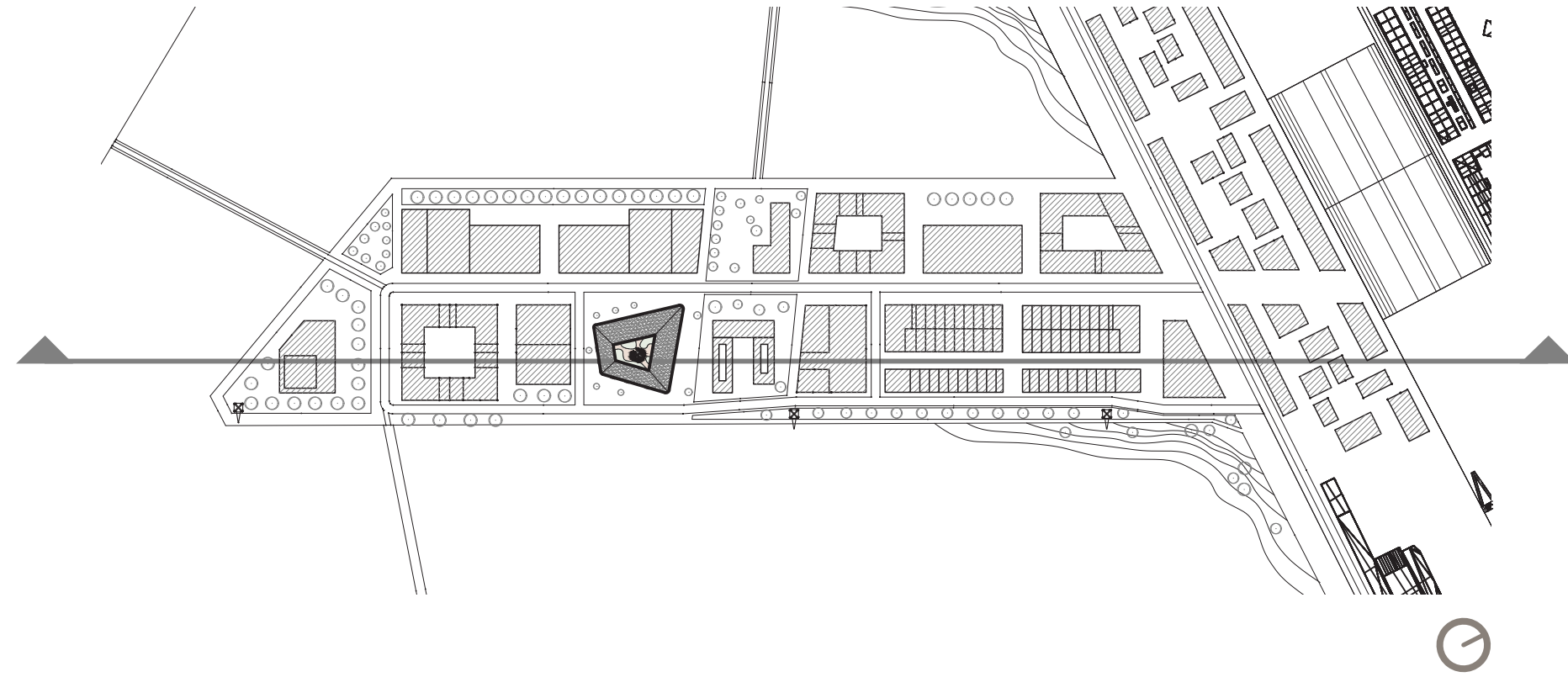
Existing brick pattern



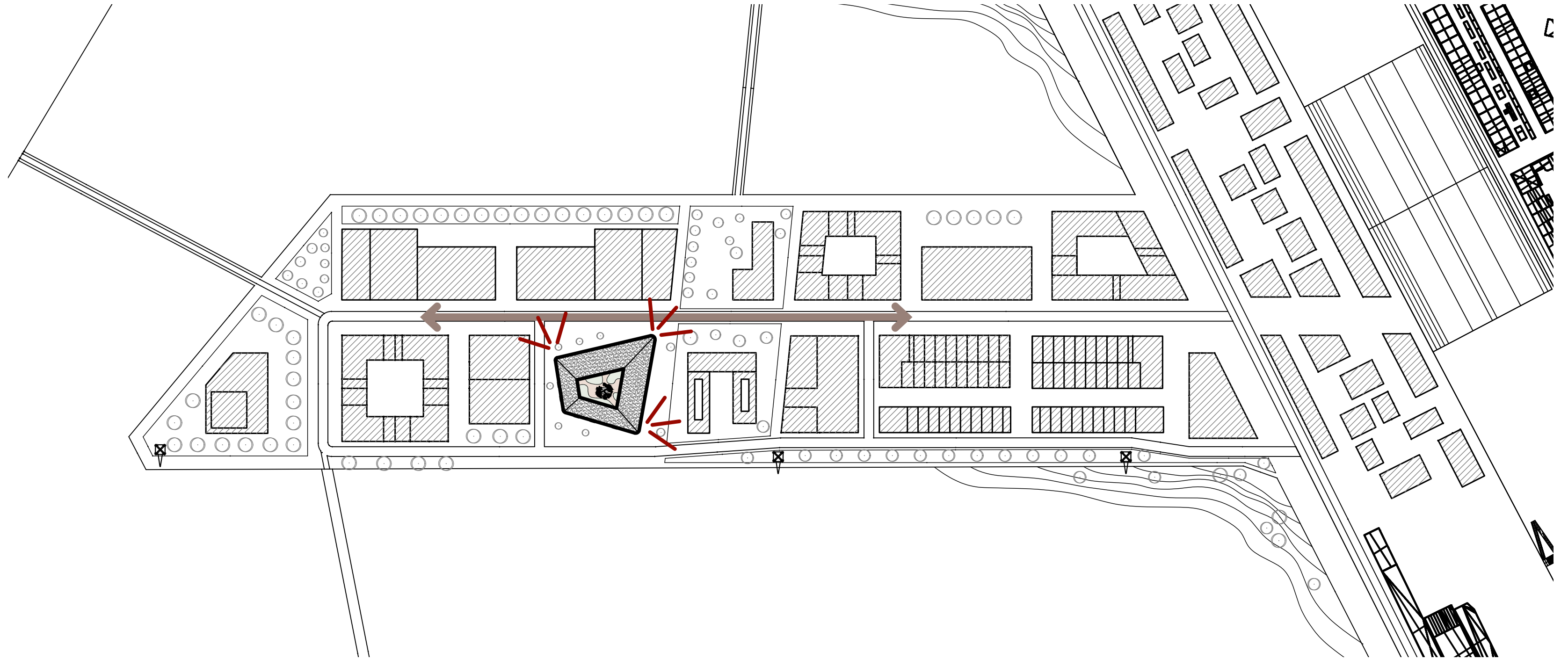
Used brick pattern



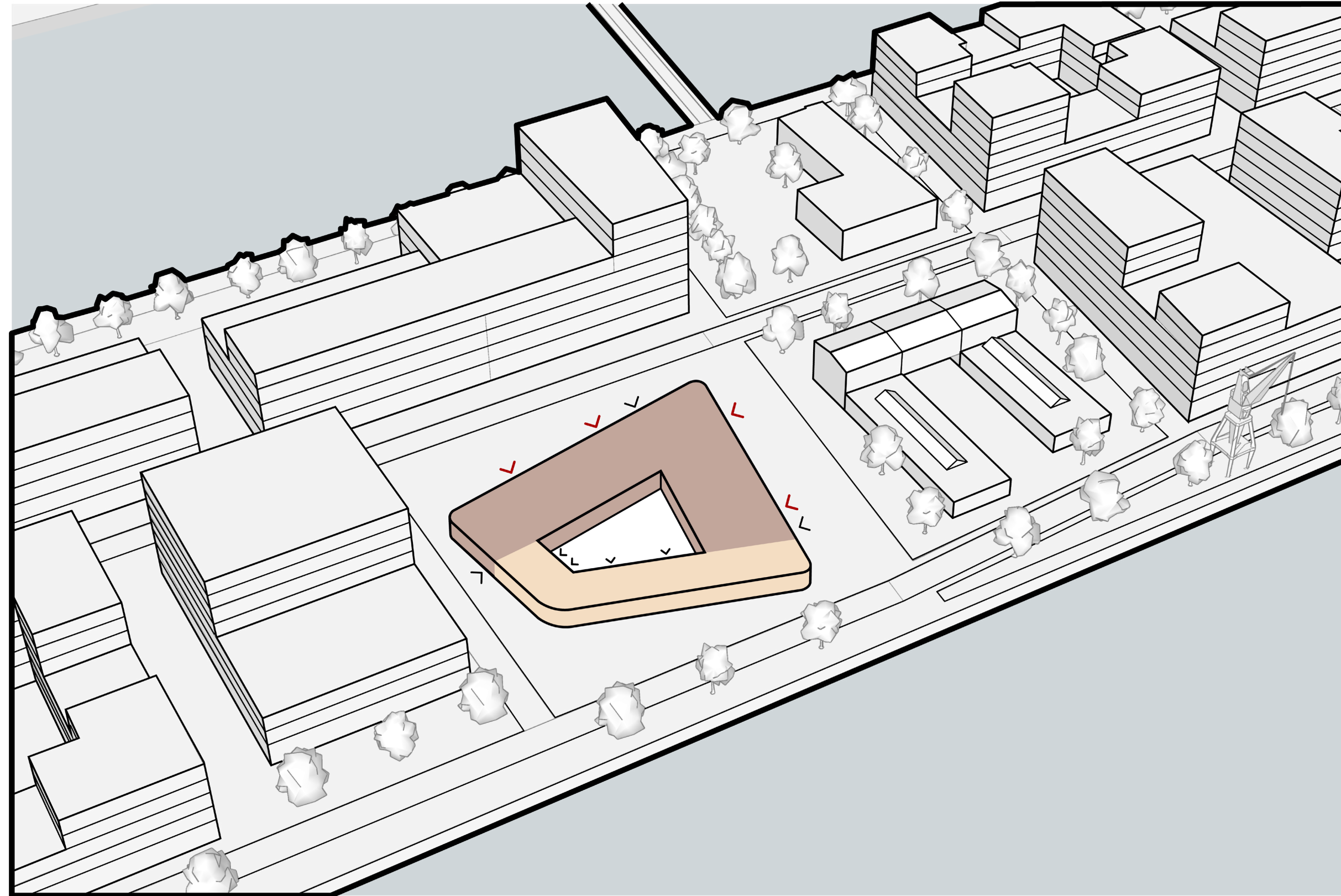
Context



Context



Public and private plinth



- Public plinth
- Private plinth
- Public entrance
- Residential entrance

Elevations



North Facade



East Facade



Elevations

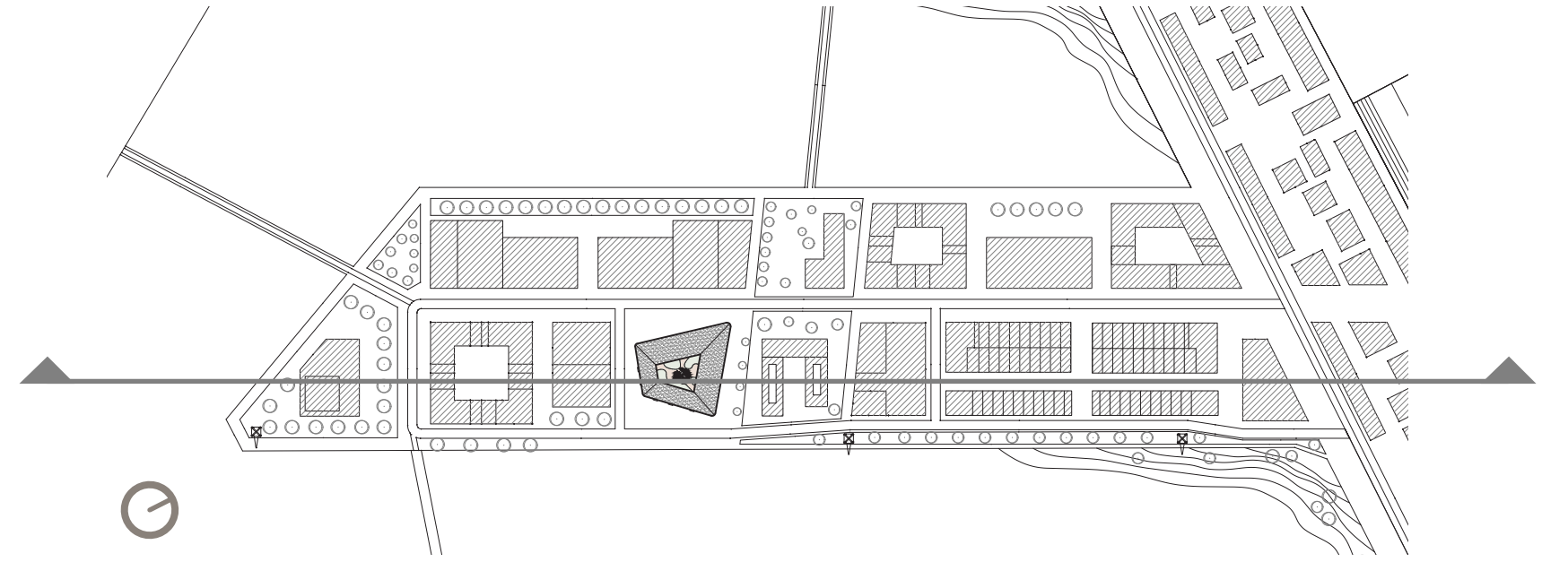


South Facade



West Facade

Context



- Private dwelling
- Public function
- Circulation space
- Storage units

Context



Public plinth

Public functions are more visible while ensuring unity in the plinth



Residential entrance is set back.

Private plinth

The balconies partially stick out of the facade to highlight the residential character.

