

Ecology of Living Together

Advanced Housing Design Graduation Studio

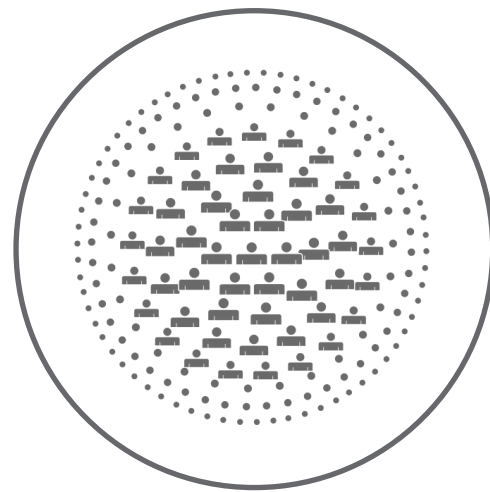
Alexander Hessels

17-06-2022

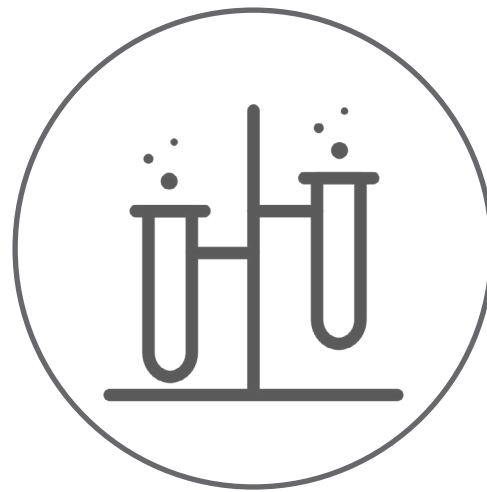
P5



INTRODUCTION



Graduation studio



Experiment



Living Together



Transformation

- **Urban Masterplan:** Forest Edge
- **Design Concept:** ...in a few steps
- **Spatial Layout:** situation, plans & experience
- **Building Technology:** technical applications
- **Conclusion:** final words

The background features an abstract geometric design. On the left, a dark grey stepped line descends from the top edge, with green squares of varying shades (light, medium, and dark) filling the areas to its left and right. On the right side, there are several more green squares of different sizes and shades, some overlapping each other. A thick dark grey horizontal line runs across the middle of the page, intersecting the stepped line.

Urban Masterplan

Forest Edge

URBAN_MASTERPLAN

Project location



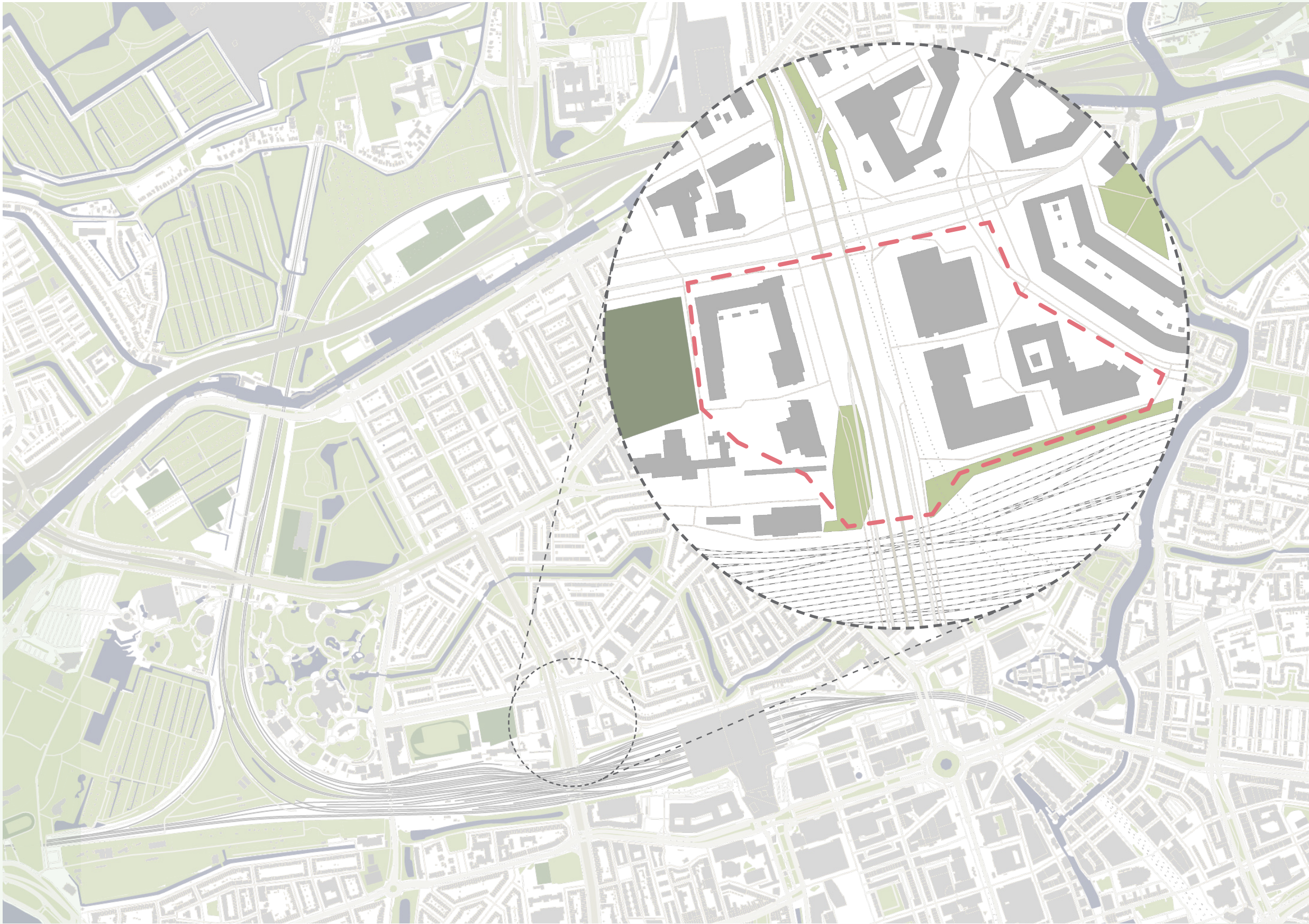
Situation - Rotterdam noord

AR3AD100 - P5 Presentation - Alexander Hessels



URBAN_MASTERPLAN

Project location



Project site - Rotterdam blijdorp





1



2



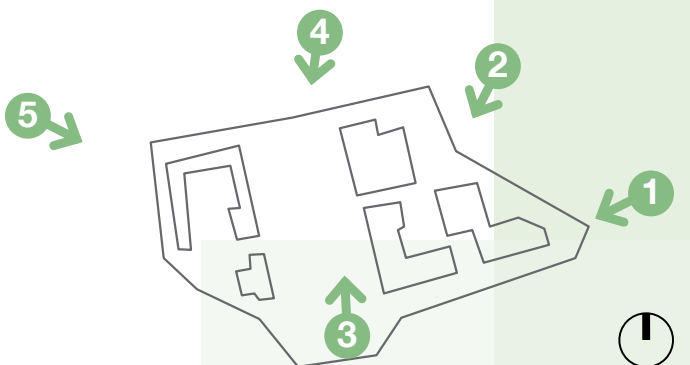
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4