The visible mailboxes makes it apparent to the pedestrians that this is a residential entrance.



Residential entrance is set back.

Greenery is placed to create distance between private balcony and the pedestrians.

Residential entrance interior

The staircase is more centered and highlighted to promote to a healthy lifestyle.



Glass door creates a visual connection with the communal study hall.

Ground floorplan



Residential entrance in the courtyard

The individual units are accessed from a semi-public open space (the courtyard)



The lights are placed around the walkway to guide people.

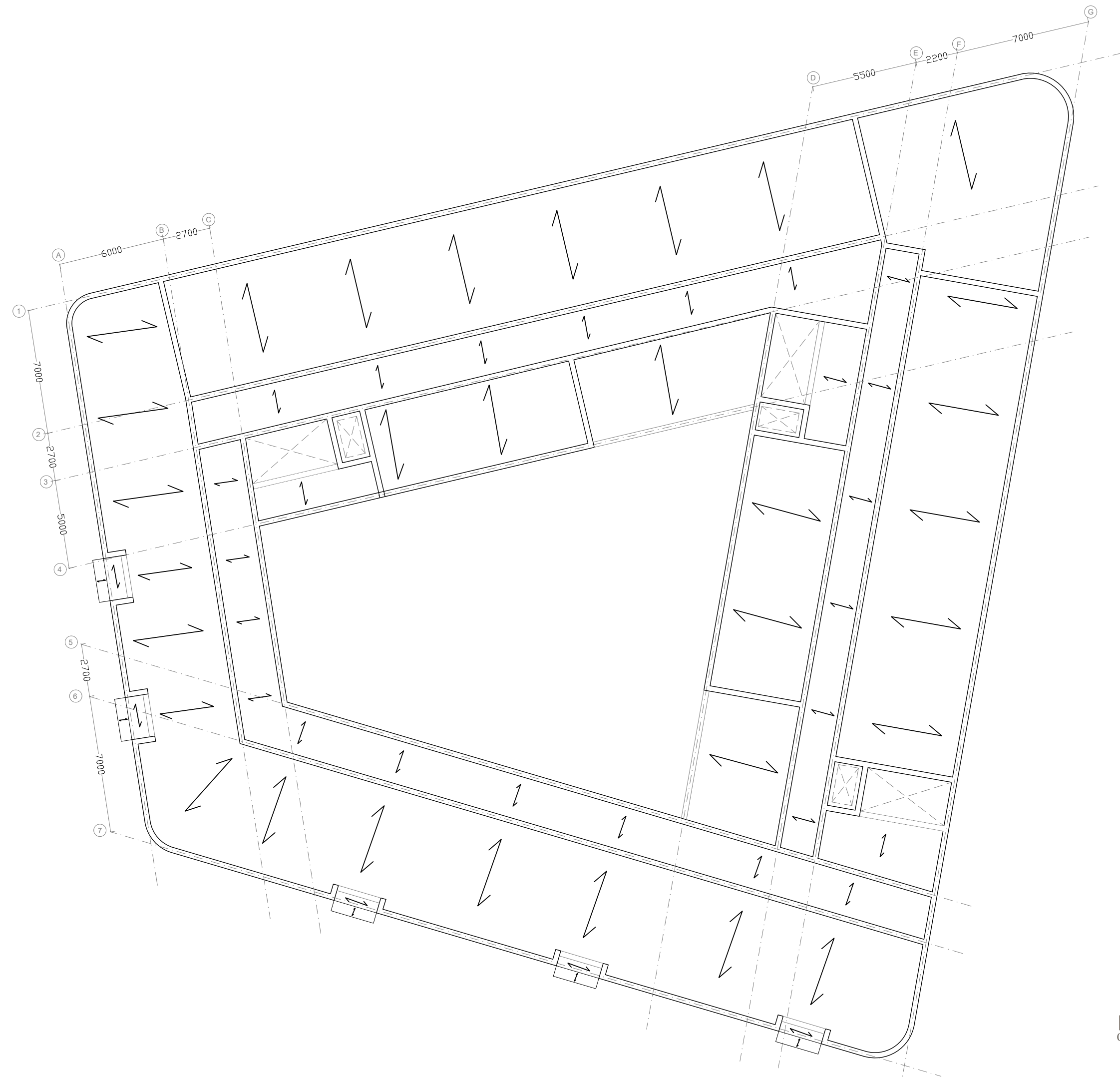
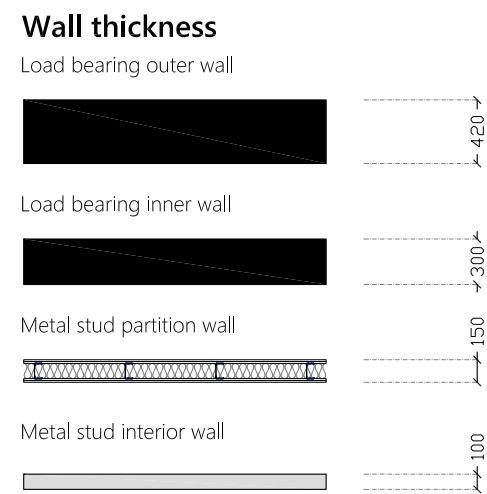
**Restaurant/ Lunch
room interior**

The public space has access to the courtyard.



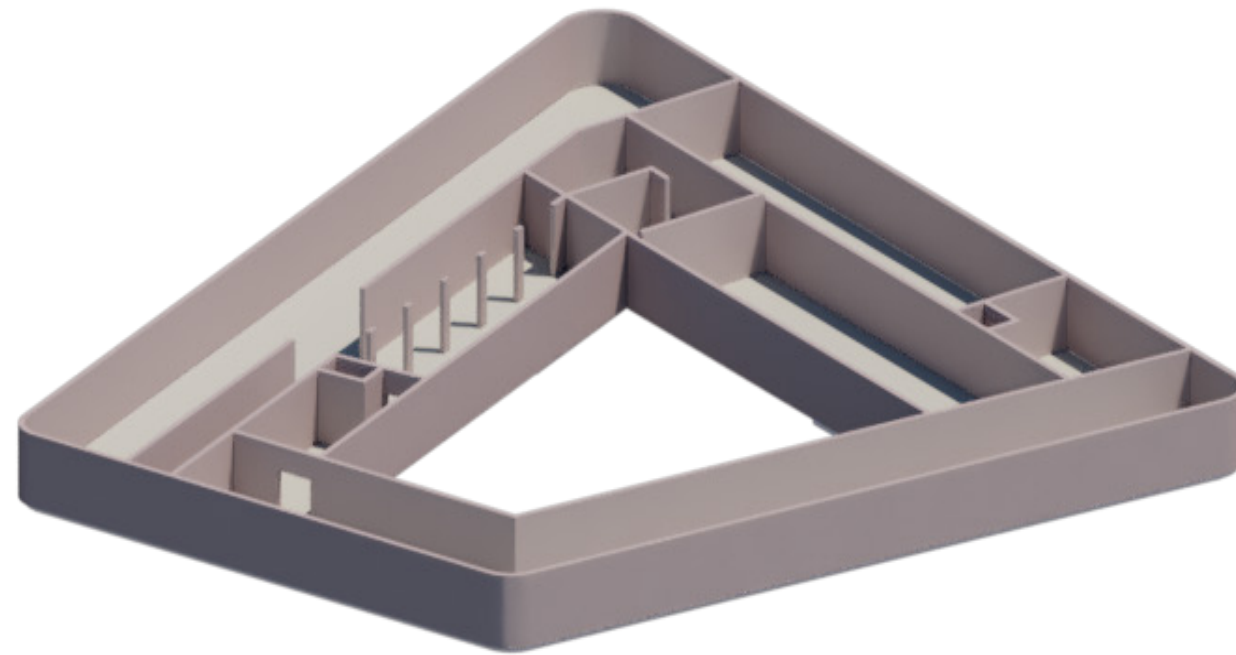
This is a place where the residents of the building can meet whilst working and drinking coffee.