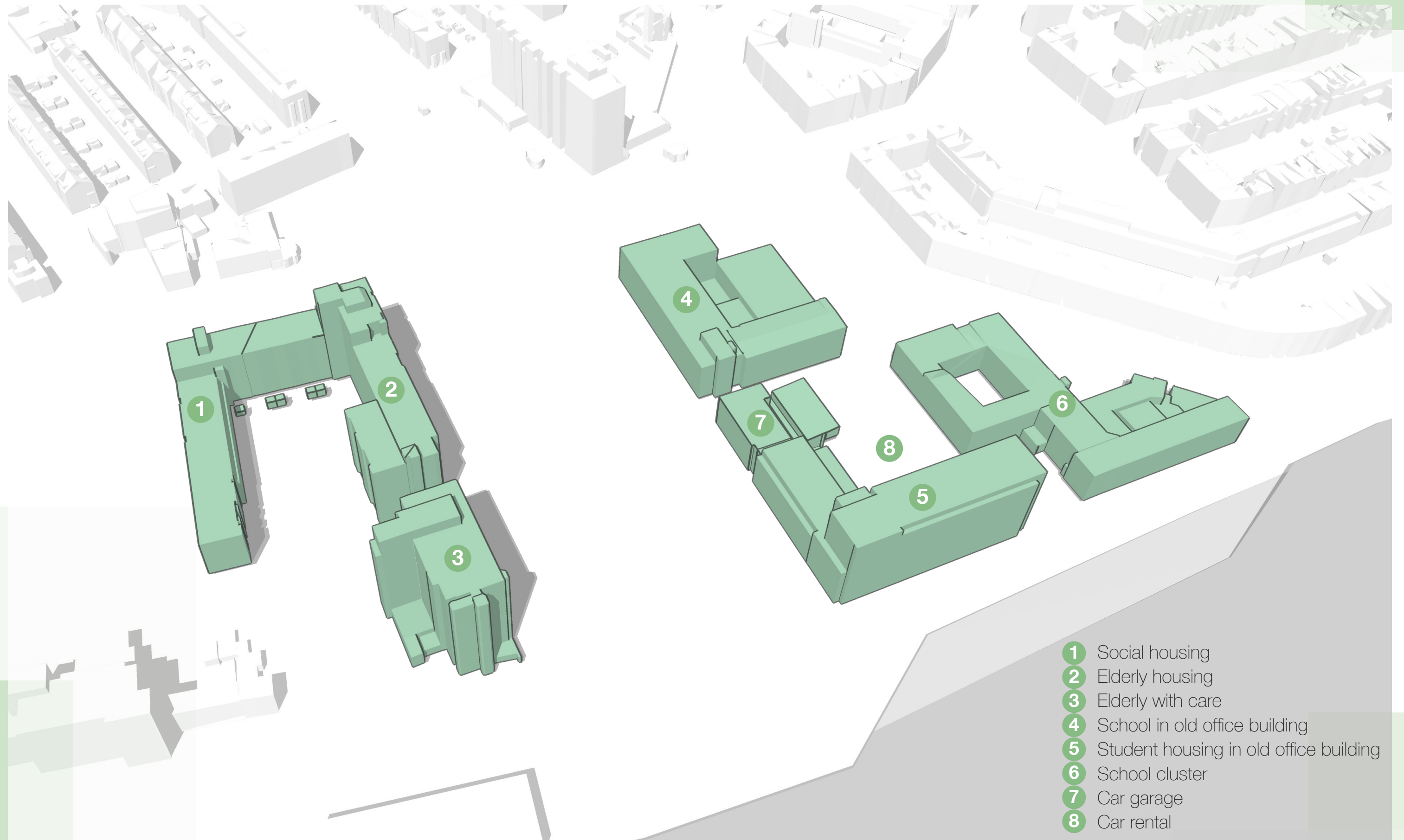
5



source: Google/maps

URBAN_MASTERPLAN

Existing situation - project location



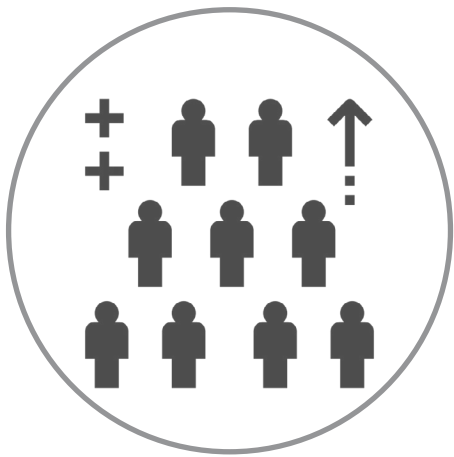
URBAN_MASTERPLAN

Site as a stand-alone island

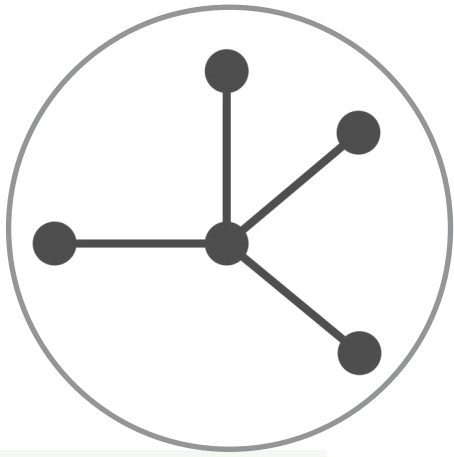


URBAN_MASTERPLAN

Urban masterplan of the Ecology group P1



Densification



Better connection



More greenery

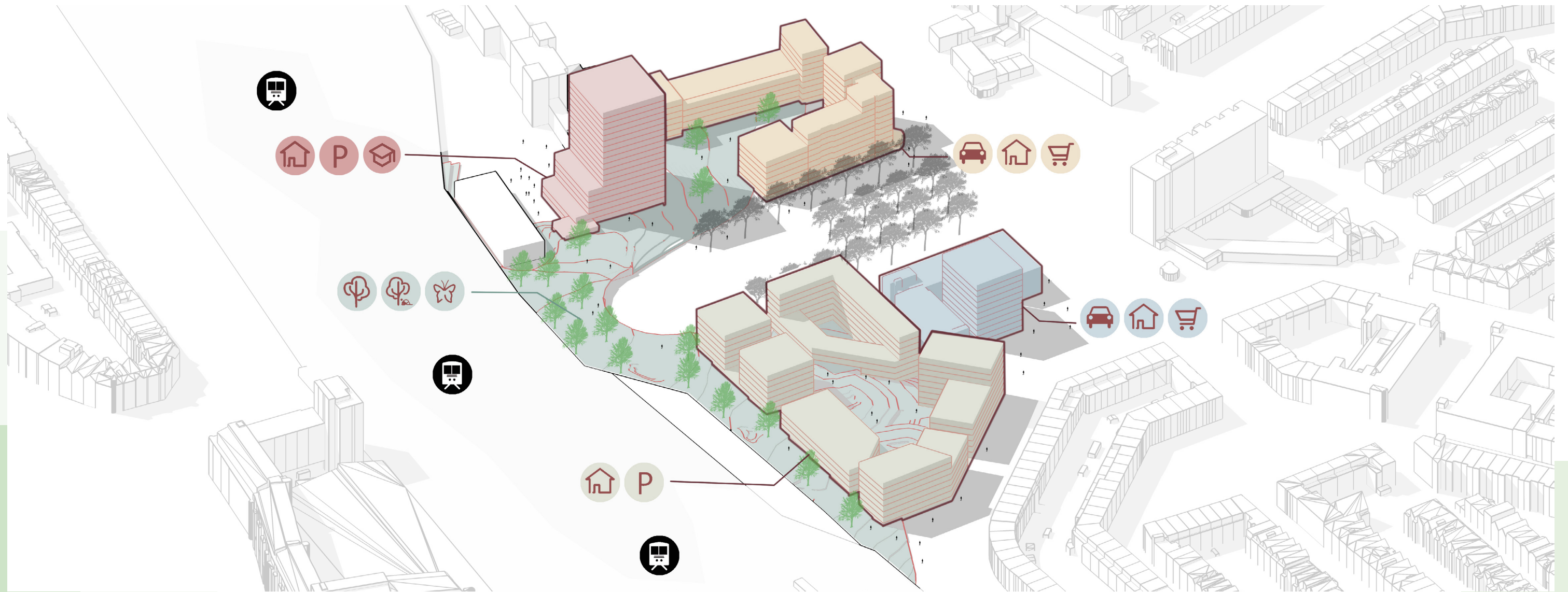


Scale 1:1000



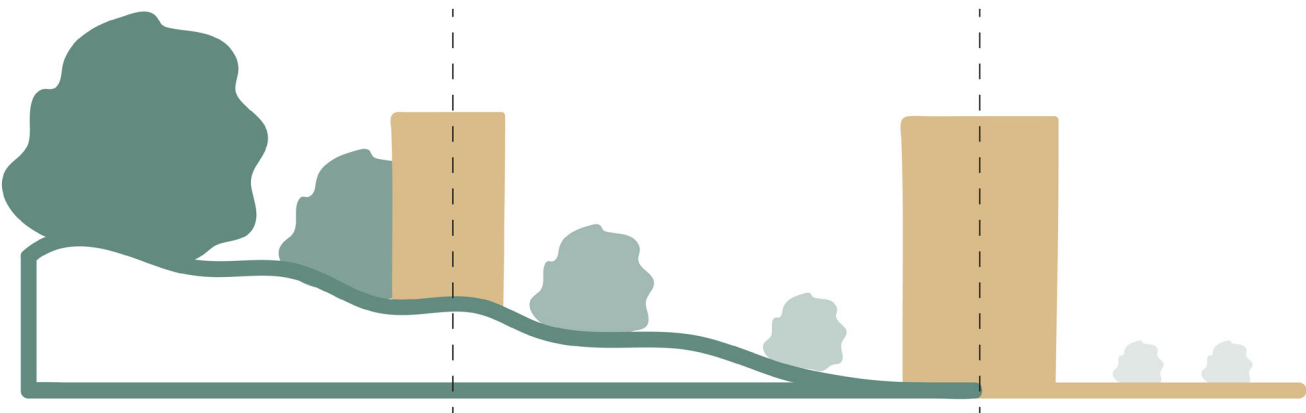
URBAN_MASTERPLAN

Masterplan divided into 4 zones



URBAN_MASTERPLAN

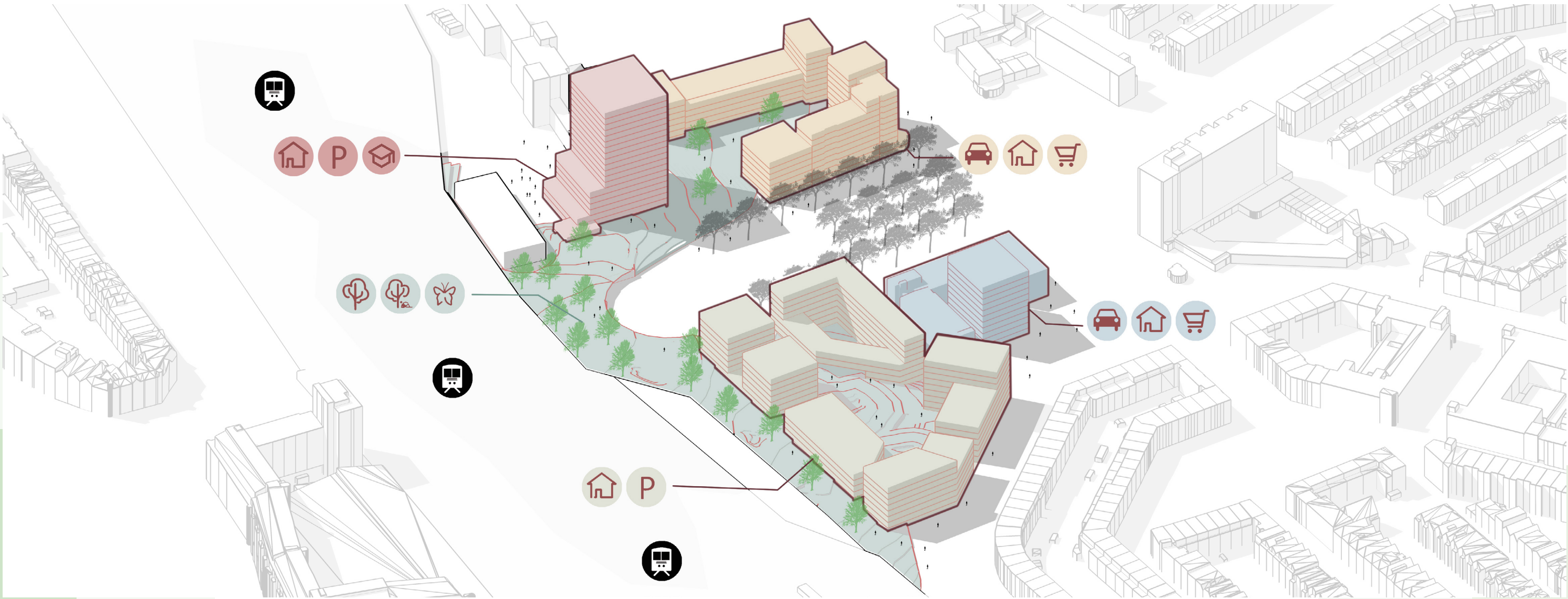
Masterplan divided into 4 zones



Dense forest edge
Seperate habitats for
species and humans

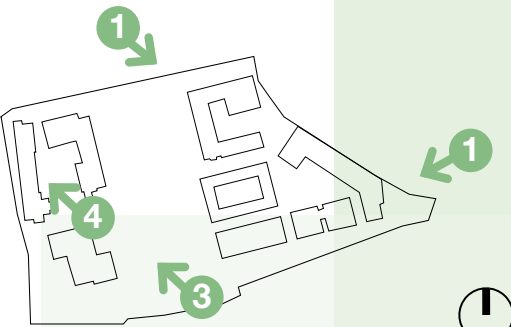
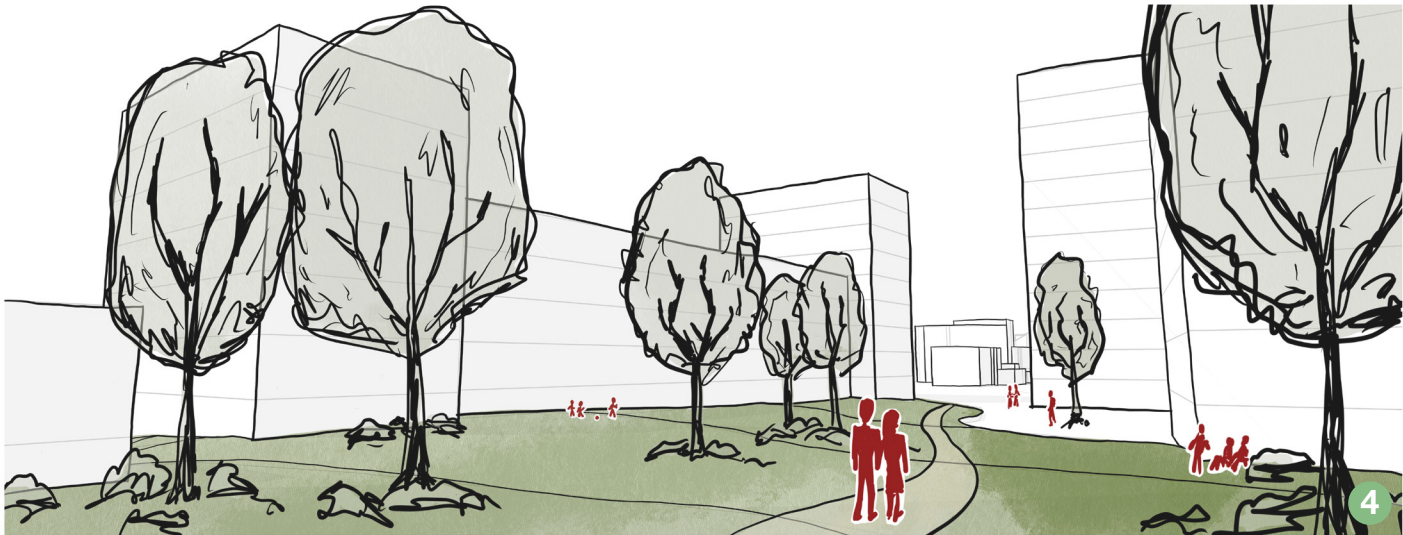
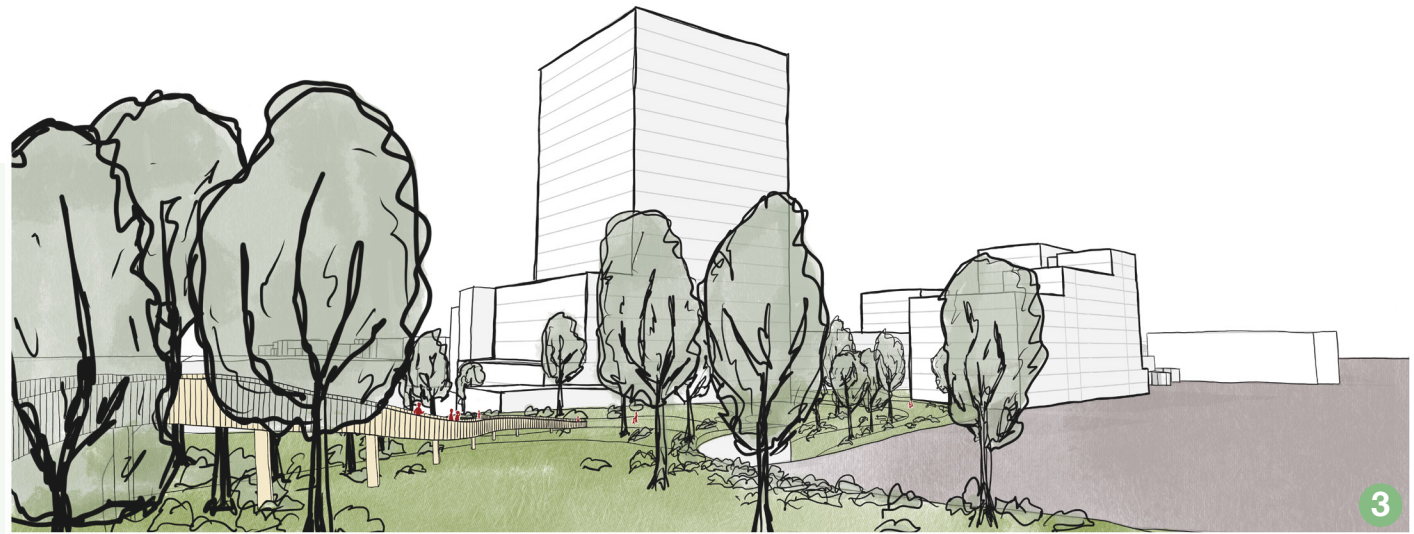
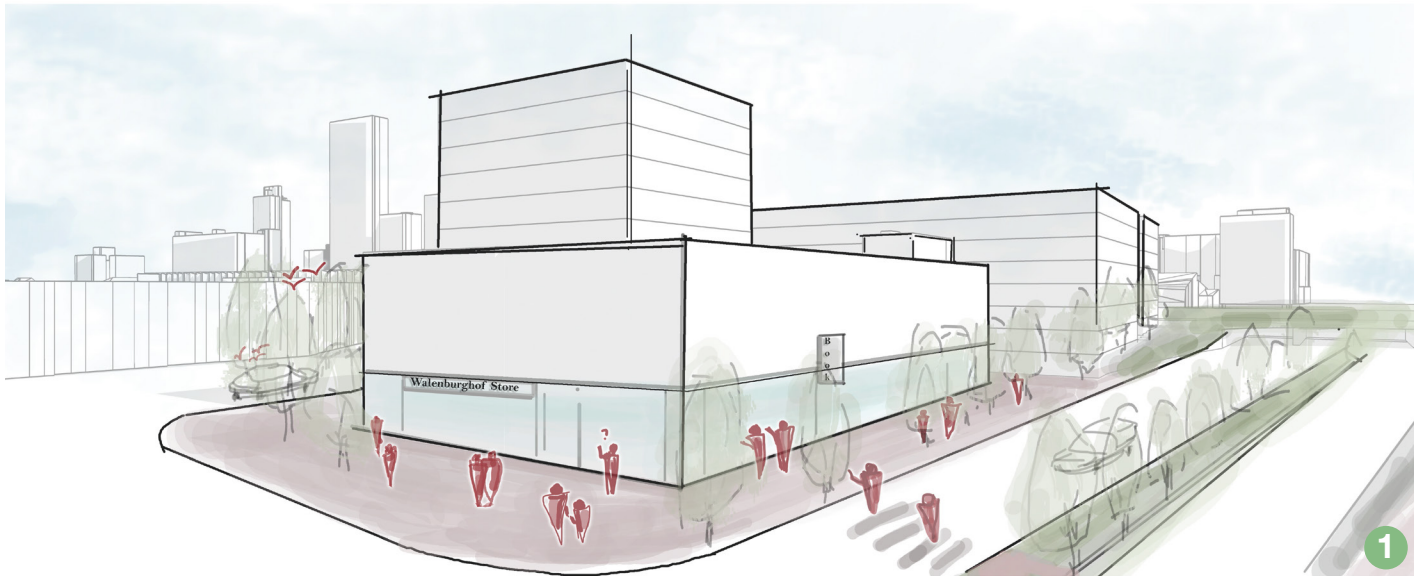
Open forest edge
Habitats for both species
and humans