Load-bearing structure

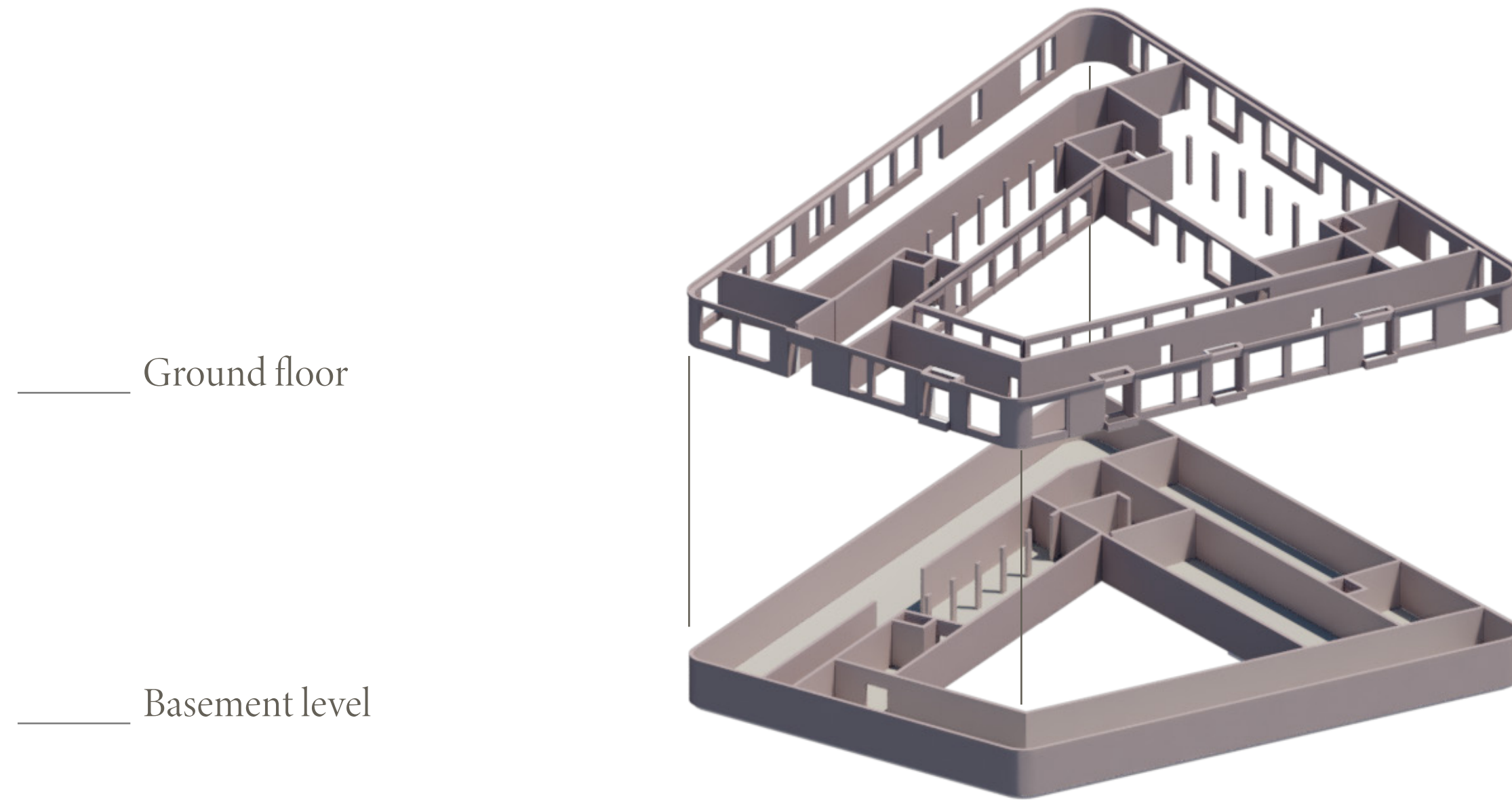


Load-bearing structure

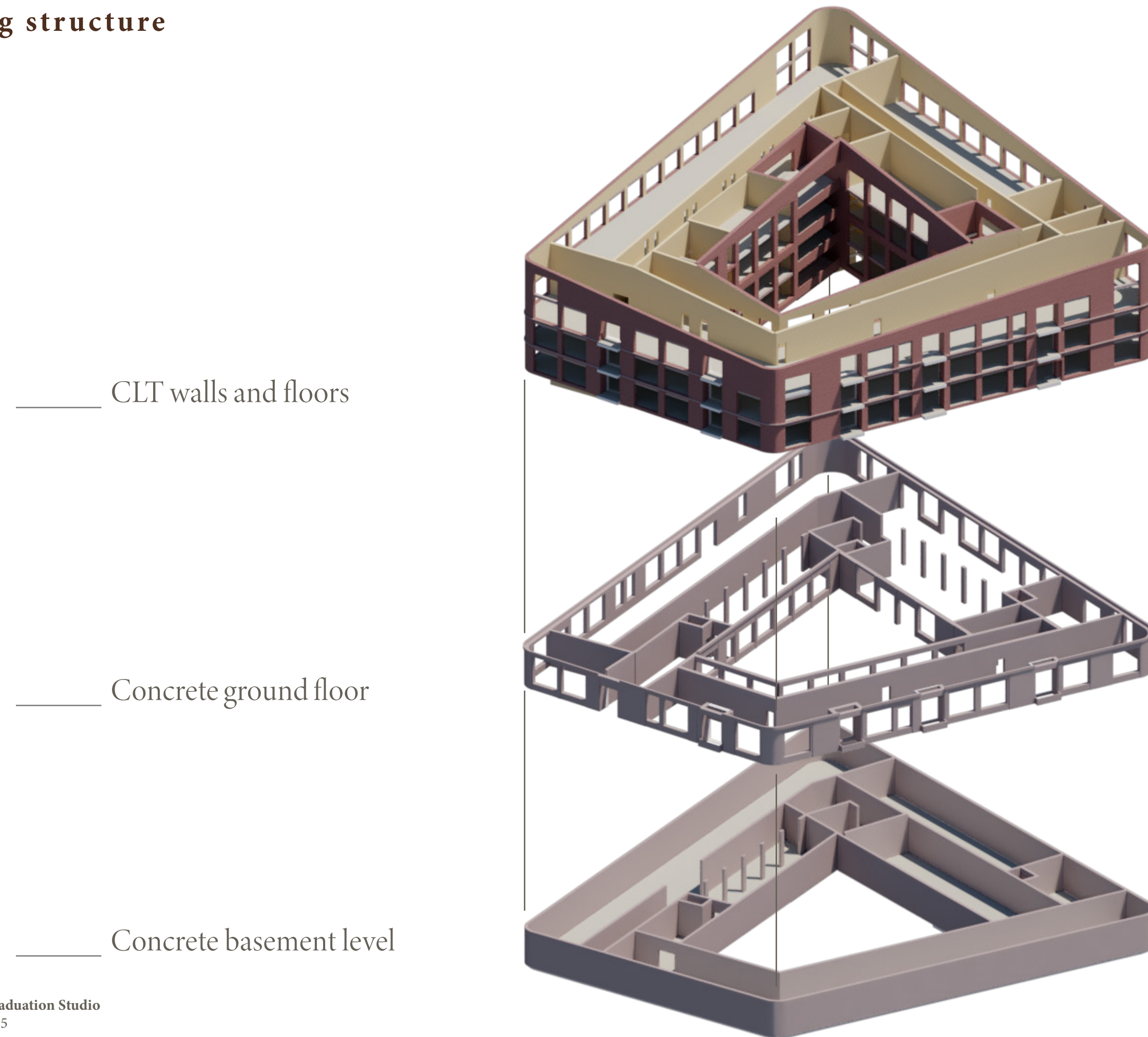
_____ Basement level



Load-bearing structure



Load-bearing structure



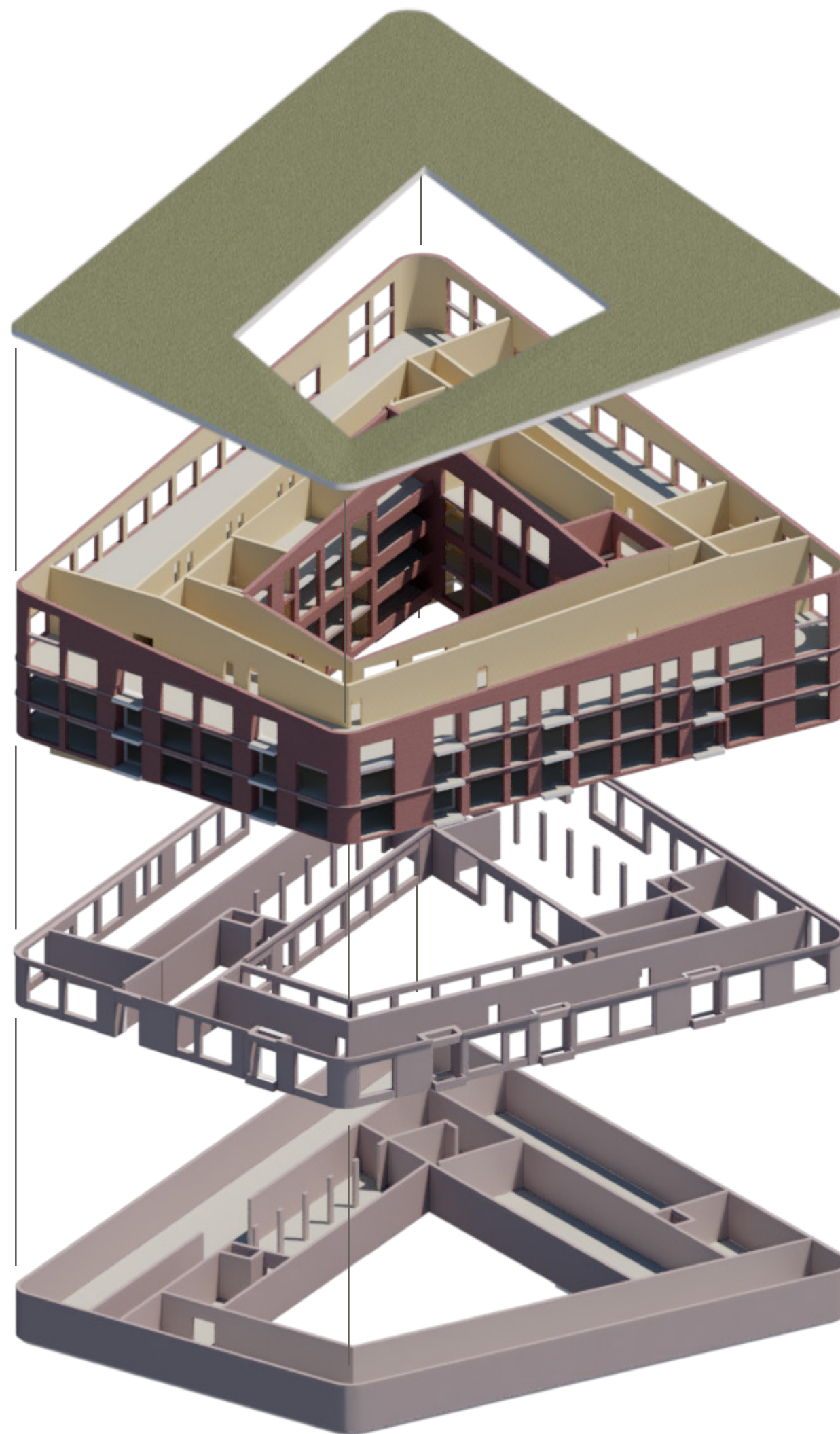
Load-bearing structure

_____ CLT roof

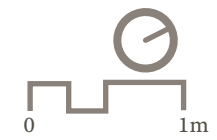
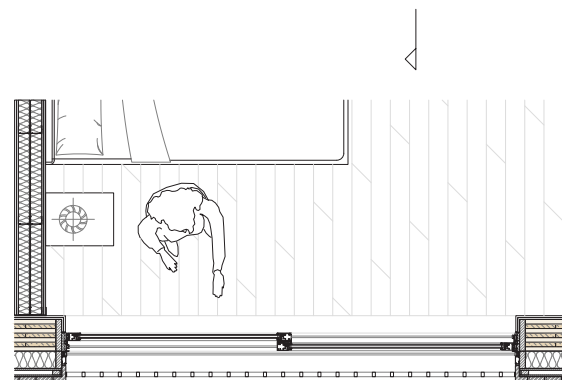
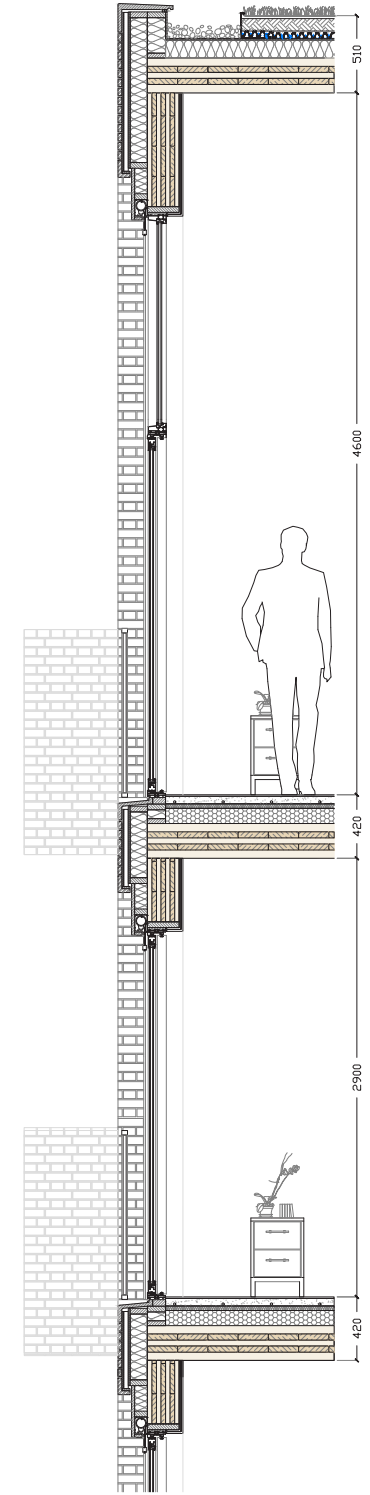
_____ CLT walls and floors