Urban forest edge
Human habitat with species



URBAN_MASTERPLAN

Urban masterplan of the Ecology group



URBAN_MASTERPLAN

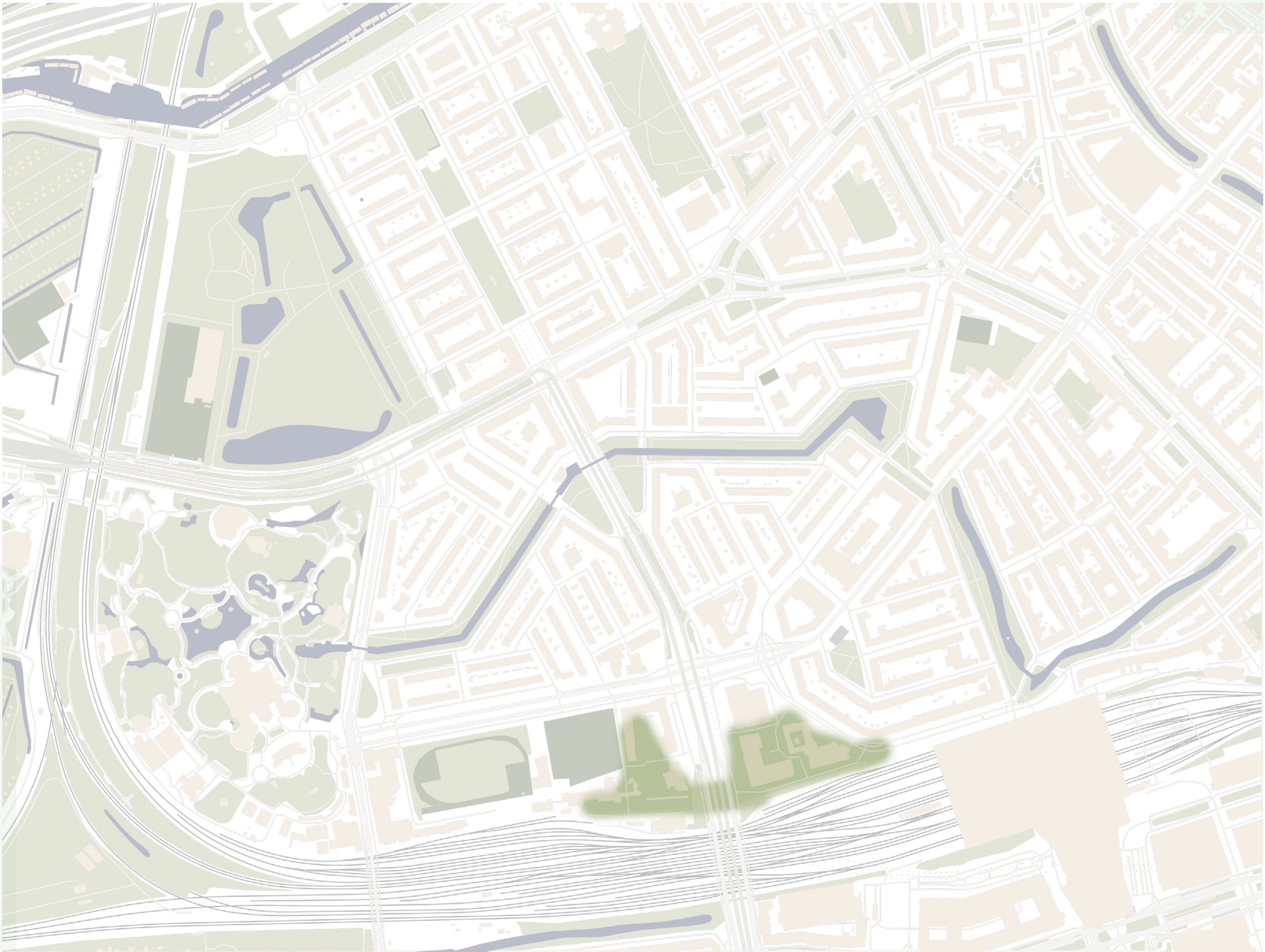
Green circulation



Scale 1:1000

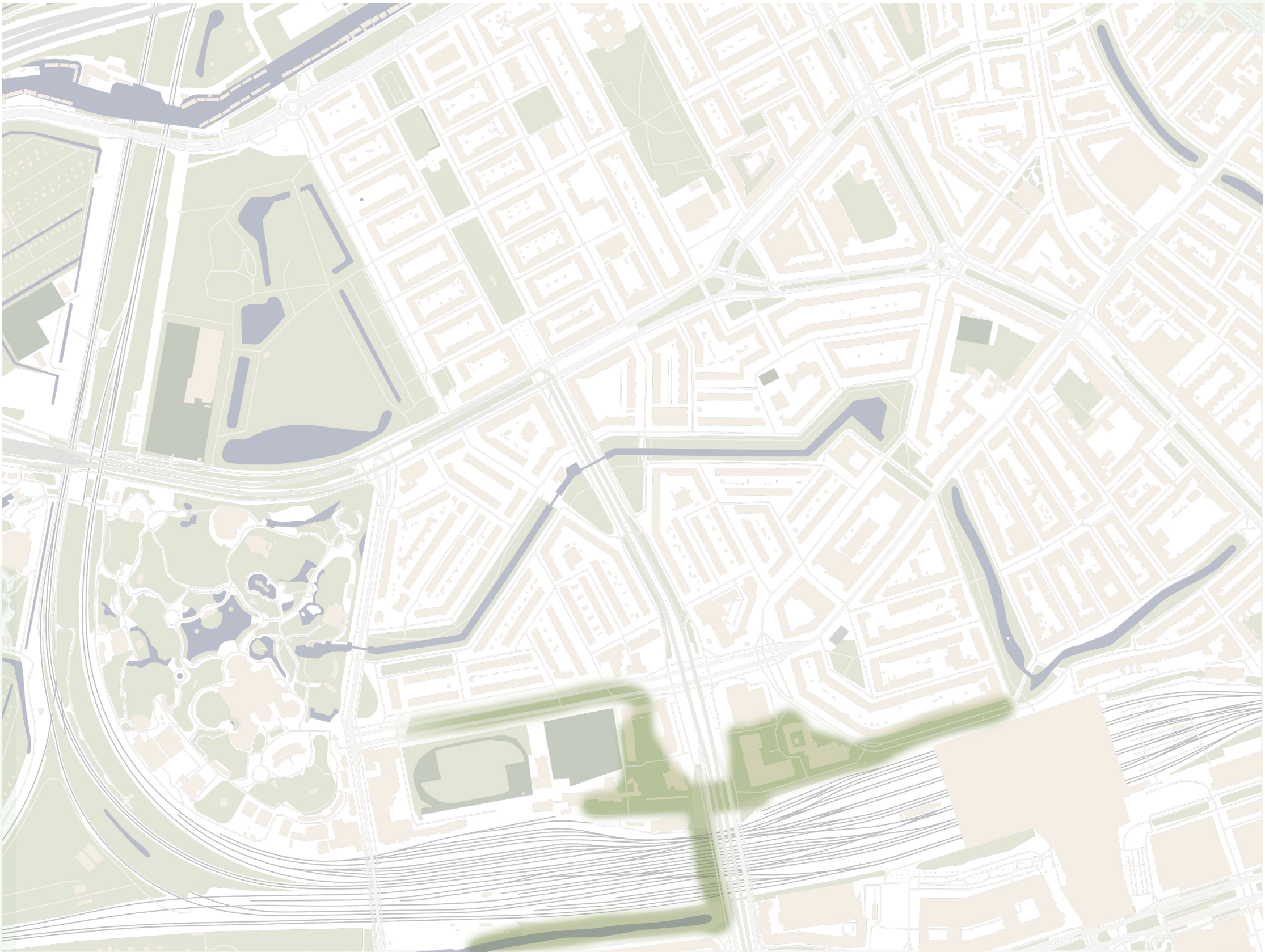
URBAN_MASTERPLAN

Green circulation 10 years



URBAN_MASTERPLAN

Green circulation 25 years



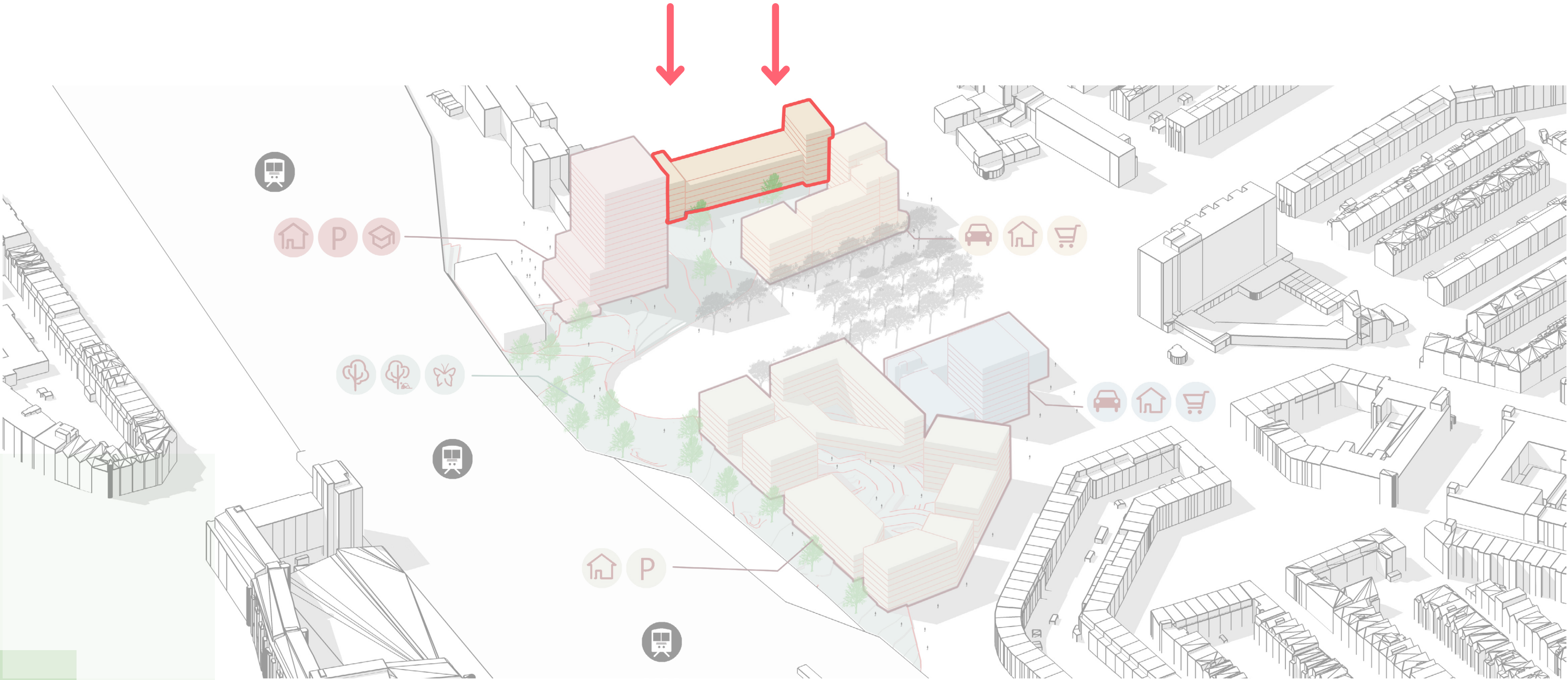
URBAN_MASTERPLAN

Green circulation 50 years



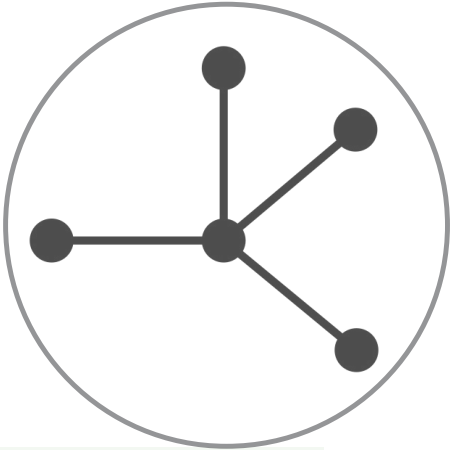
URBAN_MASTERPLAN

My plot in the urban Masterplan



URBAN_MASTERPLAN

Green corridor continuation



Better connection



URBAN_MASTERPLAN

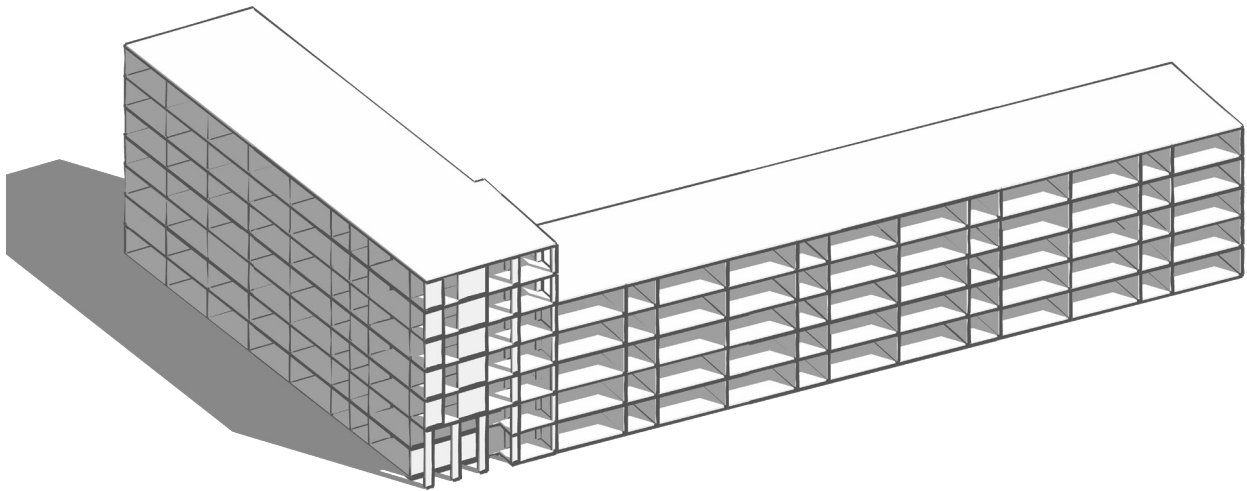
My plot in the urban Masterplan



Aerial picture, source: Google/maps

URBAN_MASTERPLAN

My plot in the urban Masterplan

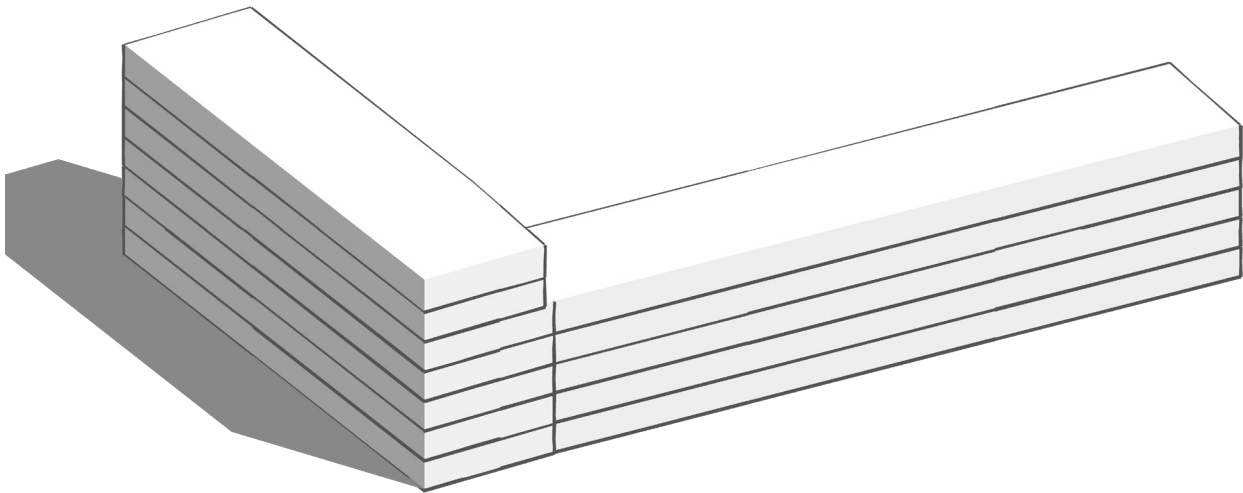


Existing structure



URBAN_MASTERPLAN

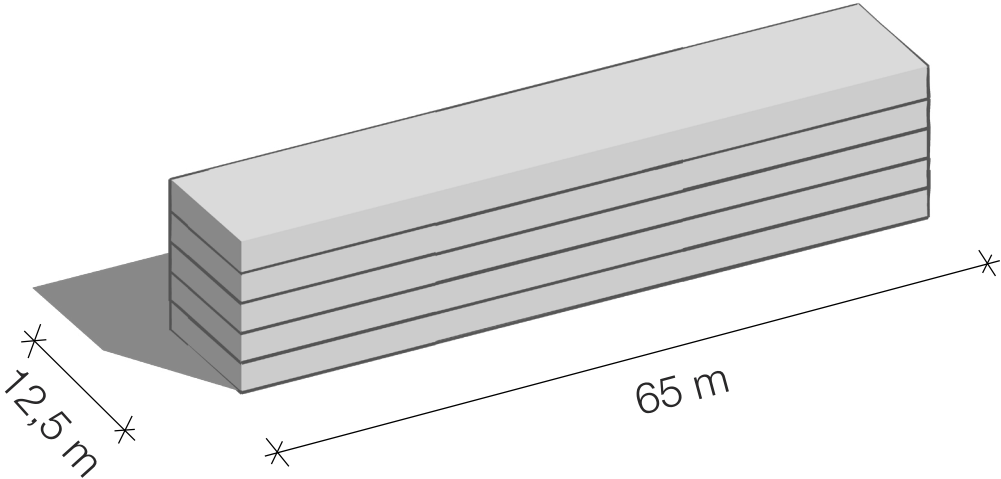
My plot in the urban Masterplan



Existing volume

URBAN_MASTERPLAN

My plot in the urban Masterplan



Kept volume

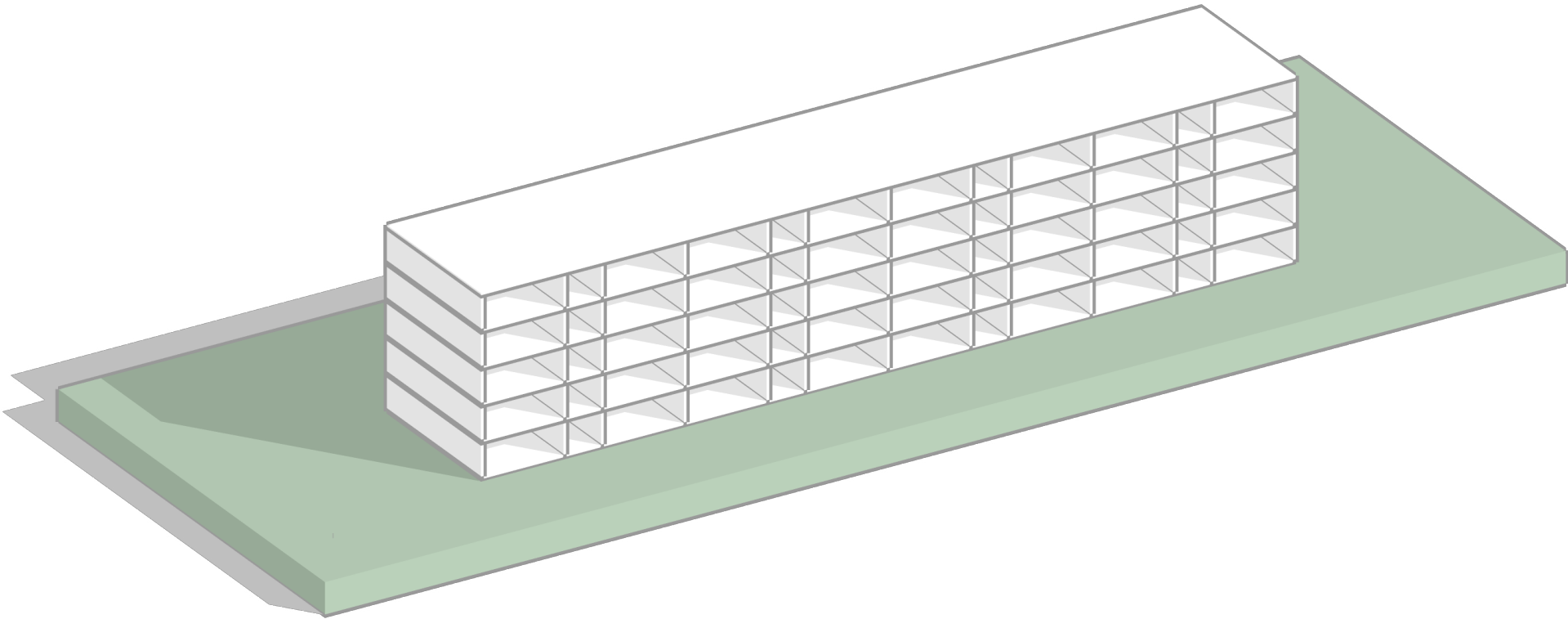
The background features a series of overlapping squares in various shades of green, ranging from light to dark. A thick, dark grey line starts on the left side, forming a stepped pattern that descends from the top left towards the bottom right. This line then turns horizontally and extends across the entire width of the image.

Design Concept

...in a few steps

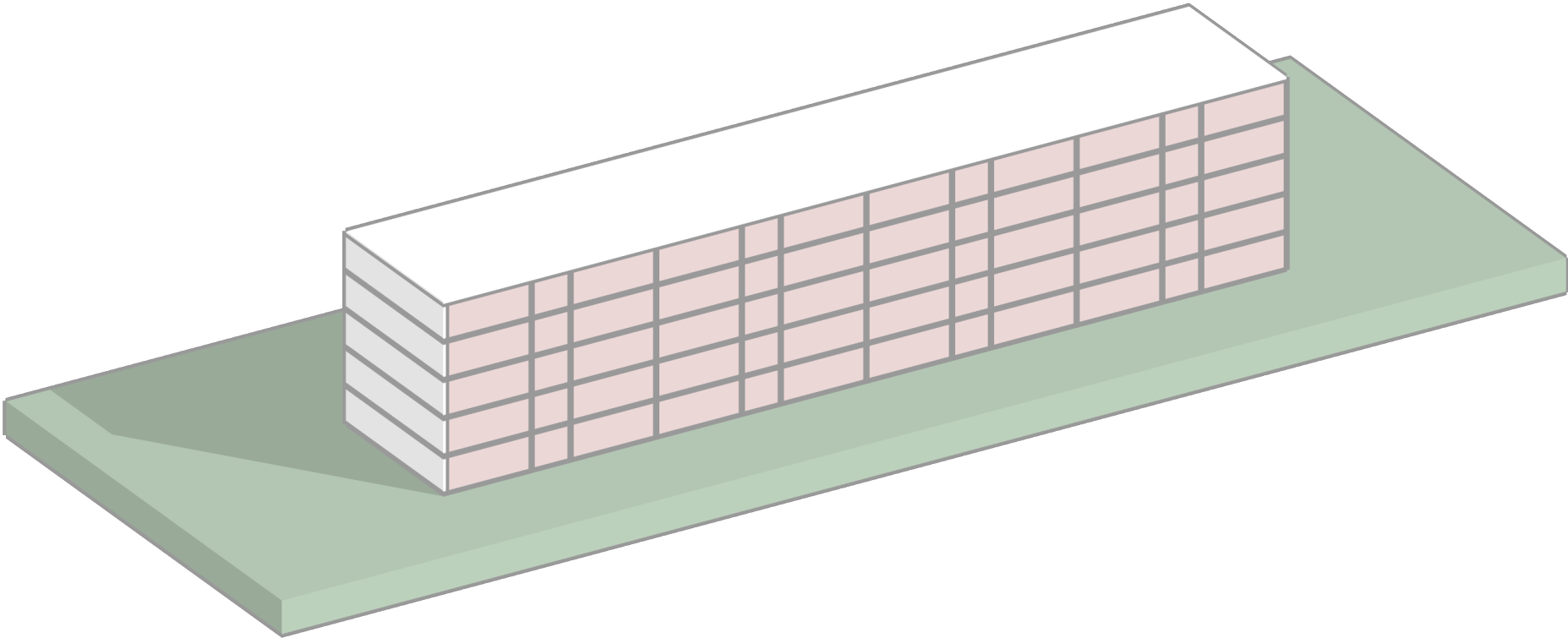
DESIGN_IN_A_FEW_STEPS

Whats left.