_____ Concrete ground floor

_____ Concrete basement level

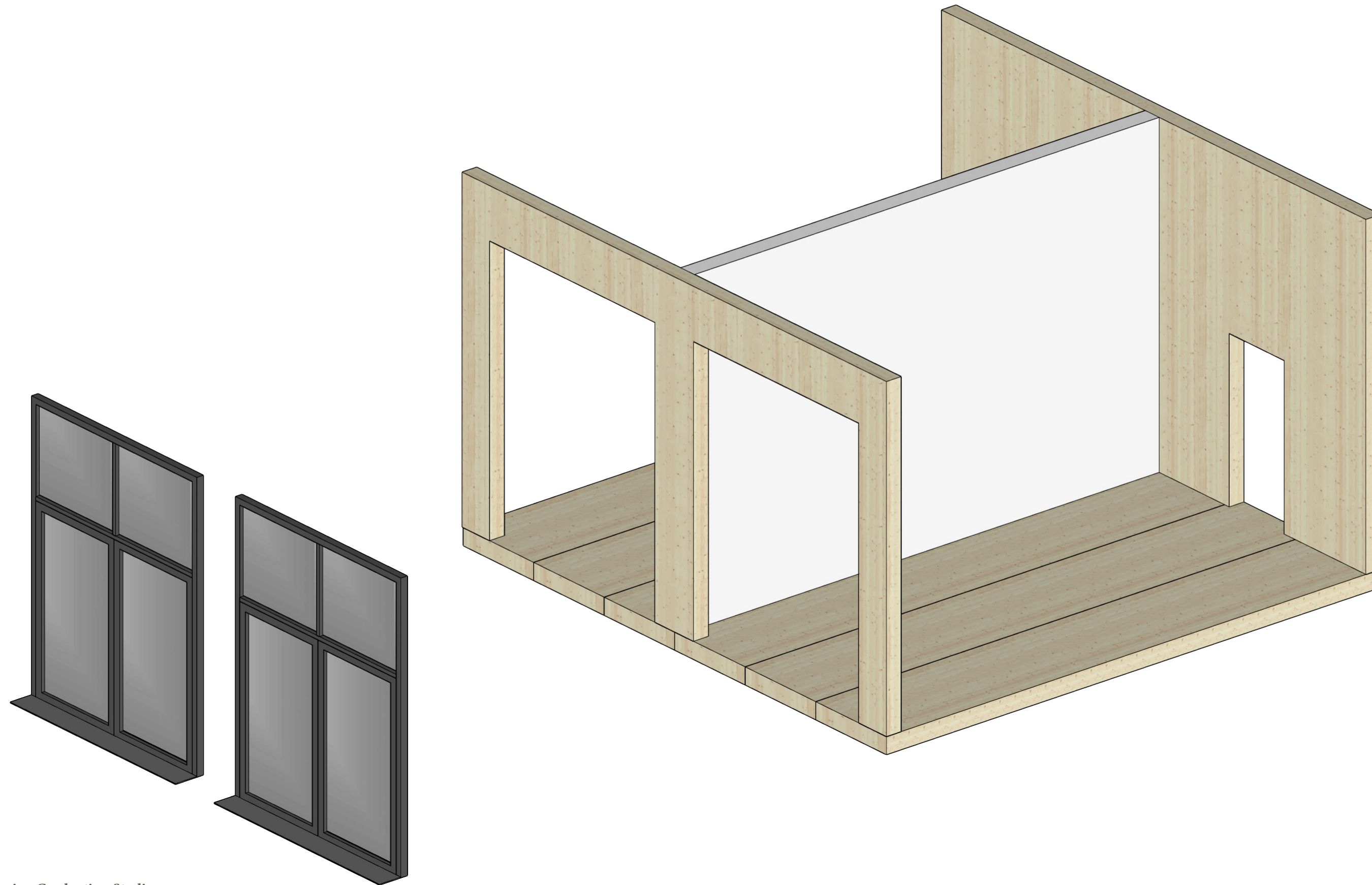


Facade fragment



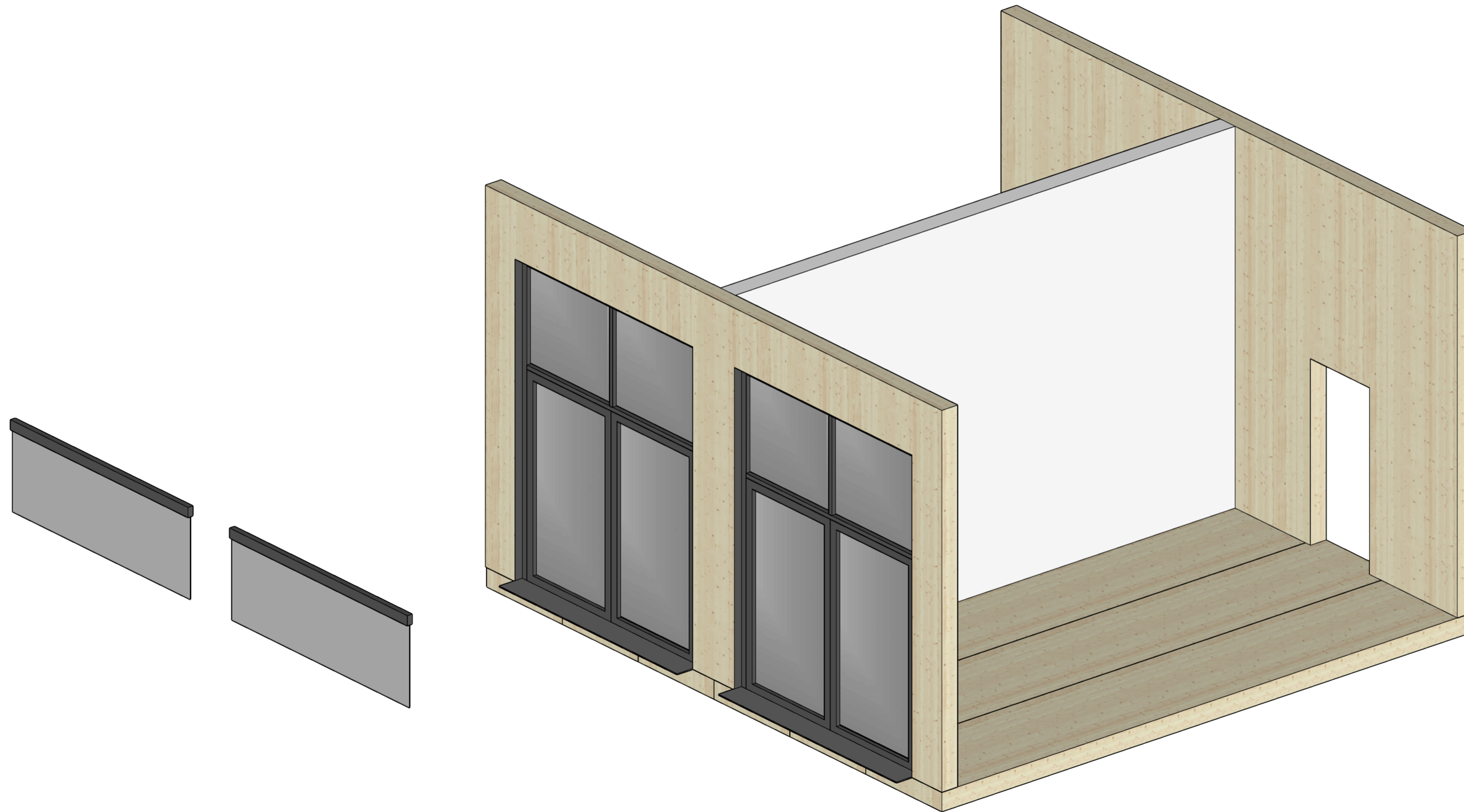
Facade assembly

1. Window



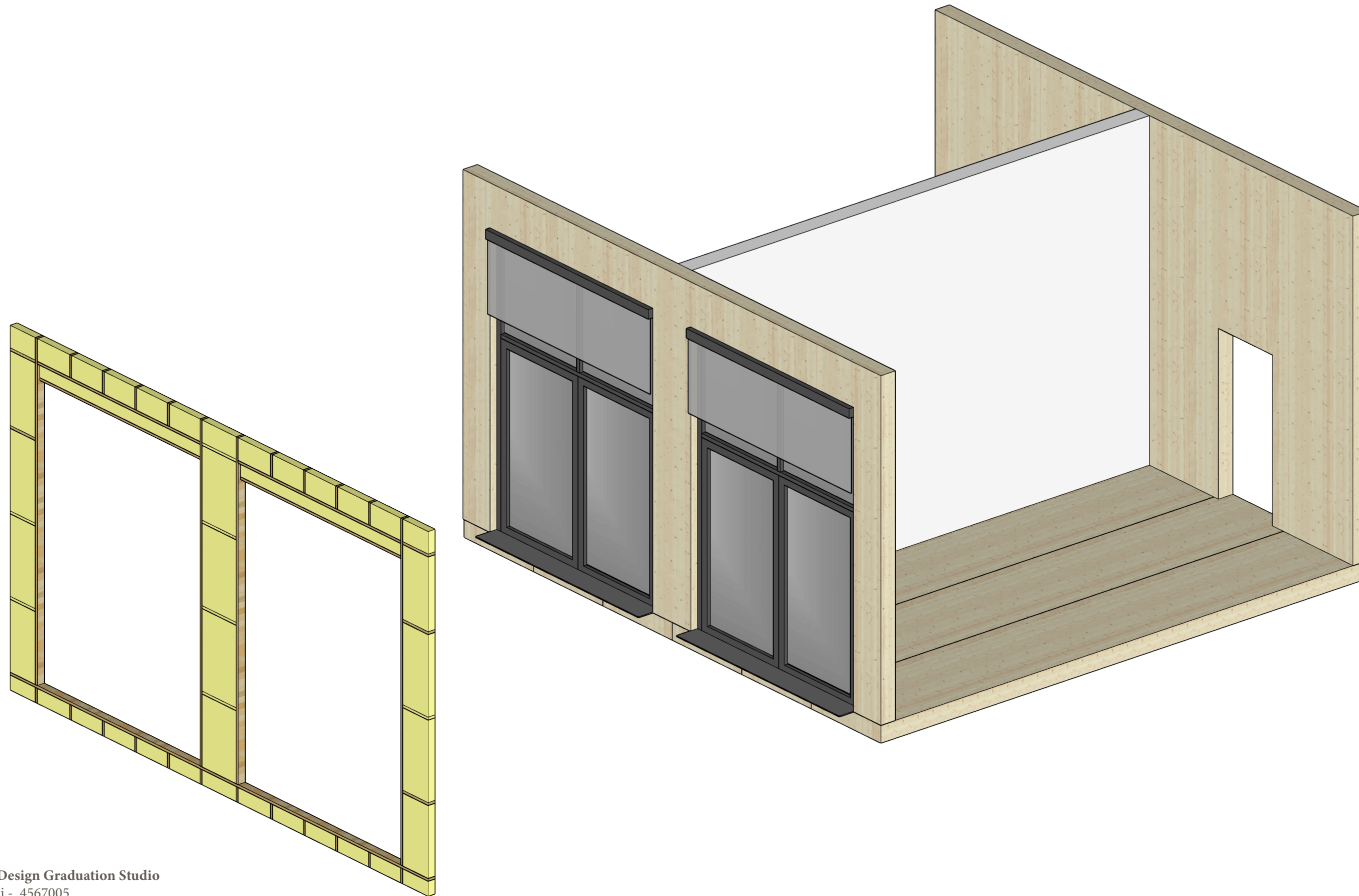
Facade assembly

1. Window
2. Screen