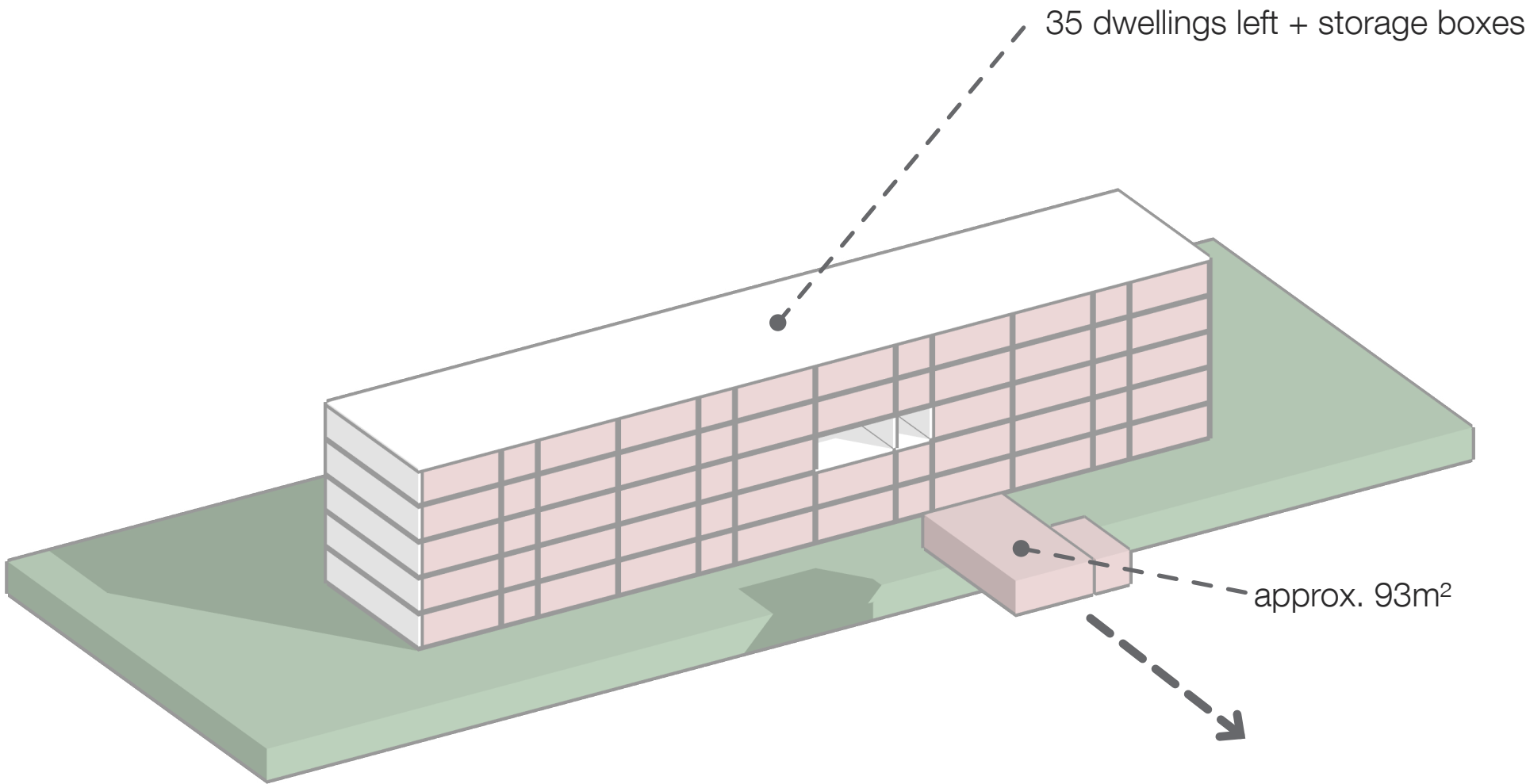
DESIGN_IN_A_FEW_STEPS

Monotonous block



DESIGN_IN_A_FEW_STEPS

Copy, paste & mirror



DESIGN_IN_A_FEW_STEPS

New program



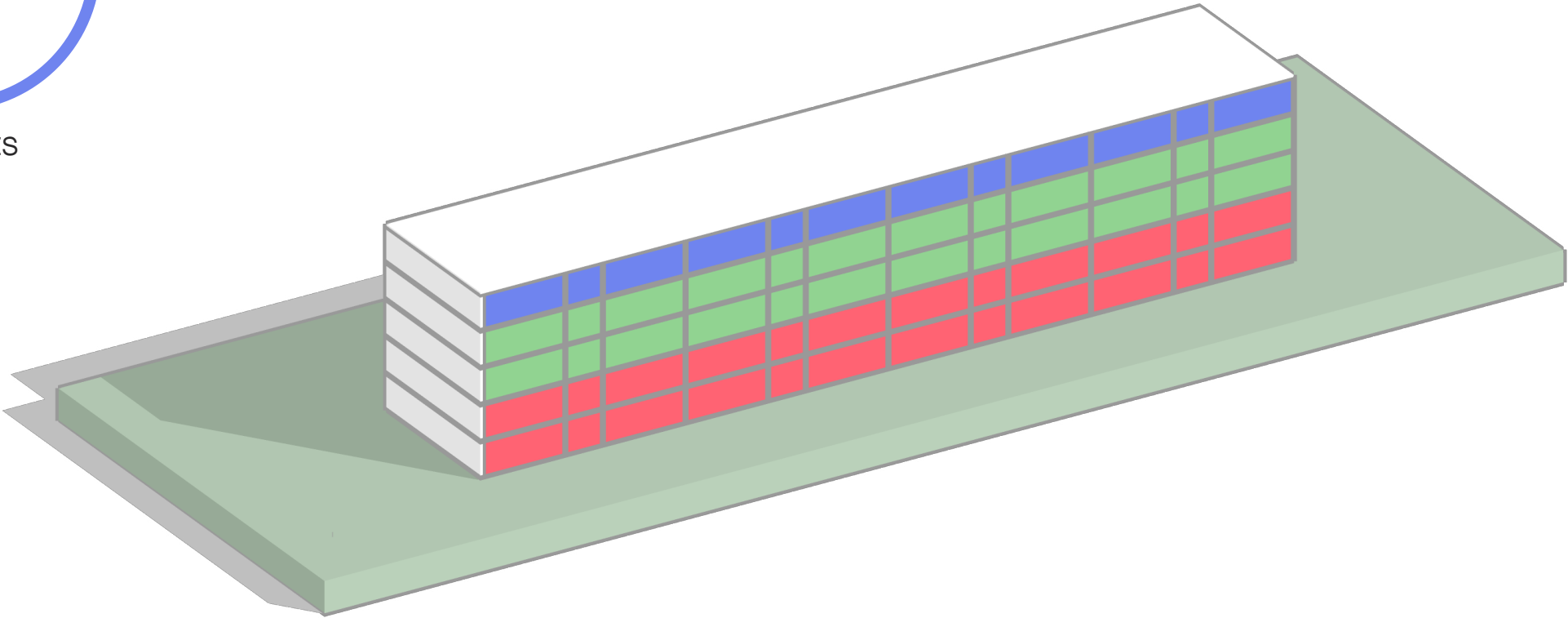
students



family



elderly



- Legend:
- students
 - family
 - elderly

DESIGN_IN_A_FEW_STEPS

New program - vertical layering



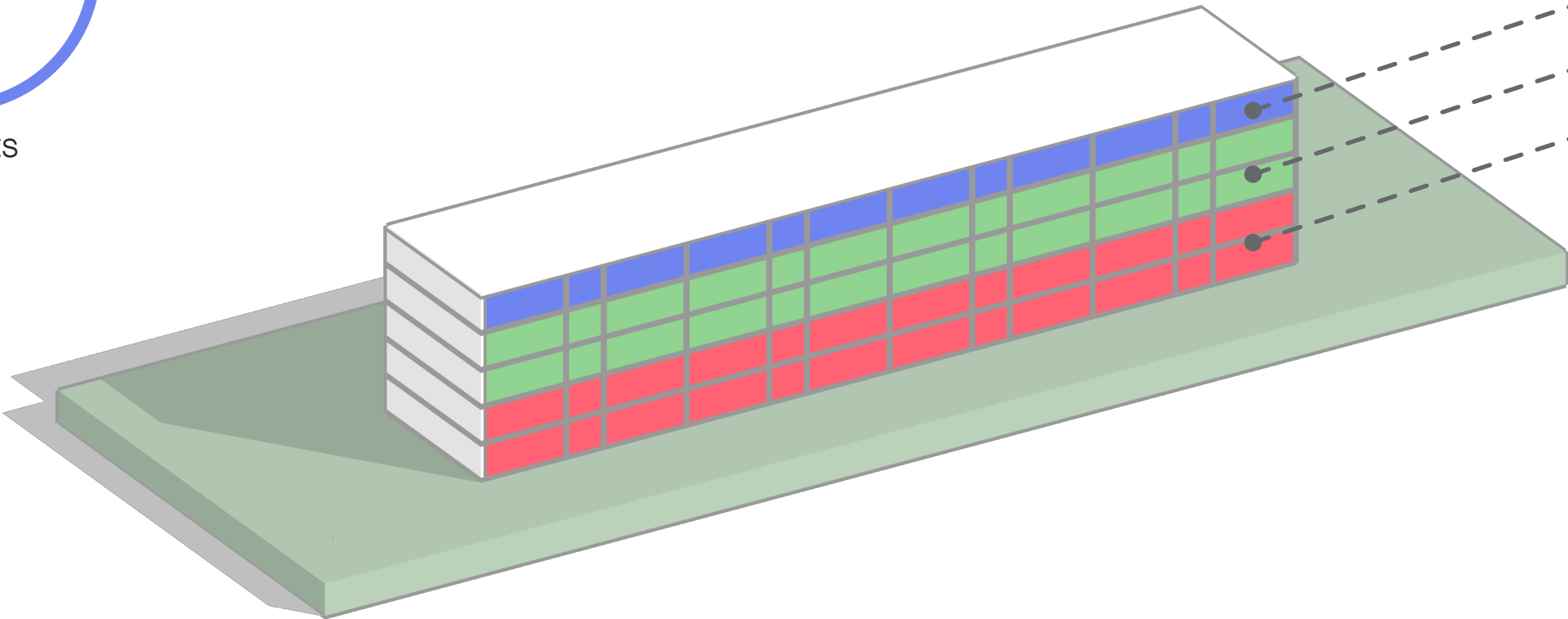
students



family



elderly



smaller dwellings
medium dwellings
bigger dwellings

Legend:

■

 students

■

 family

■

 elderly

DESIGN_IN_A_FEW_STEPS

New program - horizontal layering



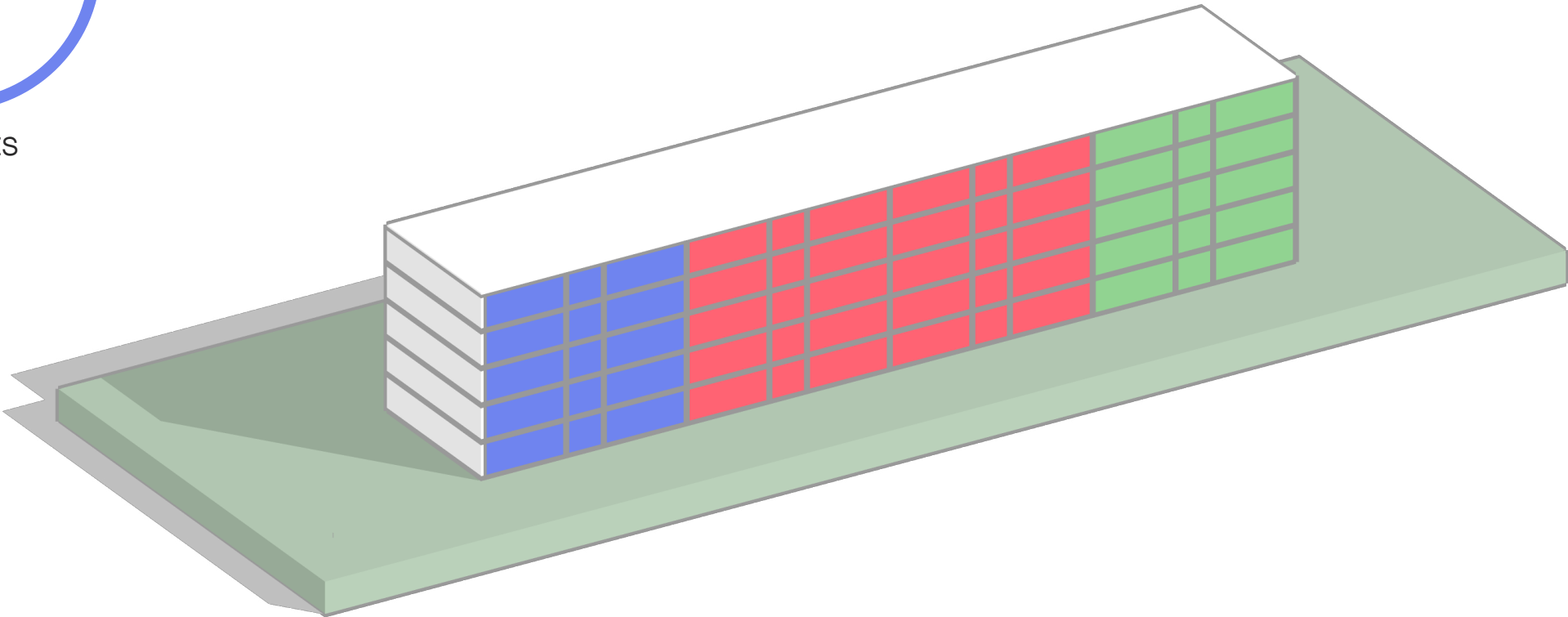
students



family



elderly



Legend:

■

 students

■

 family

■

 elderly

DESIGN_IN_A_FEW_STEPS

New program - cluster



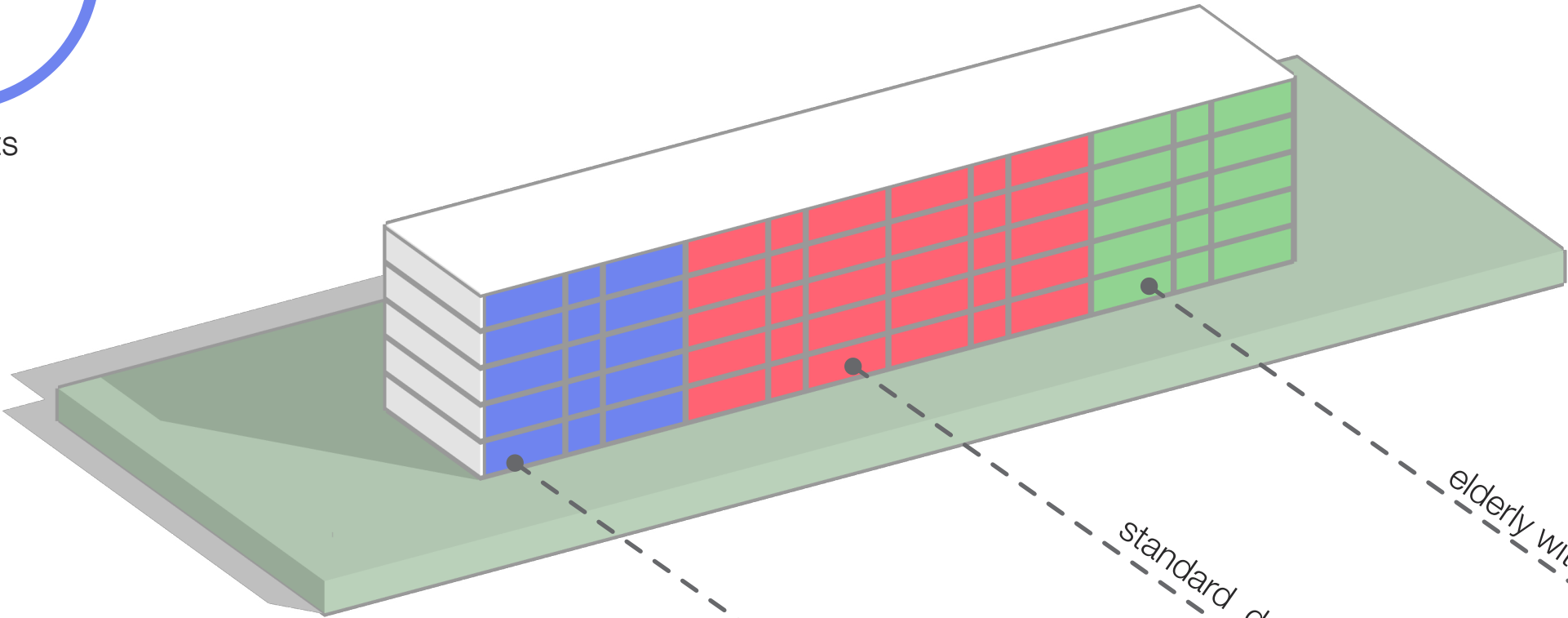
students



family



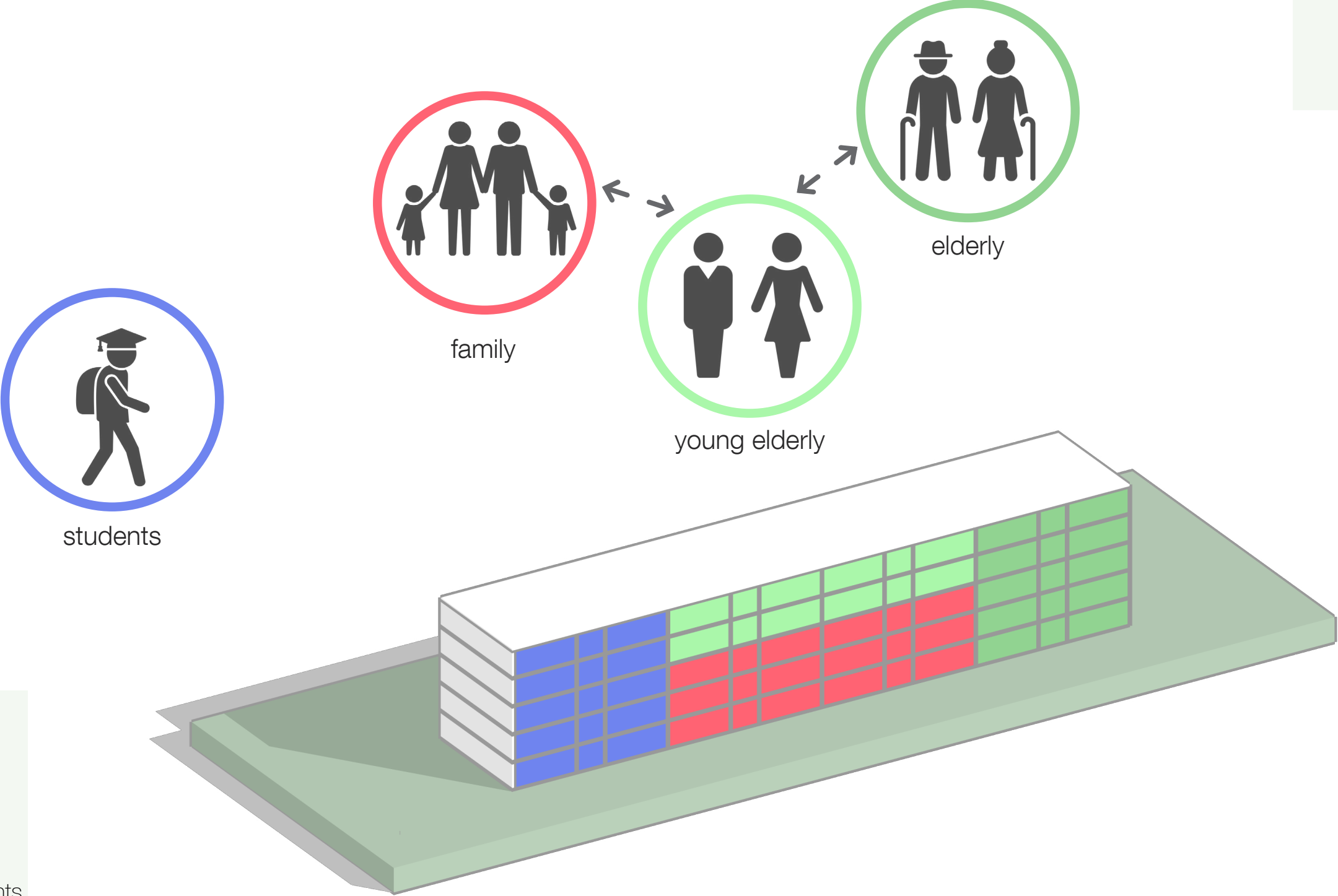
elderly



- Legend:
- students
 - family
 - elderly

DESIGN_IN_A_FEW_STEPS

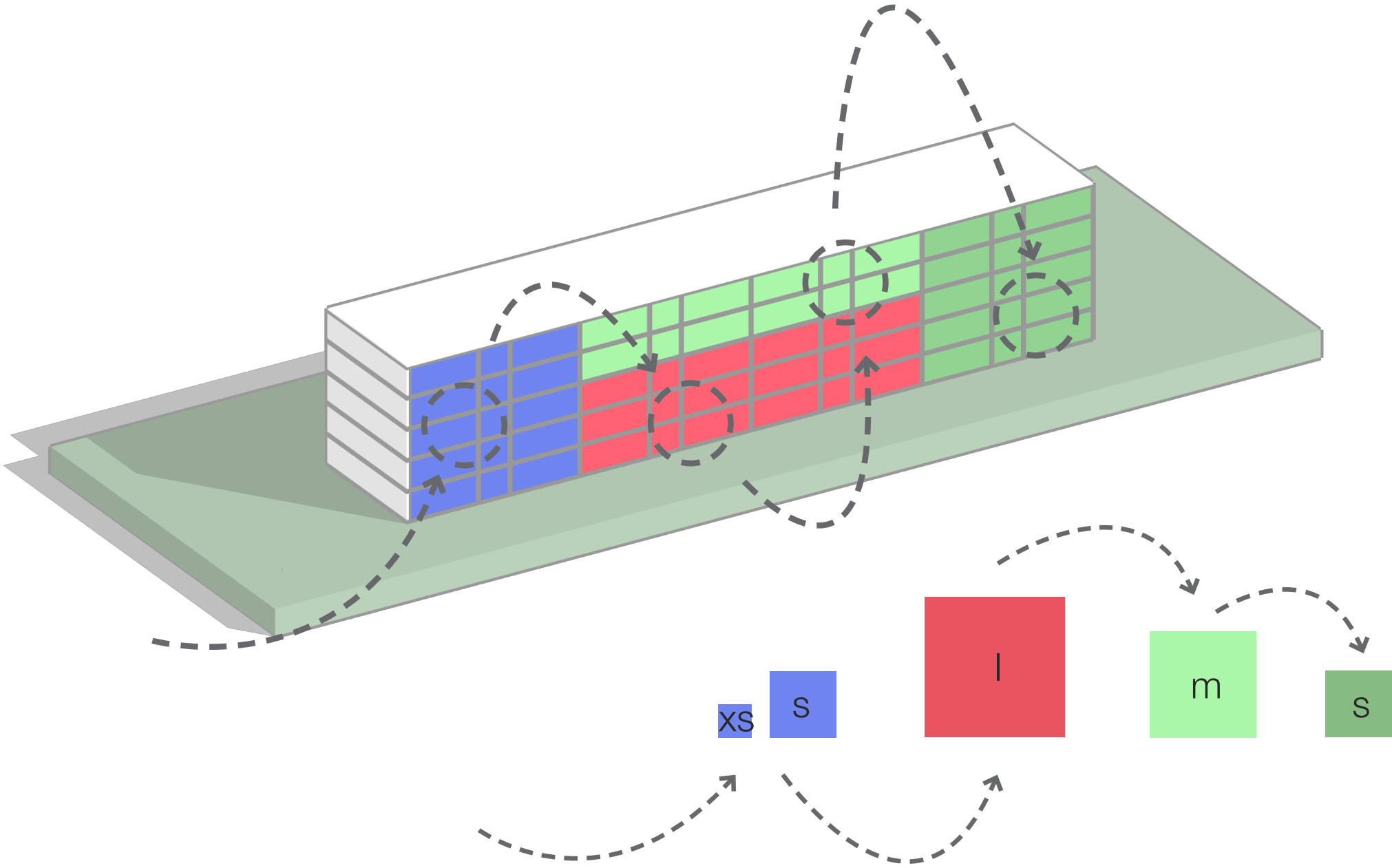
New program - 4th household type



- Legend:
- students
 - family
 - young elderly
 - elderly

DESIGN_IN_A_FEW_STEPS

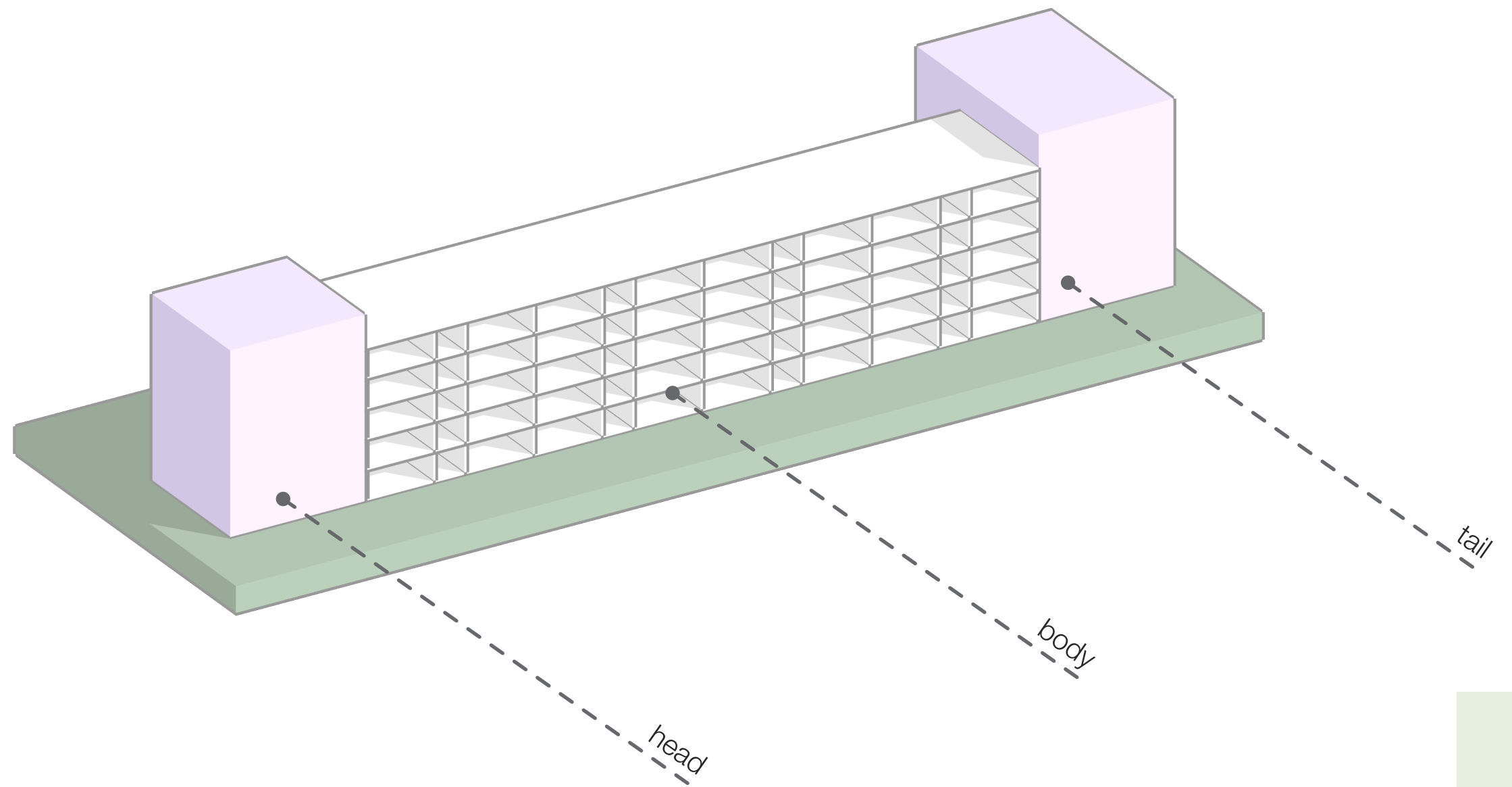
New program - 4th household type



- Legend:
- students
 - family
 - young elderly
 - elderly

DESIGN_IN_A_FEW_STEPS

Addition of the head and the tail



DESIGN_IN_A_FEW_STEPS

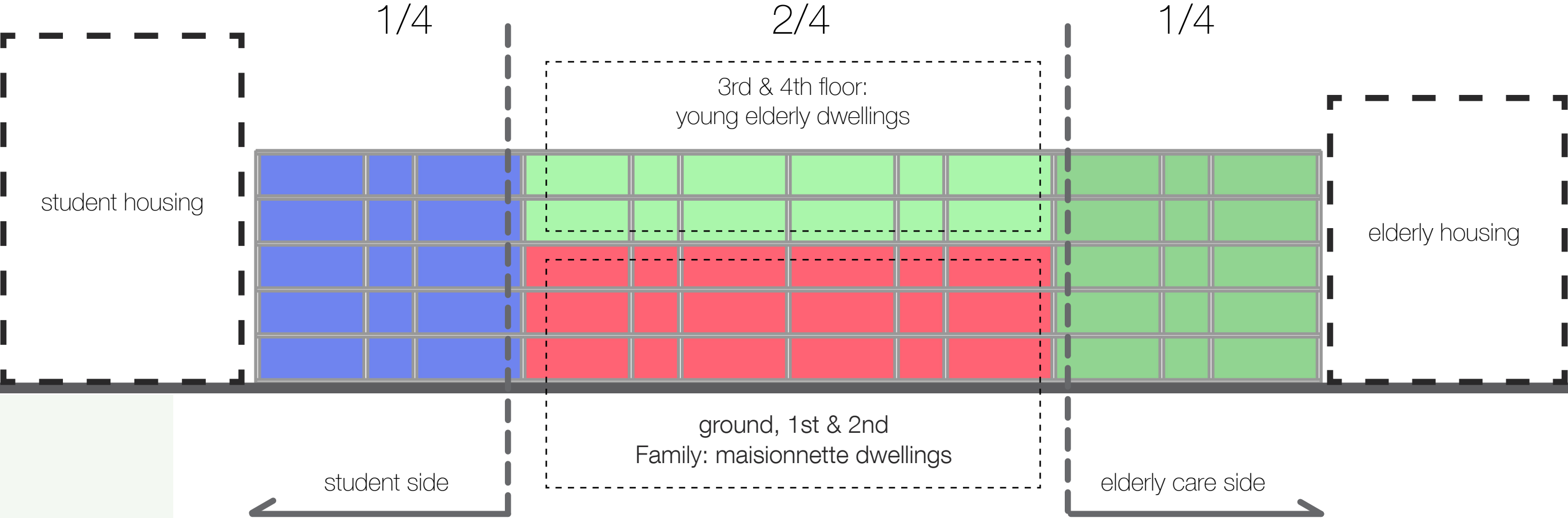
New program - divided fair



- Legend:
- students
 - family
 - young elderly
 - elderly

DESIGN_IN_A_FEW_STEPS

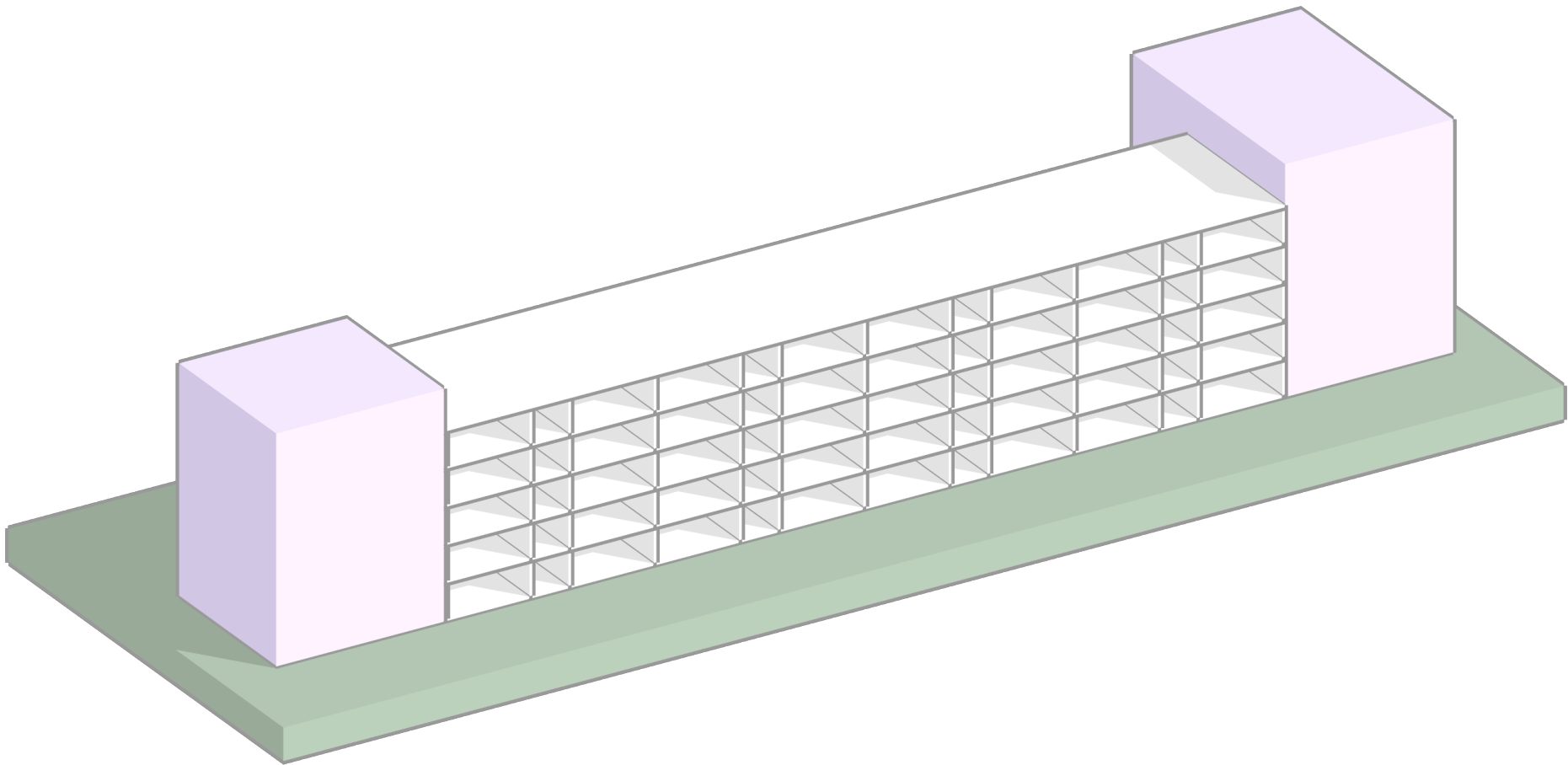
New program - divided fair



- Legend:
- students
 - family
 - young elderly
 - elderly

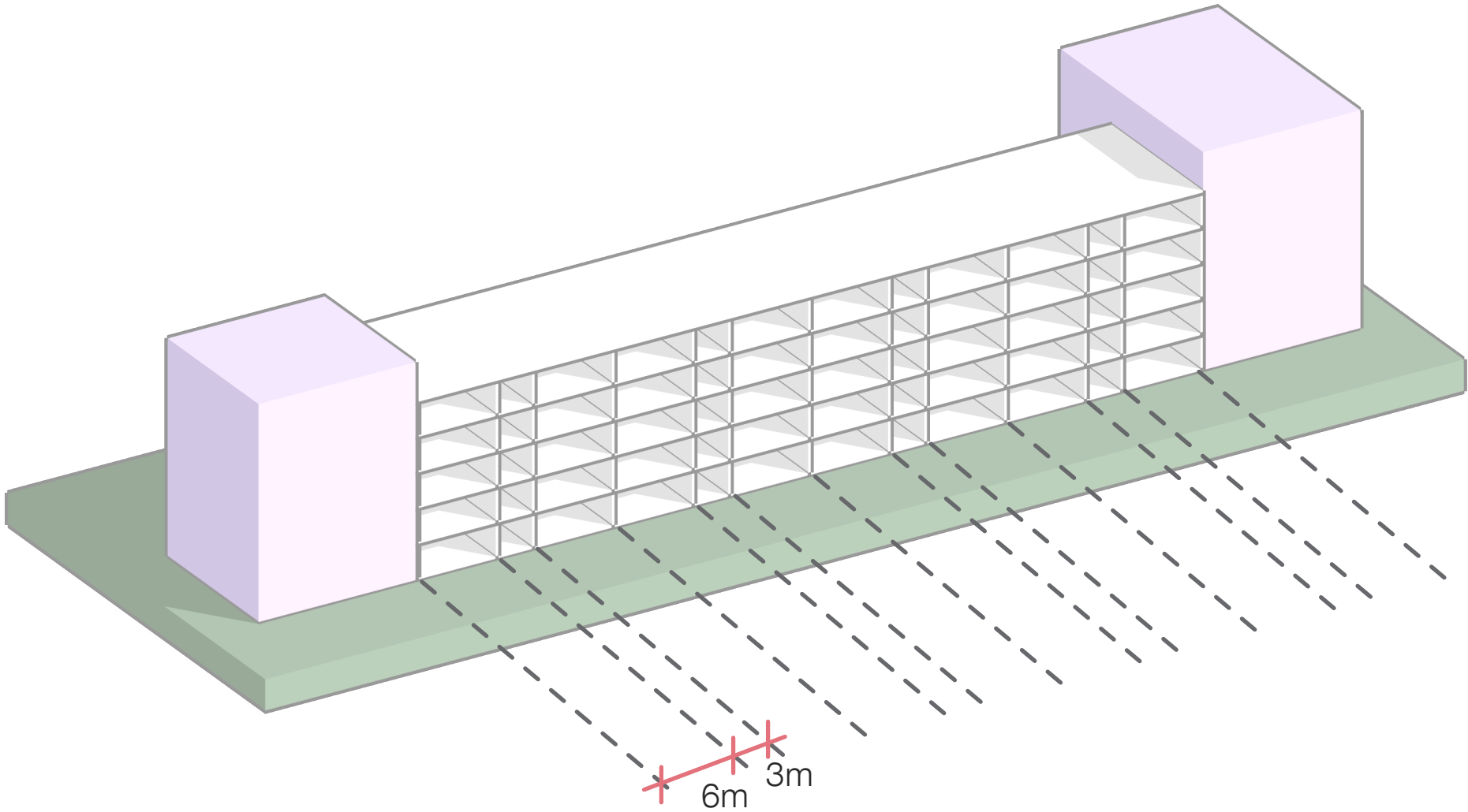