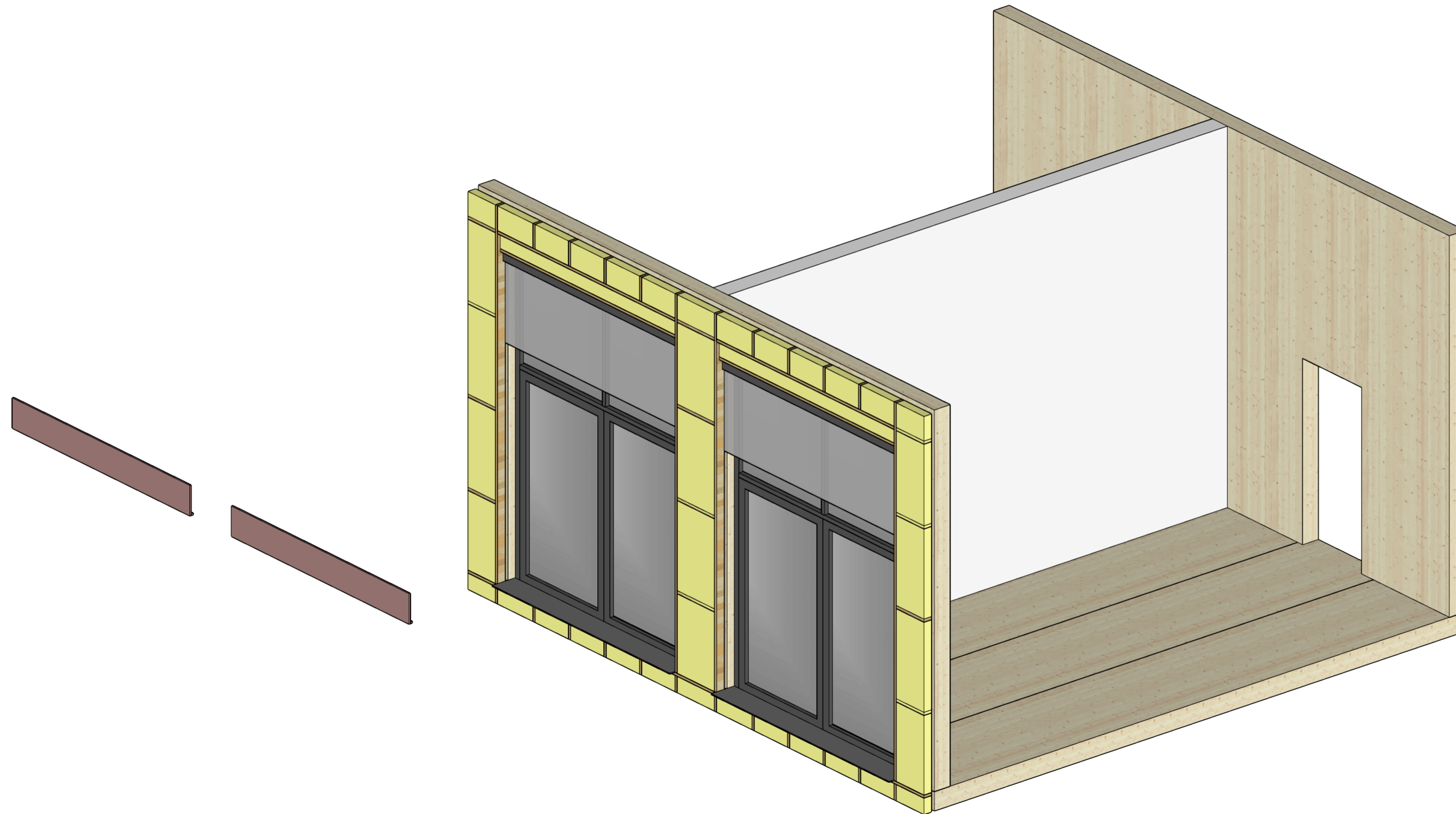
Facade assembly

1. Window
2. Screen
3. Insulation



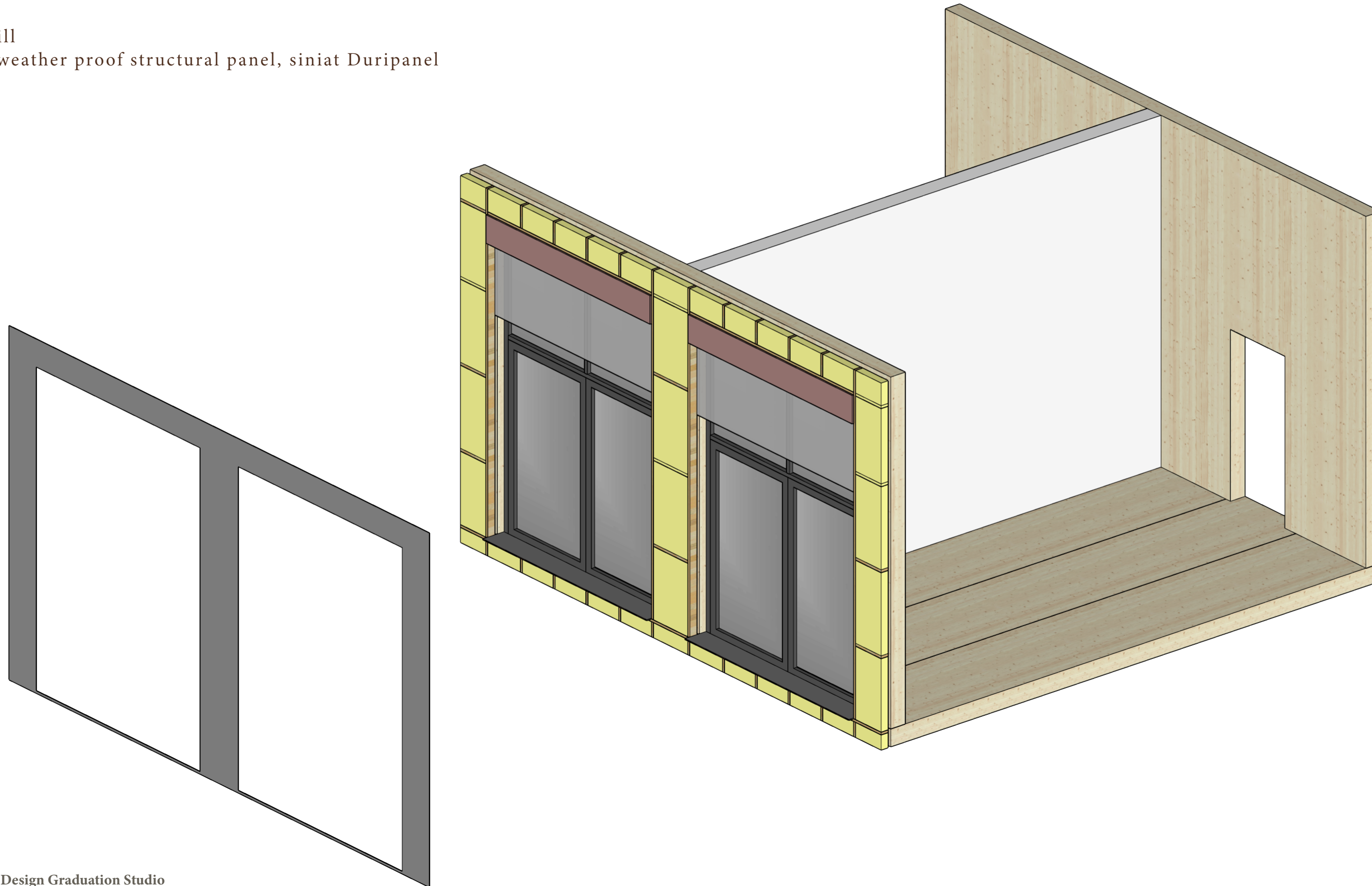
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill



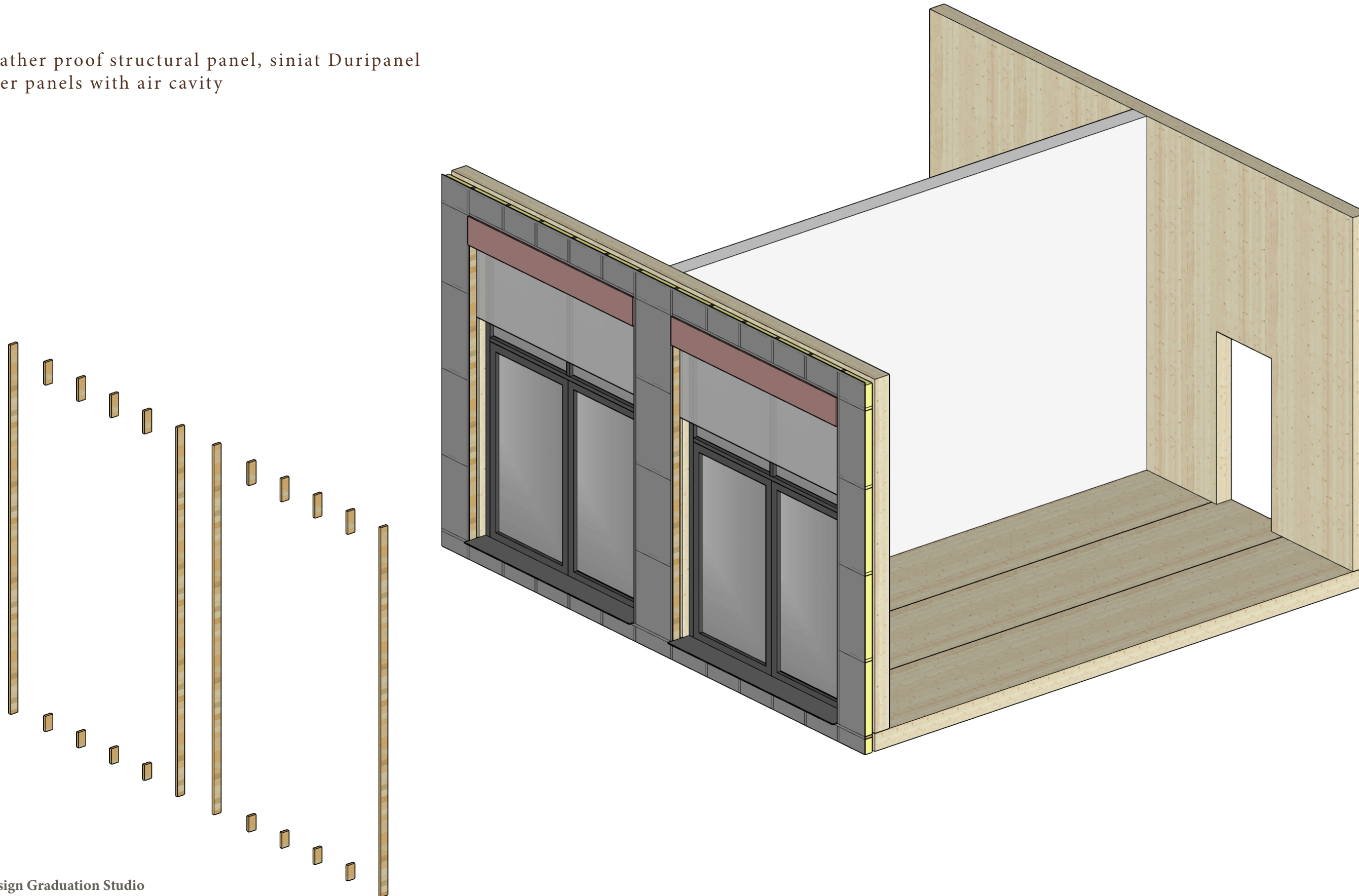
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, siniat Duripanel