DESIGN_IN_A_FEW_STEPS

Addition of the head and the tail



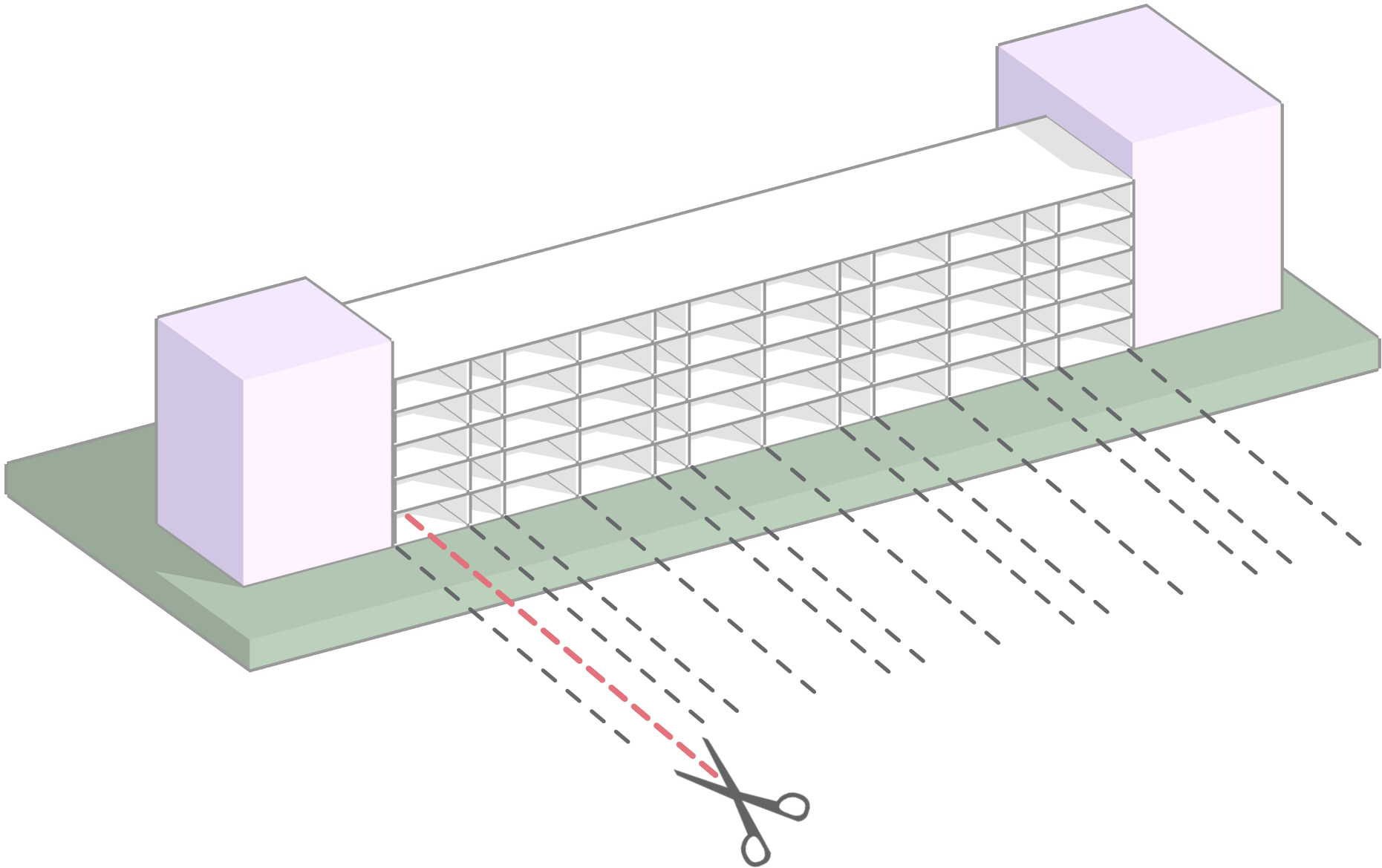
DESIGN_IN_A_FEW_STEPS

Existing grid



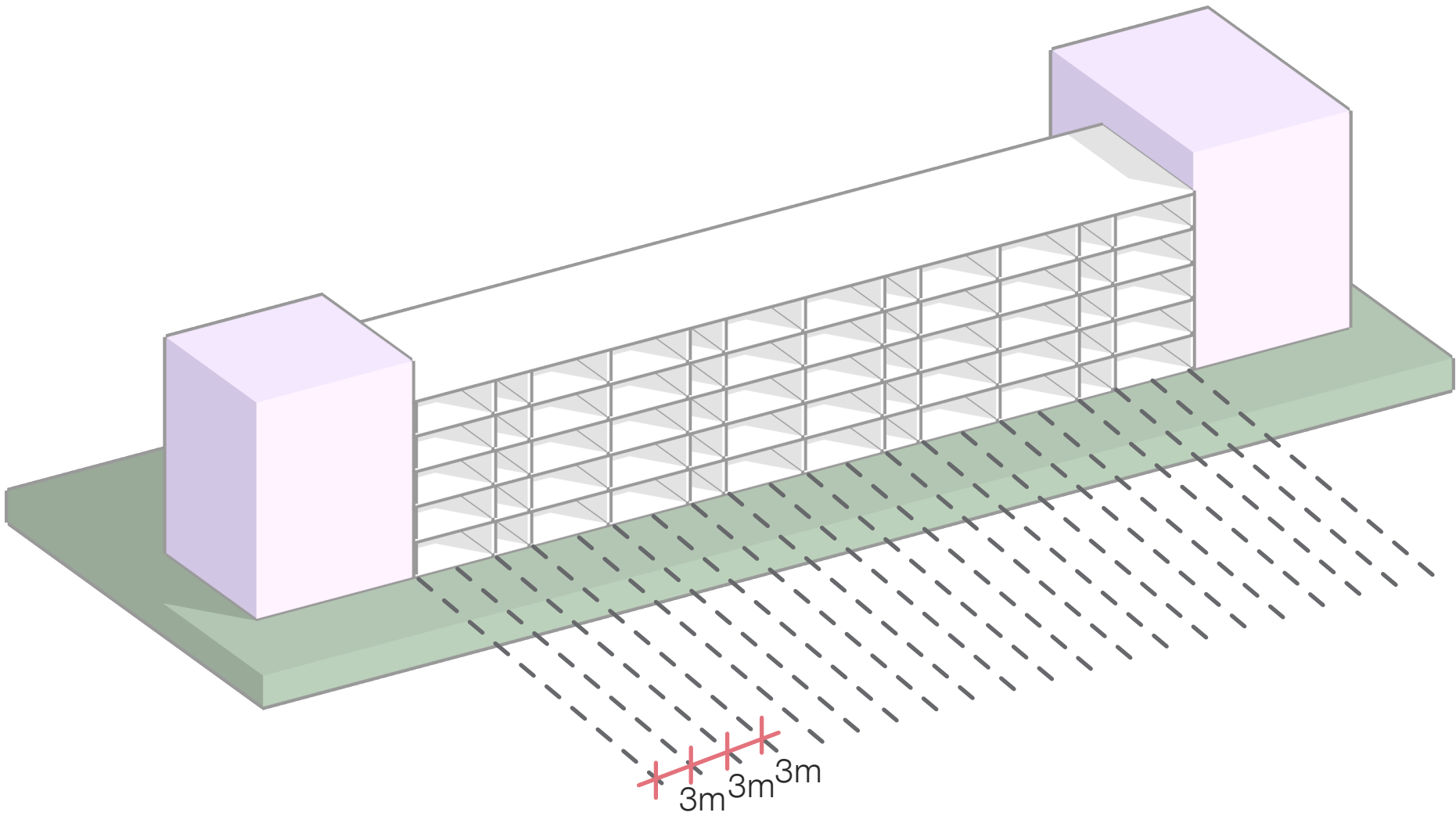
DESIGN_IN_A_FEW_STEPS

Existing grid



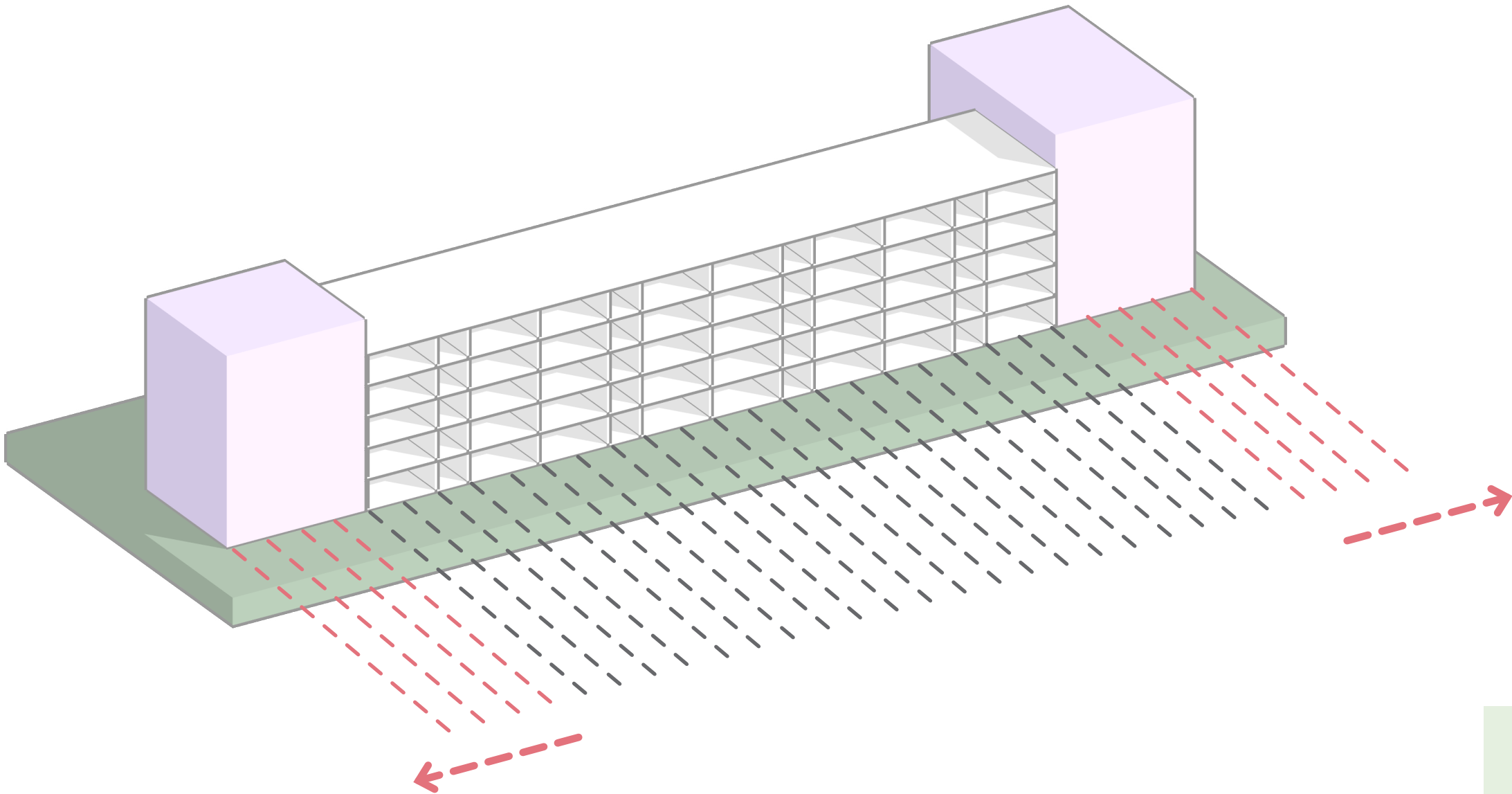
DESIGN_IN_A_FEW_STEPS

New grid



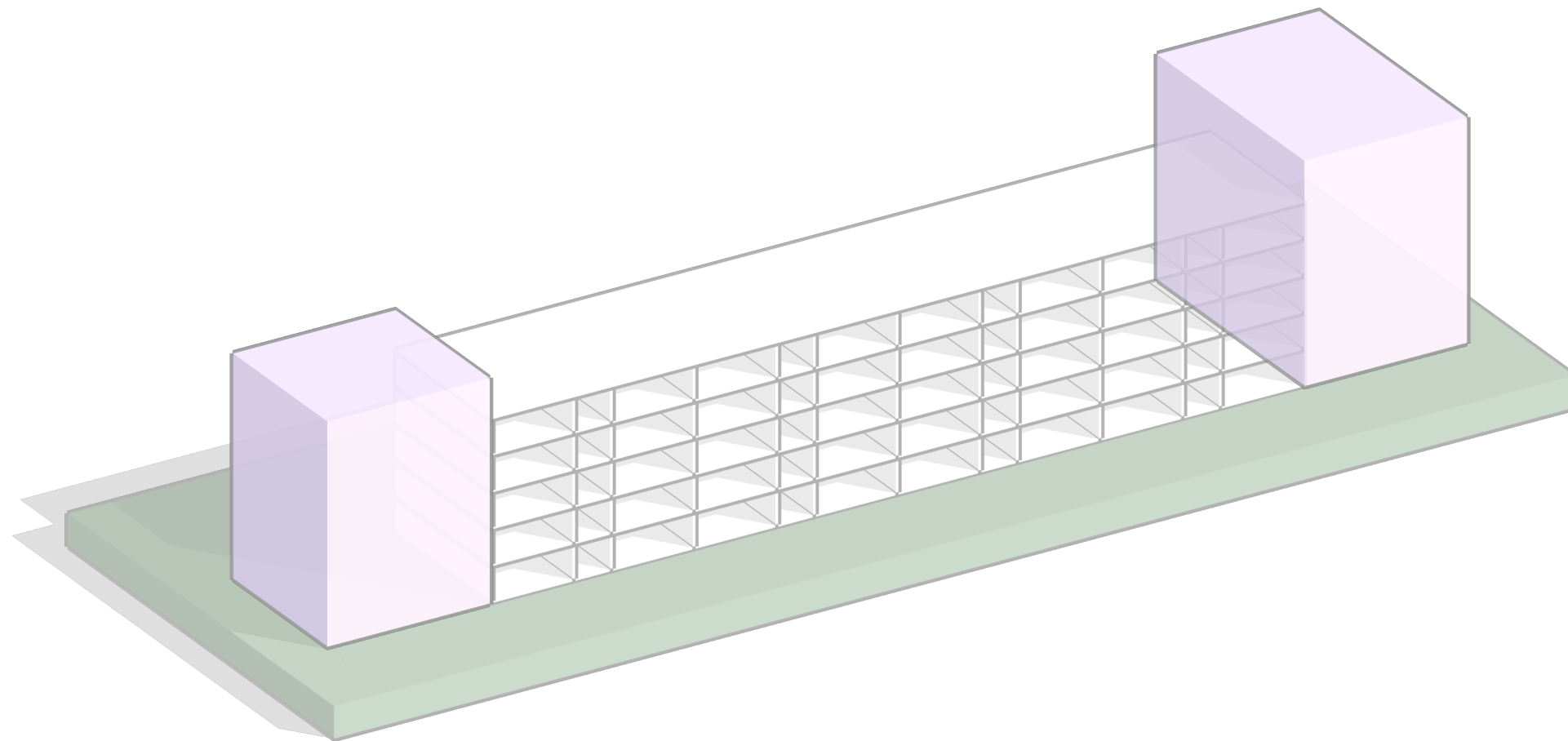
DESIGN_IN_A_FEW_STEPS

New grid extension



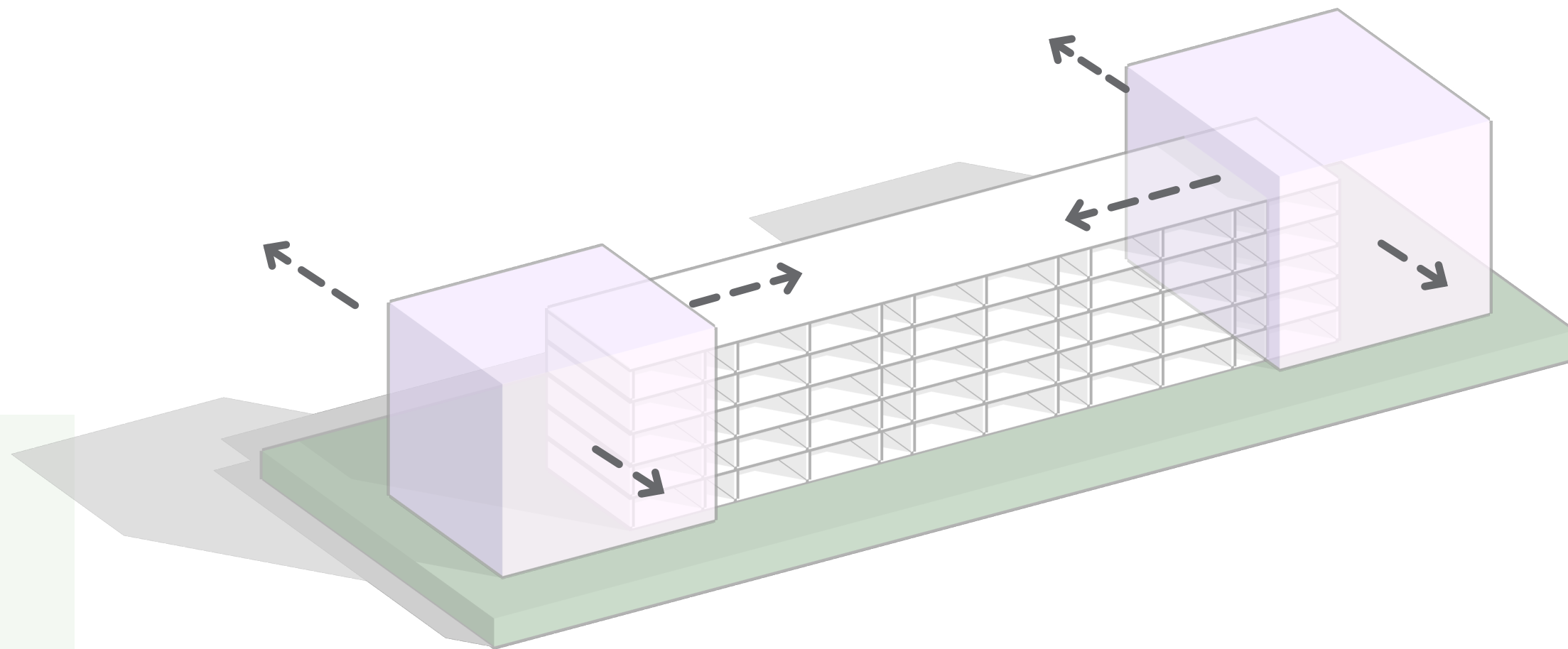
DESIGN_IN_A_FEW_STEPS

Volume head and tail



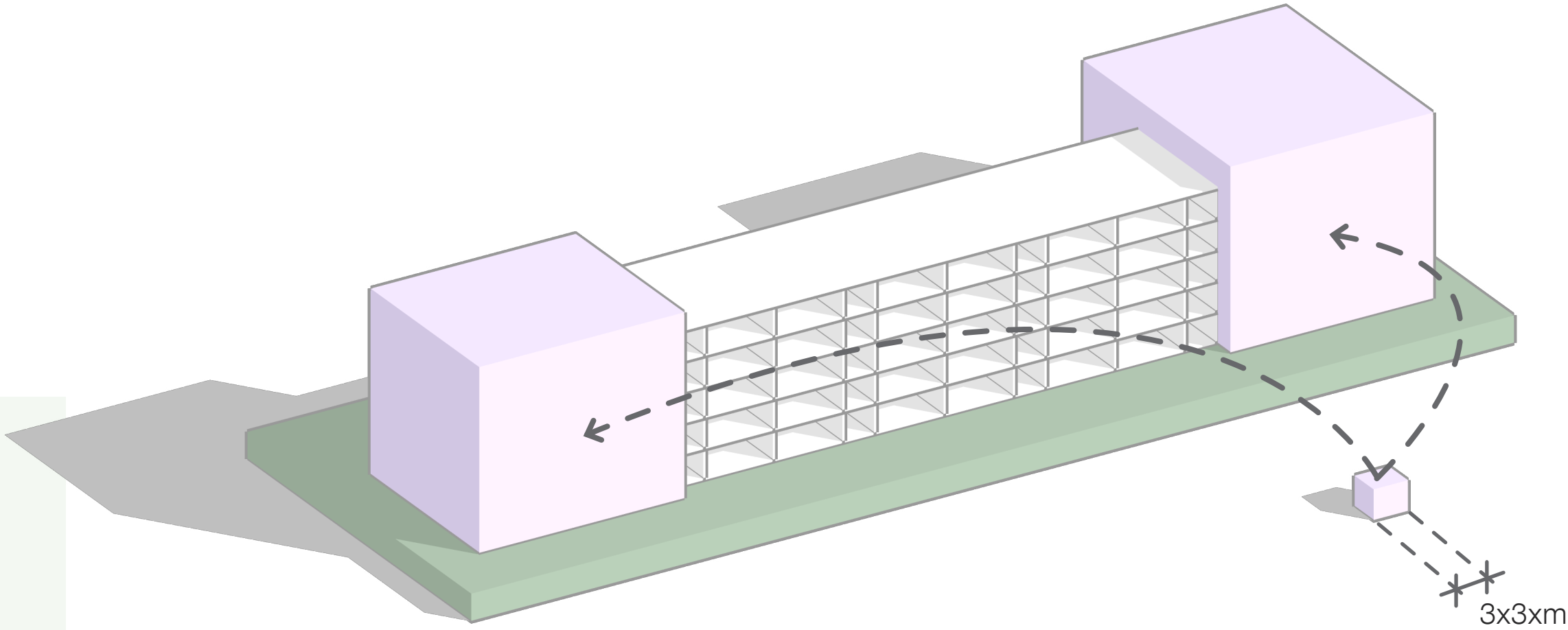
DESIGN_IN_A_FEW_STEPS

Volume head and tail



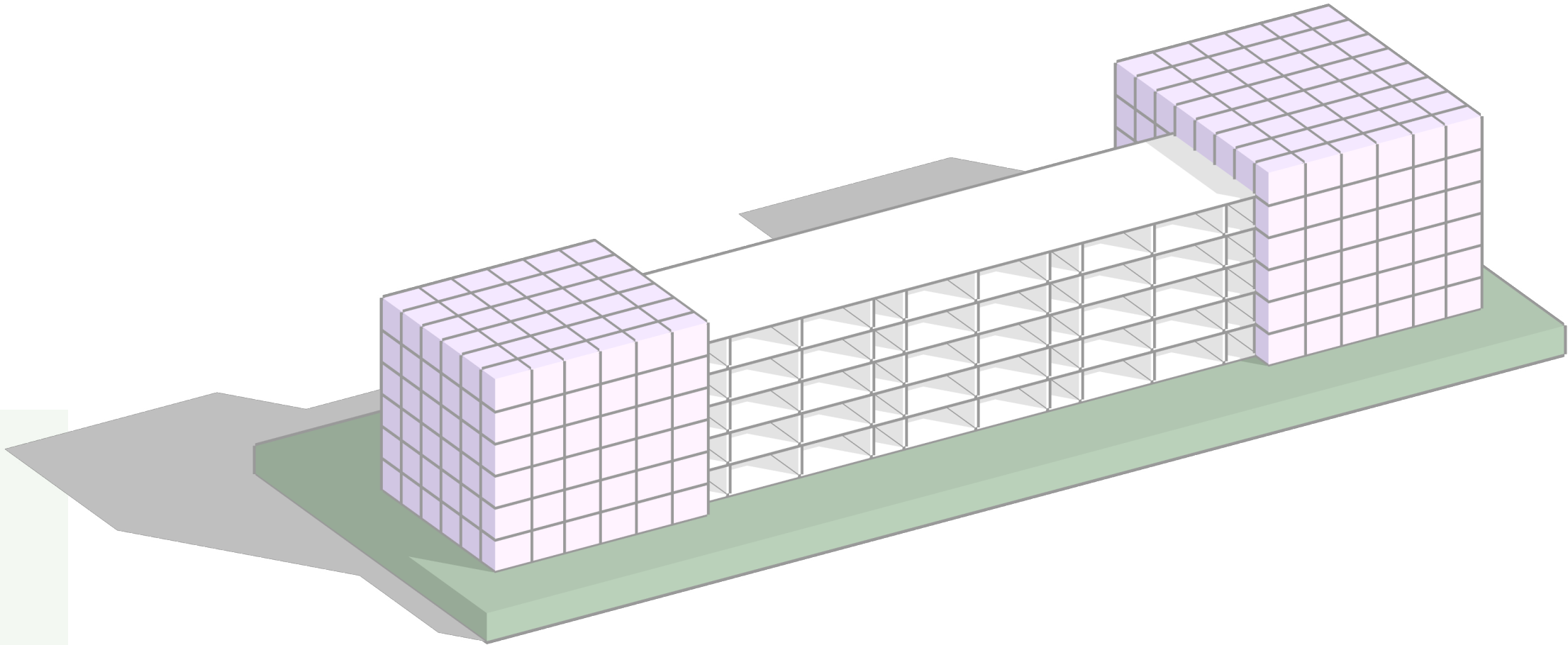
DESIGN_IN_A_FEW_STEPS

Volume head and tail



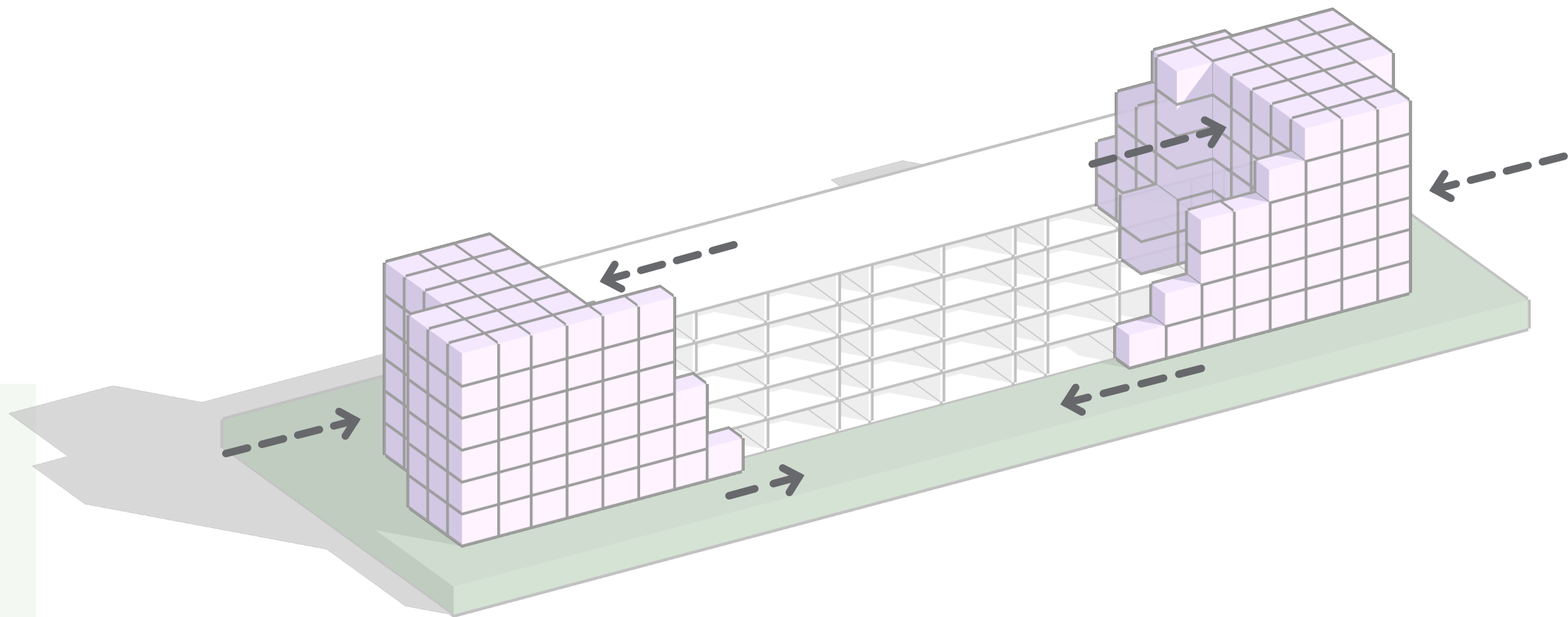
DESIGN_IN_A_FEW_STEPS

Volume head and tail



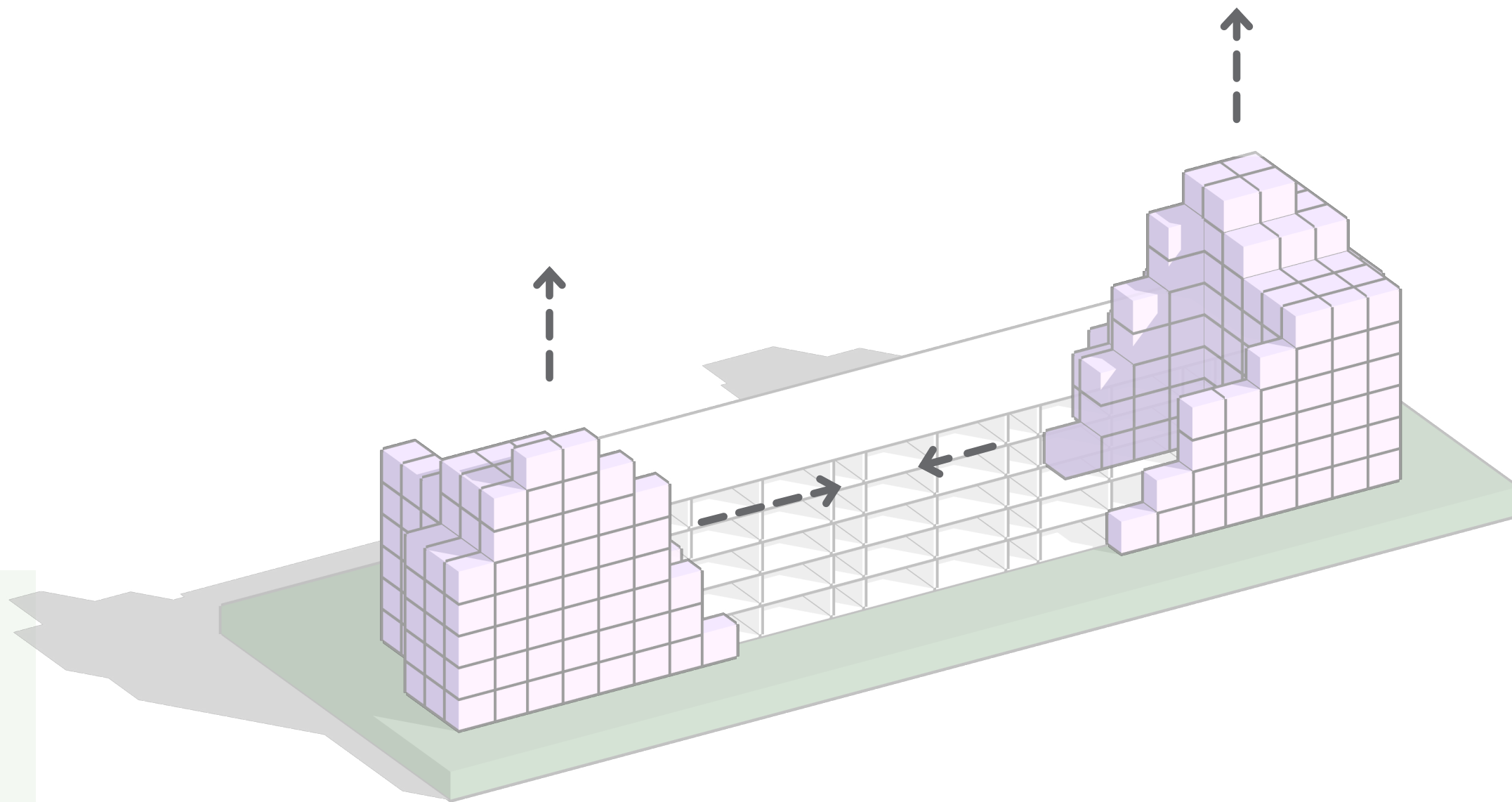
DESIGN_IN_A_FEW_STEPS

Volume head and tail



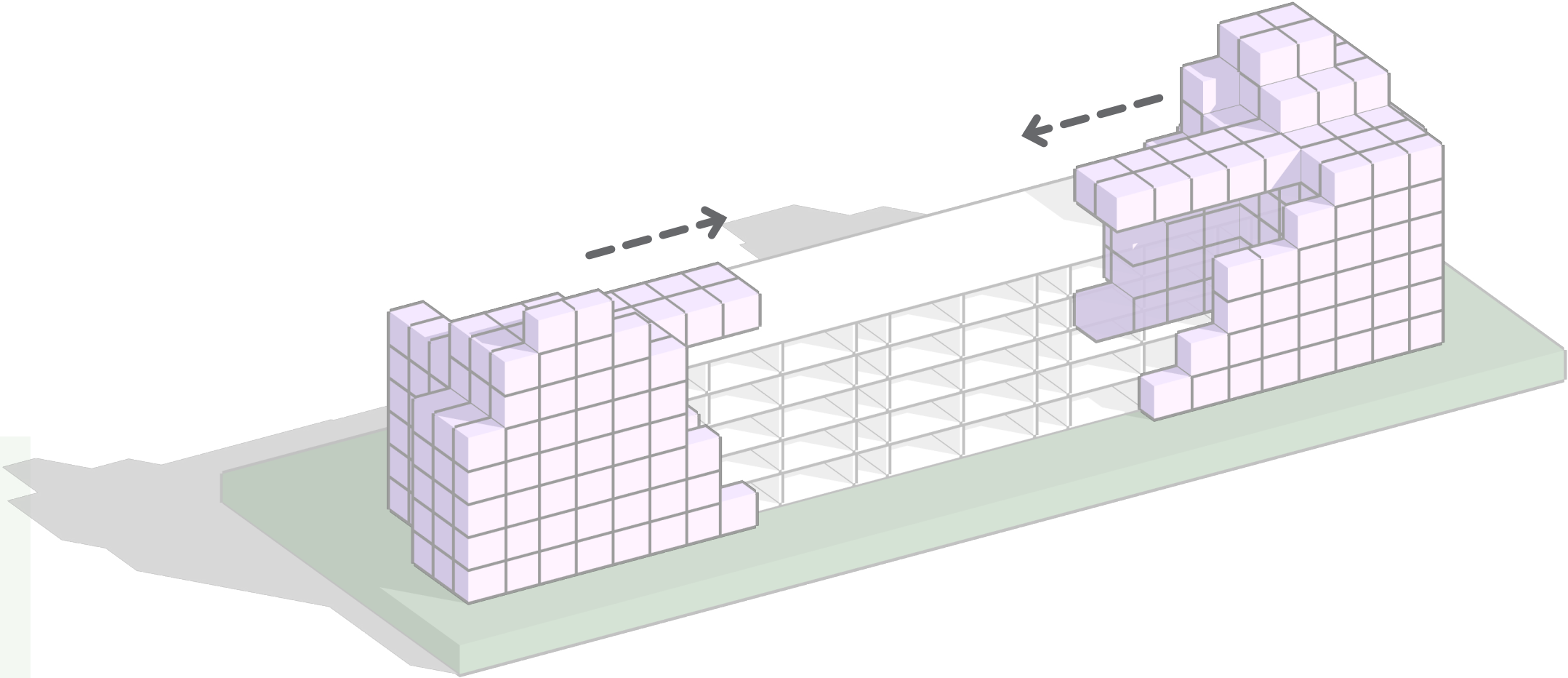
DESIGN_IN_A_FEW_STEPS

Volume head and tail



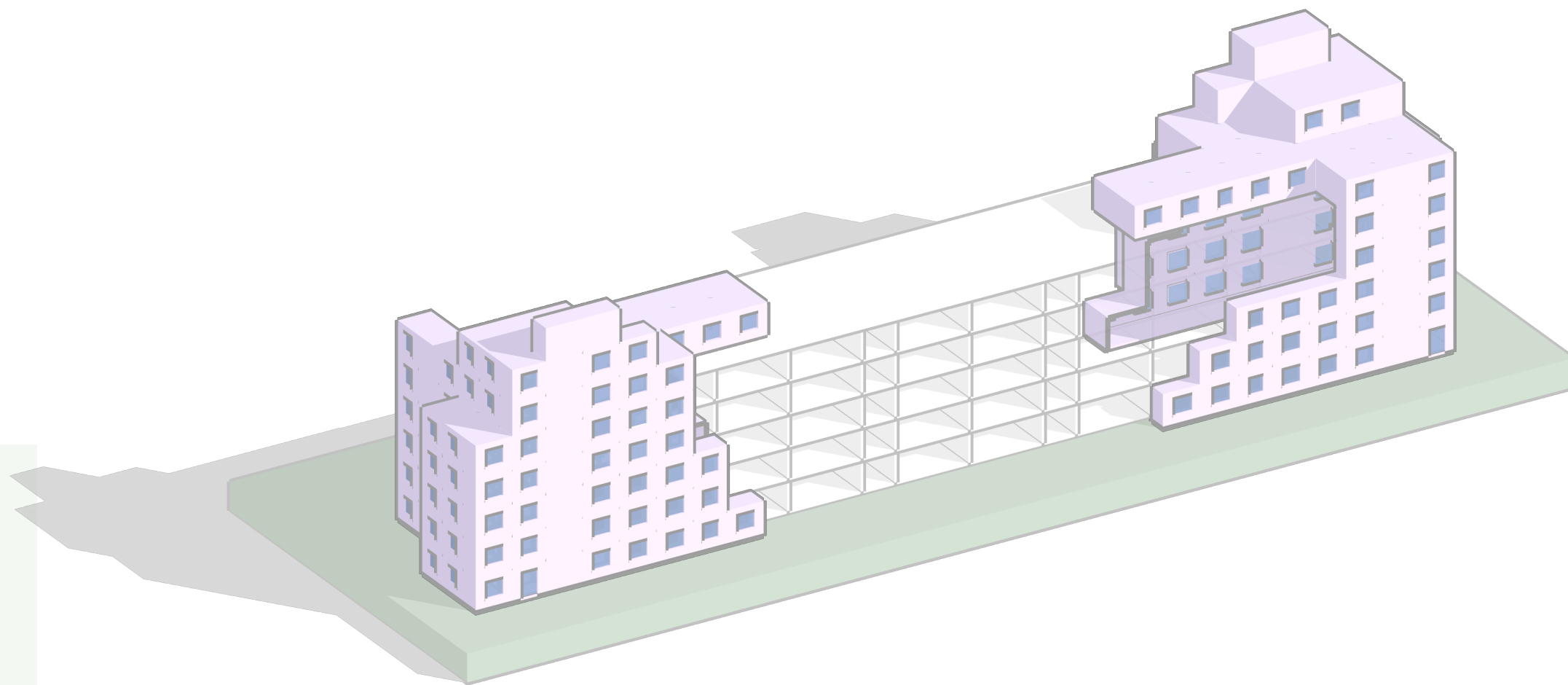
DESIGN_IN_A_FEW_STEPS

Volume head and tail



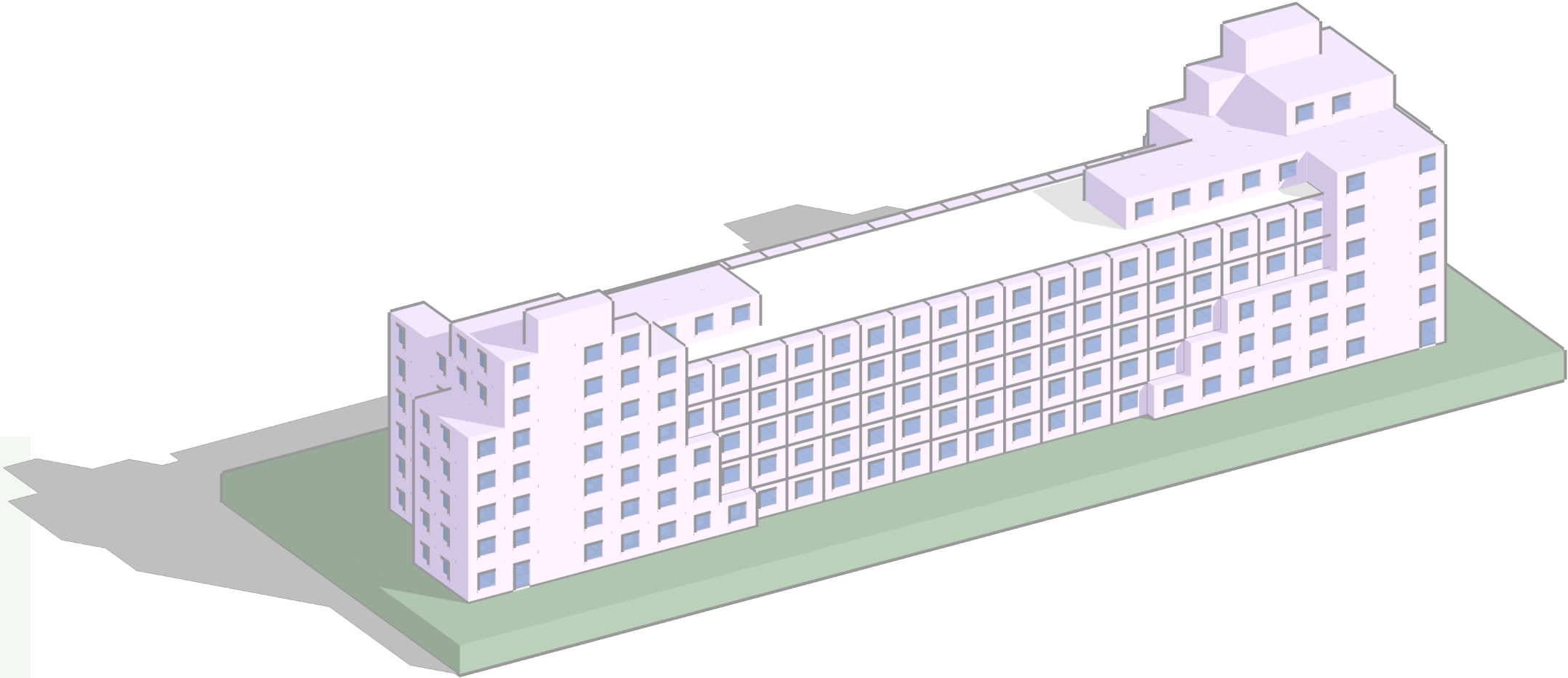
DESIGN_IN_A_FEW_STEPS

Facade head and tail



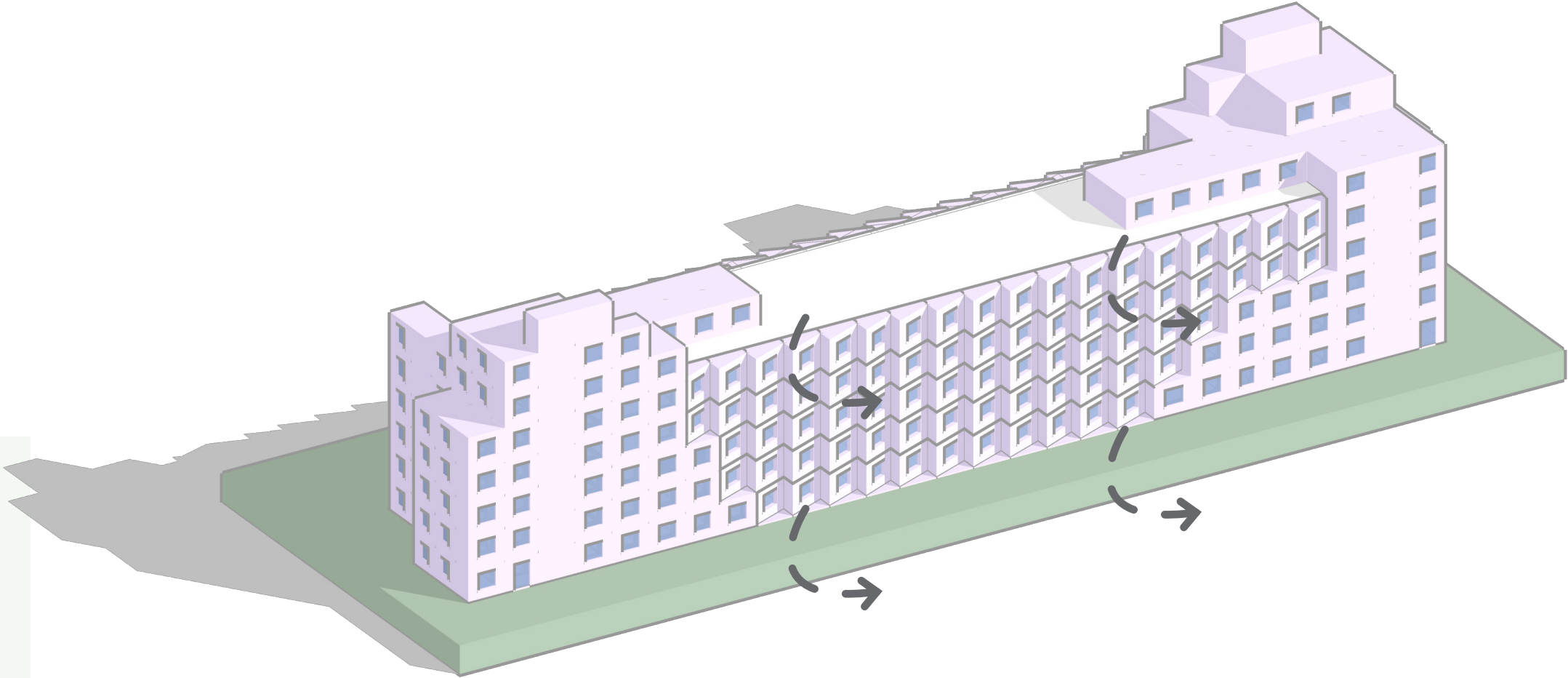
DESIGN_IN_A_FEW_STEPS

Facade body



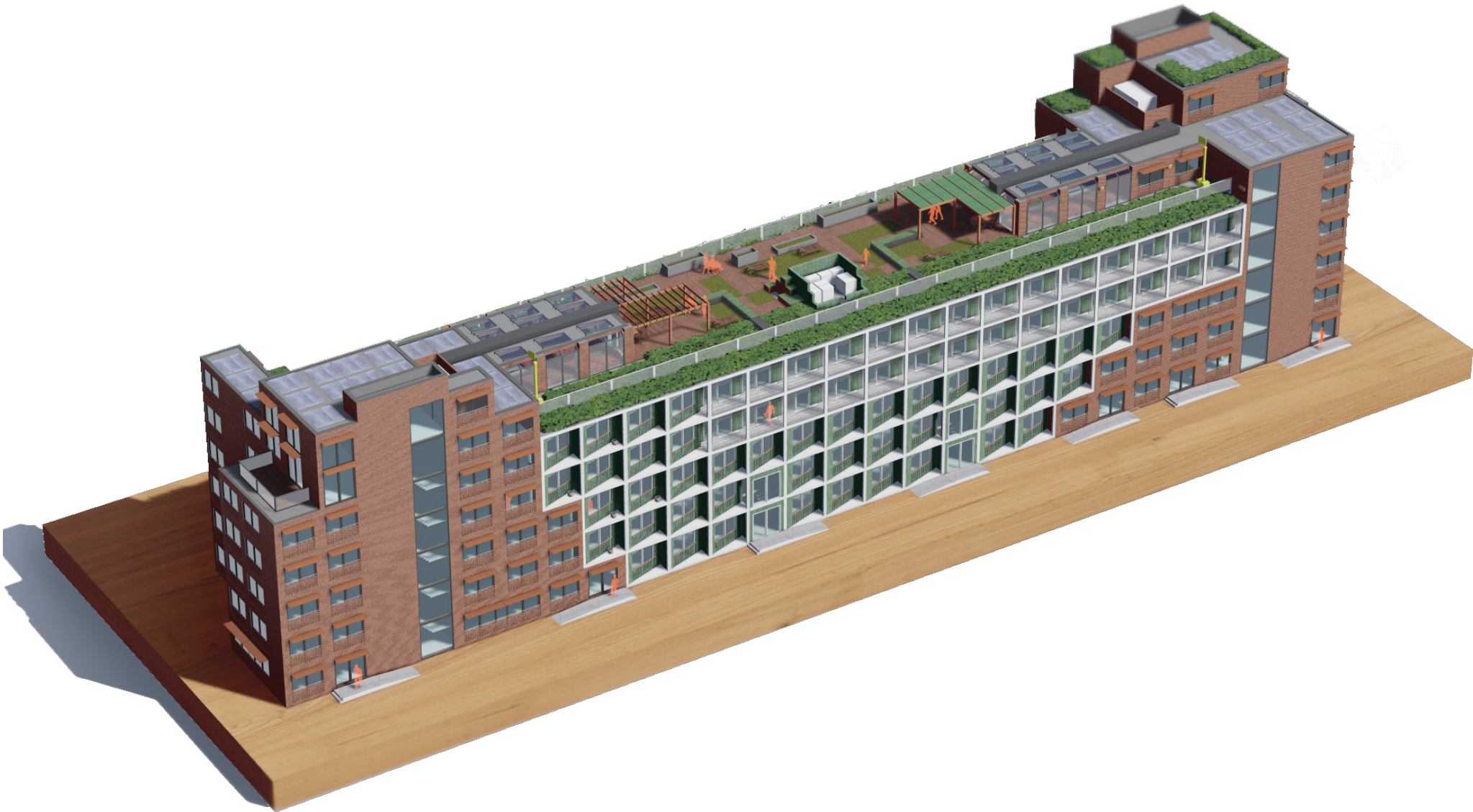
DESIGN_IN_A_FEW_STEPS

Facade body



DESIGN_IN_A_FEW_STEPS

Artist impression





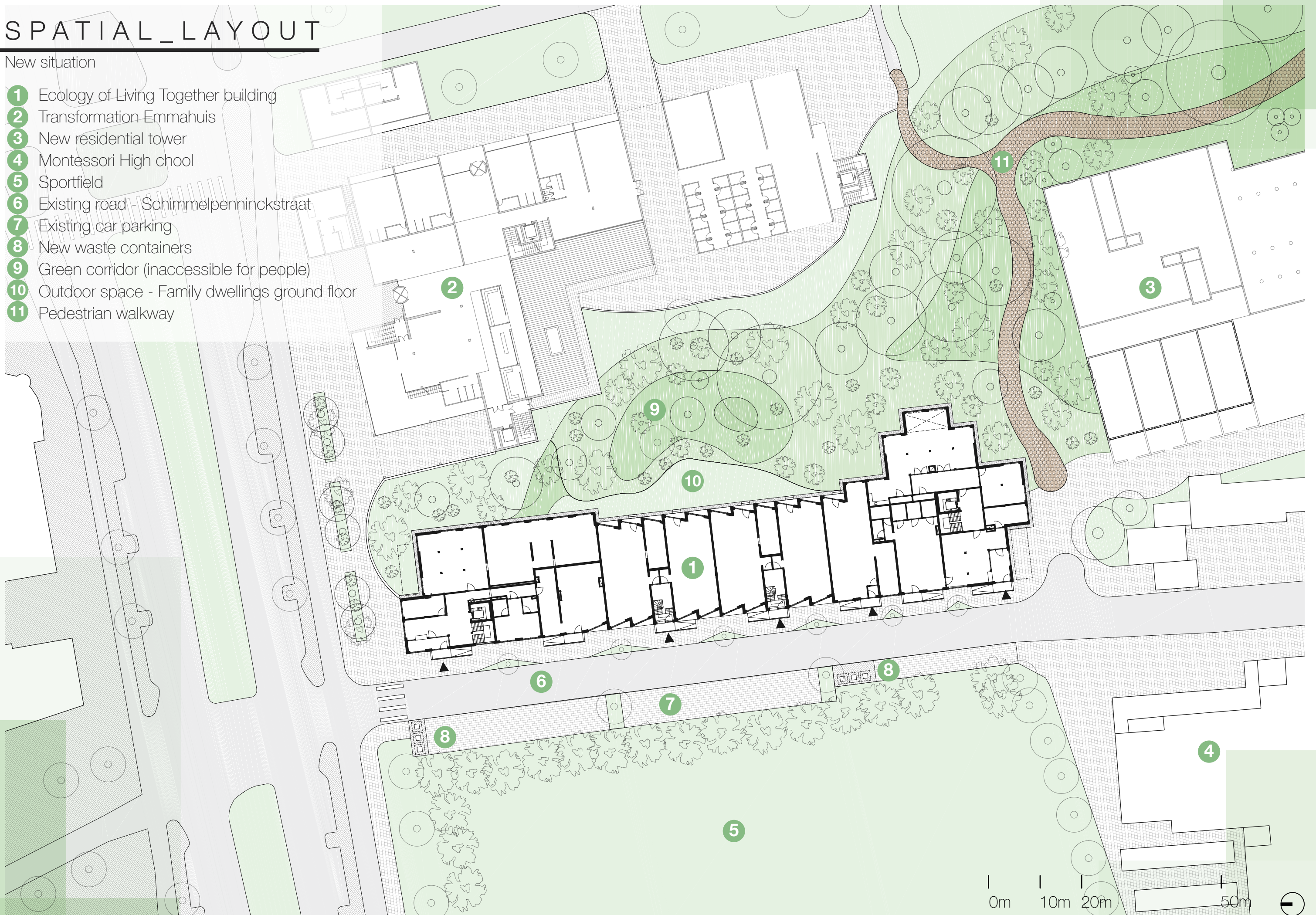
Spatial Layout

situation, plans & experience

SPATIAL_LAYOUT

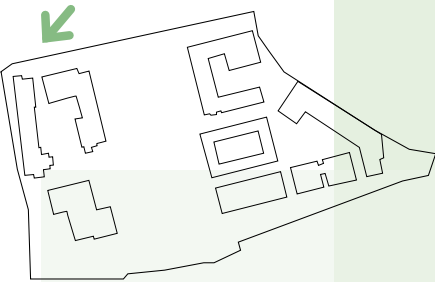
New situation

- 1 Ecology of Living Together building
- 2 Transformation Emmahuis
- 3 New residential tower
- 4 Montessori High school
- 5 Sportfield
- 6 Existing road - Schimmelpenninckstraat
- 7 Existing car parking
- 8 New waste containers
- 9 Green corridor (inaccessible for people)
- 10 Outdoor space - Family dwellings ground floor
- 11 Pedestrian walkway



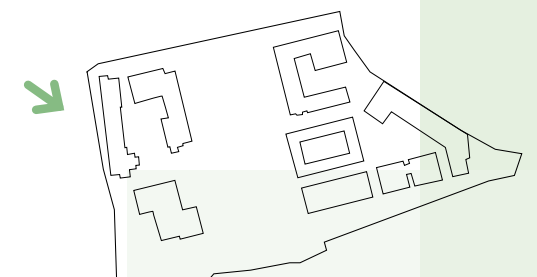
SPATIAL_LAYOUT

New situation



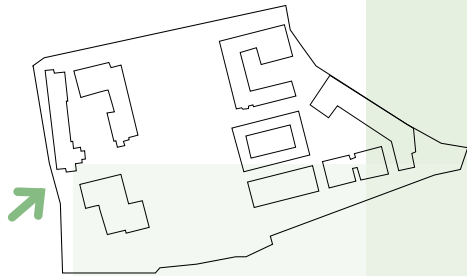
SPATIAL_LAYOUT