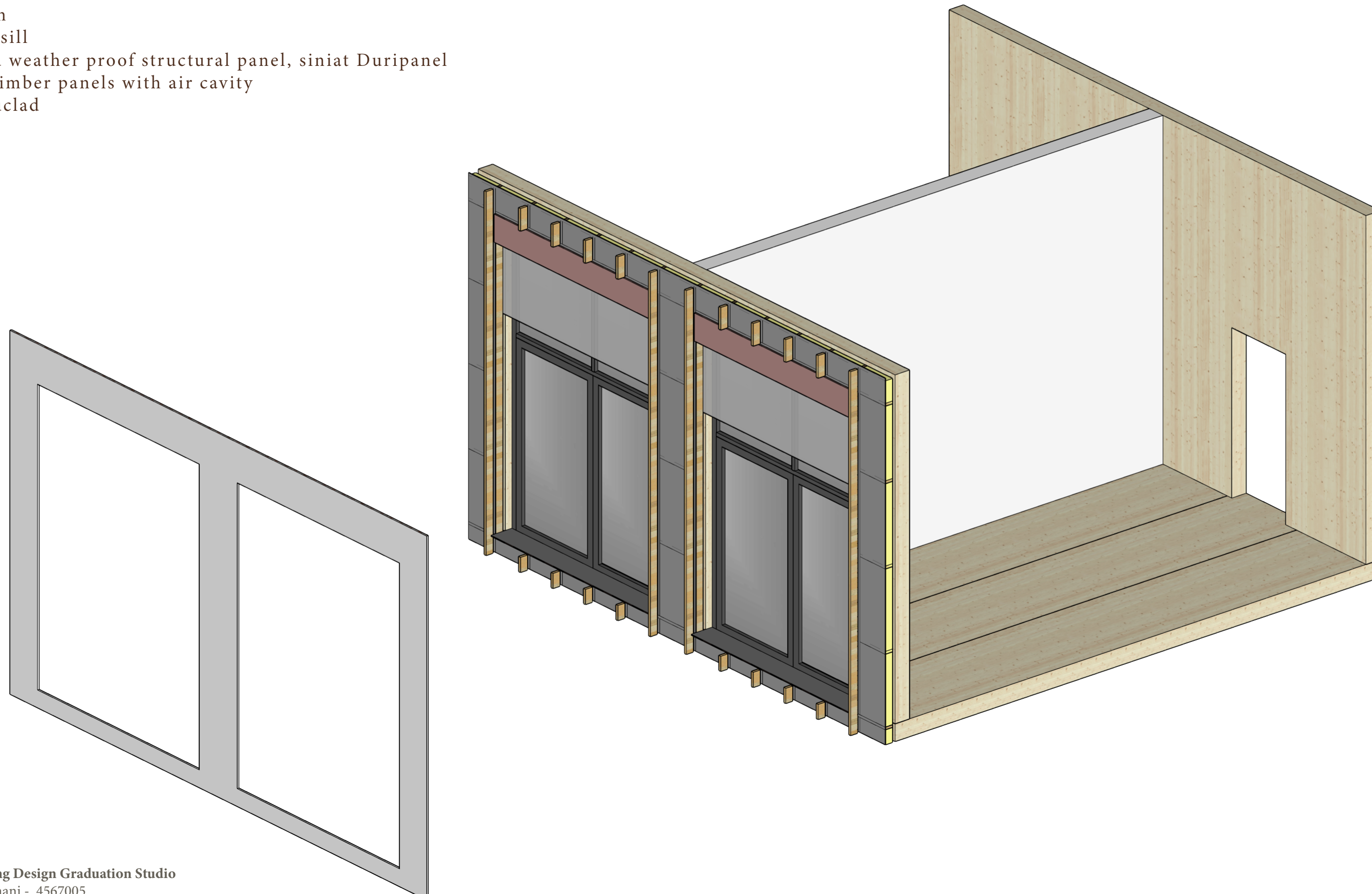
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, siniat Duripanel
6. Vertical timber panels with air cavity



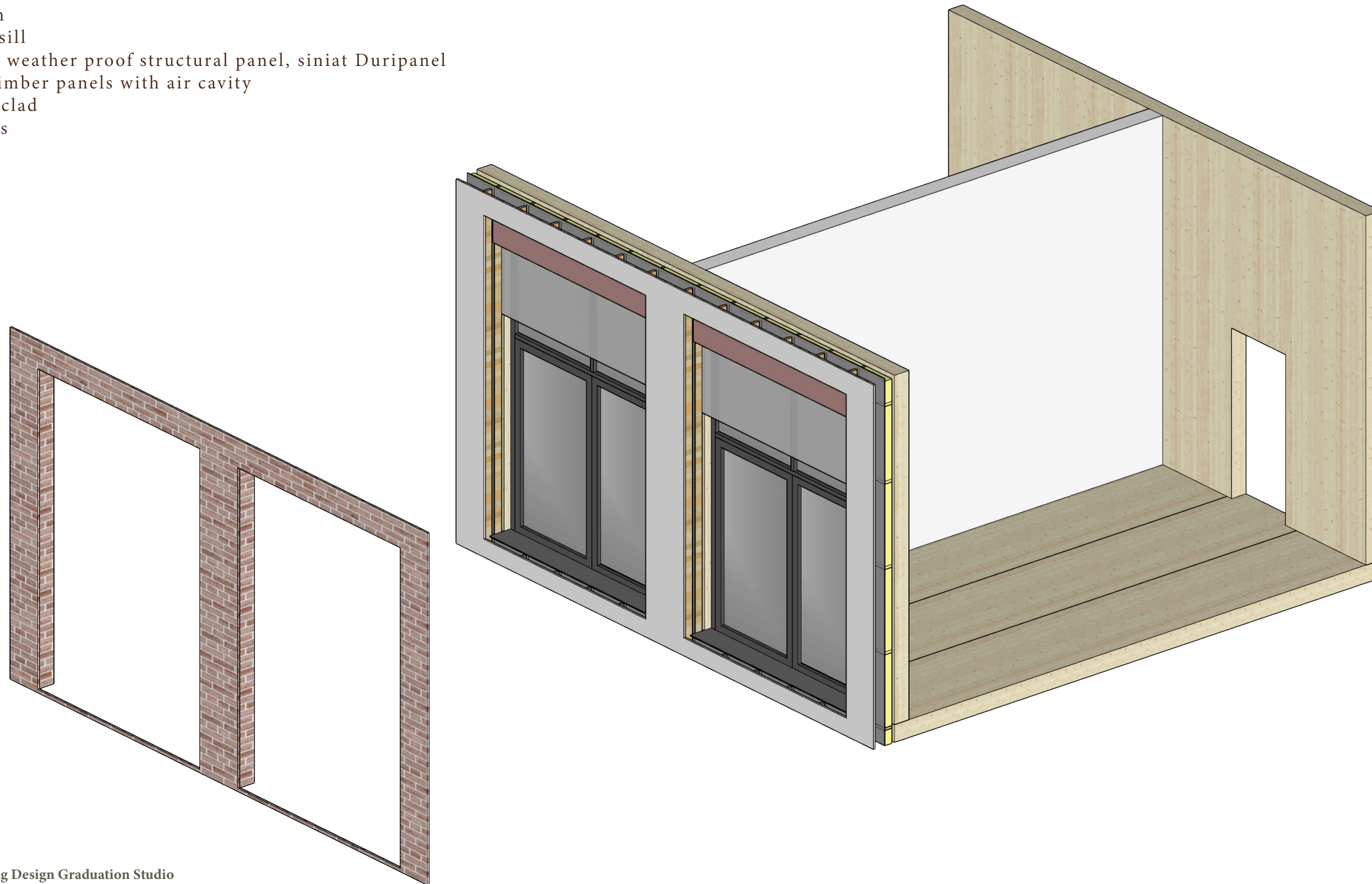
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, siniat Duripanel
6. Vertical timber panels with air cavity
7. Siniat bluclad



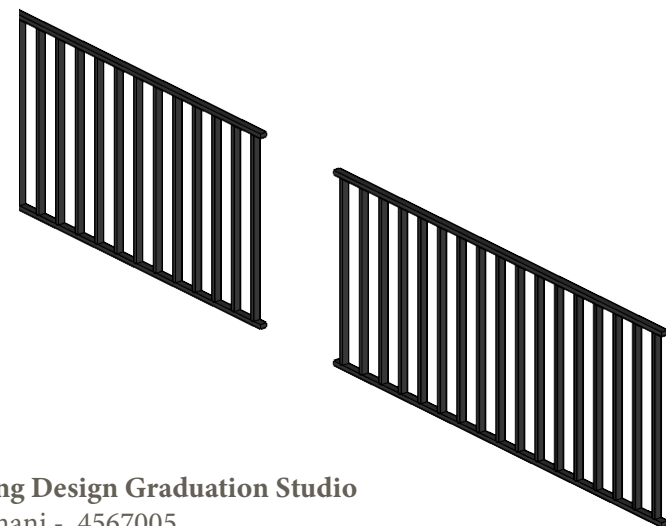
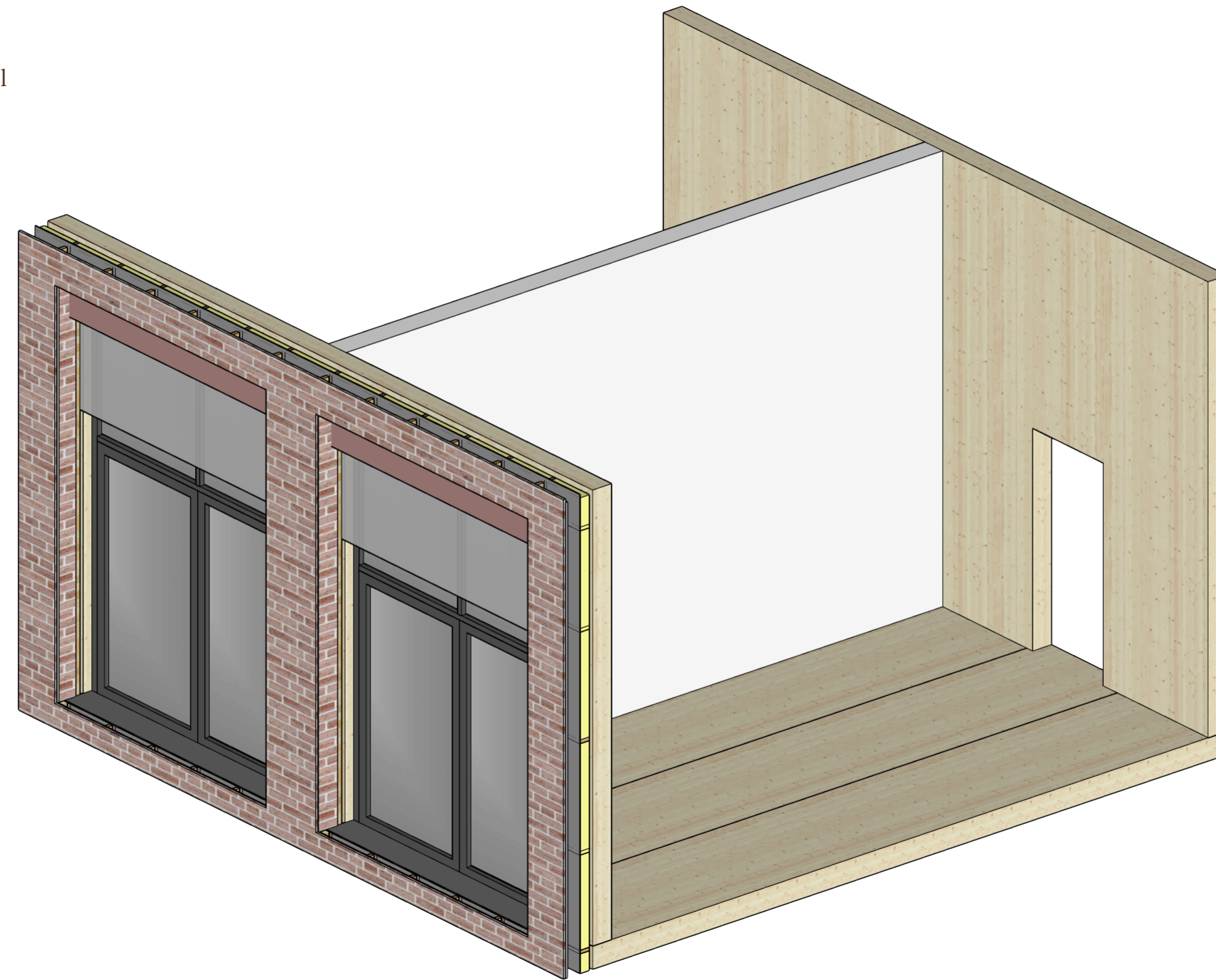
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, siniat Duripanel
6. Vertical timber panels with air cavity
7. Siniat bluclad
8. Brick slips



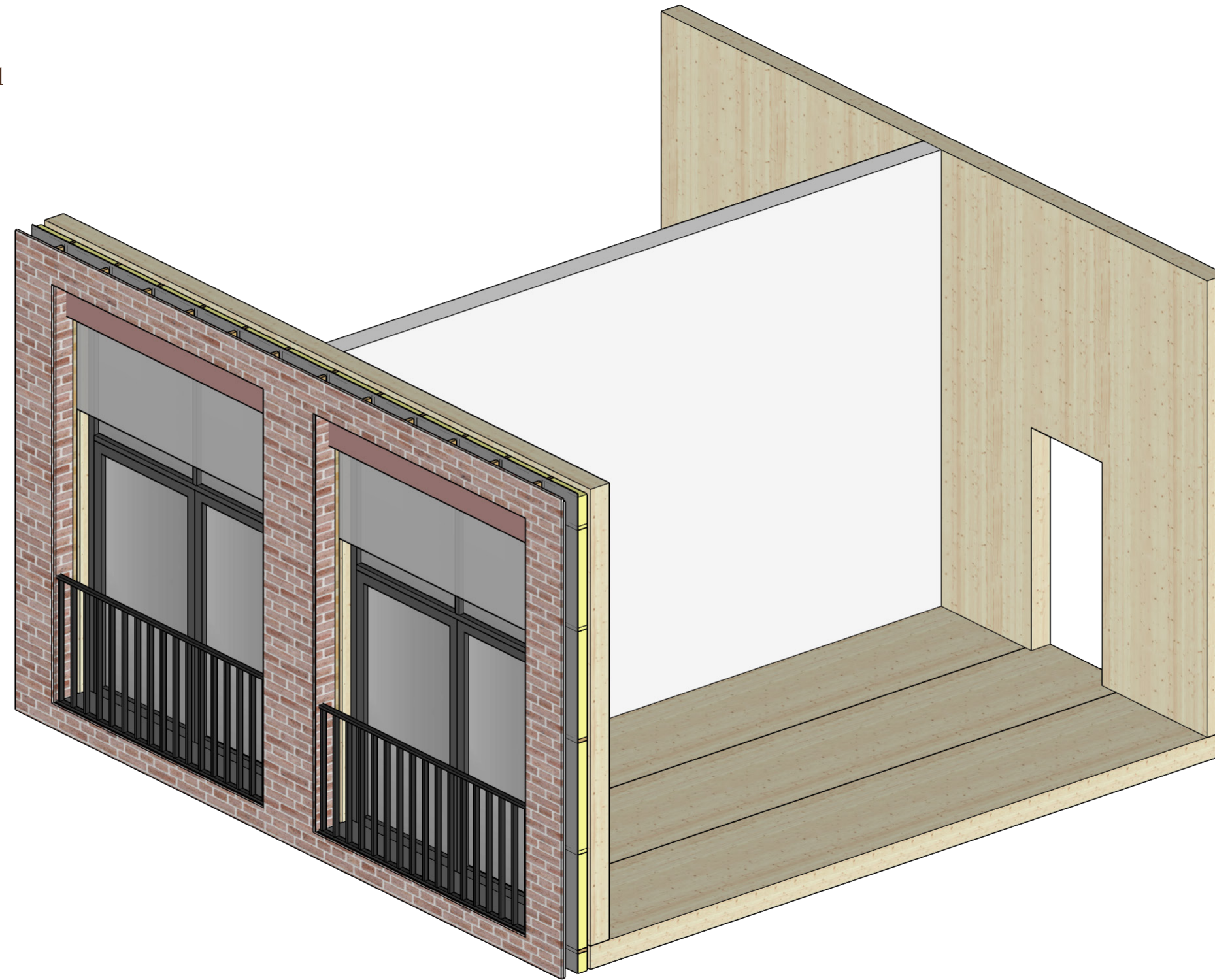
Facade assembly

1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, sinit Duripanel
6. Vertical timber panels with air cavity
7. Siniat bluclad
8. Brick slips
9. Railing

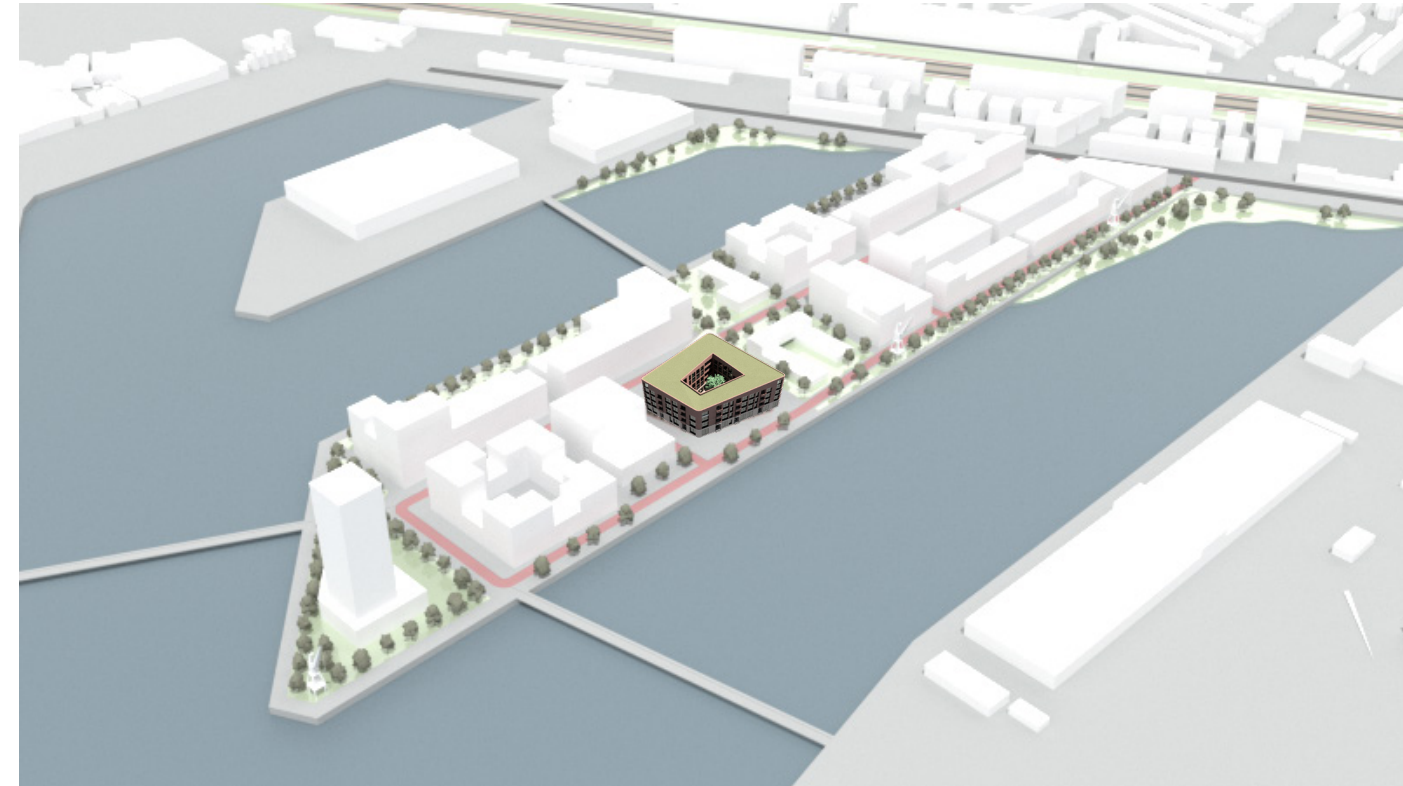


Facade assembly

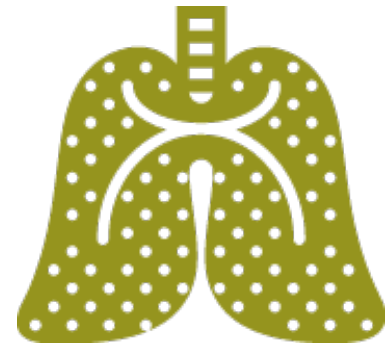
1. Window
2. Screen
3. Insulation
4. Holonite sill
5. Wind and weather proof structural panel, siniat Duripanel
6. Vertical timber panels with air cavity
7. Siniat bluclad
8. Brick slips
9. Railing



Green route



Benefits of a green roof



Climate scheme