New situation



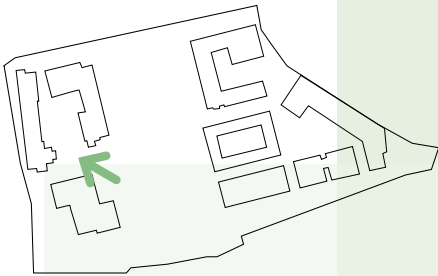
SPATIAL_LAYOUT

New situation



SPATIAL_LAYOUT

New situation



SPATIAL_LAYOUT

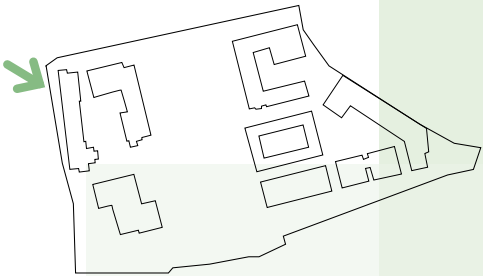
Ground floor x street

- 1 Green circulation slope
- 2 Shared outside space (groundbased maisonnette)
- 3 Main entrance student wing
- 4 Laundry room (students)
- 5 Storage (students)
- 6 Student housing cluster
- 7 Porch entrance maisonnette Maisonnette dwelling
- 8 Family dwelling
- 9 Storage
- 10 Main entrance elderly
- 11 Elderly care lobby
- 12 Elderly care workers room
- 13 Tech. room
- 14 Underground watertank



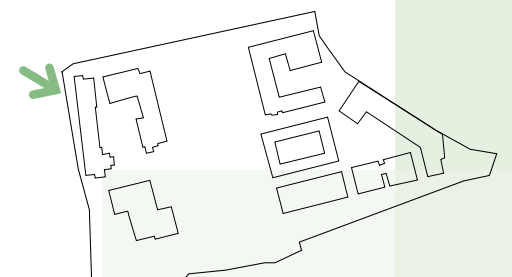
SPATIAL_LAYOUT

Ground floor x street



SPATIAL_LAYOUT

Ground floor x street



SPATIAL_LAYOUT

Schematic program

Housing Tenure
Student complex

20%

Housing Tenure
Young elderly

12%

Housing Tenure
Family

16%

Housing Tenure
Elderly care

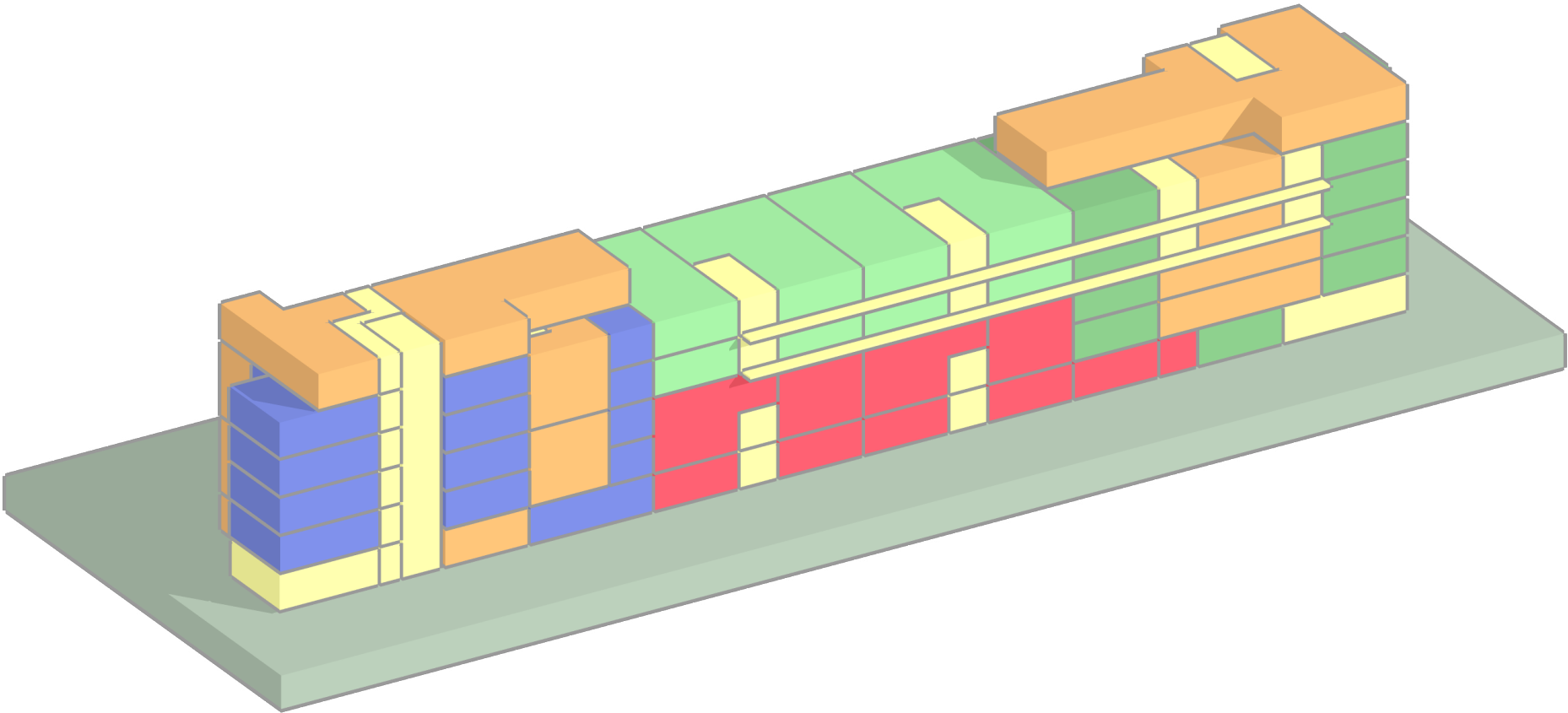
20%

Shared aSpace:
Circulation

14%

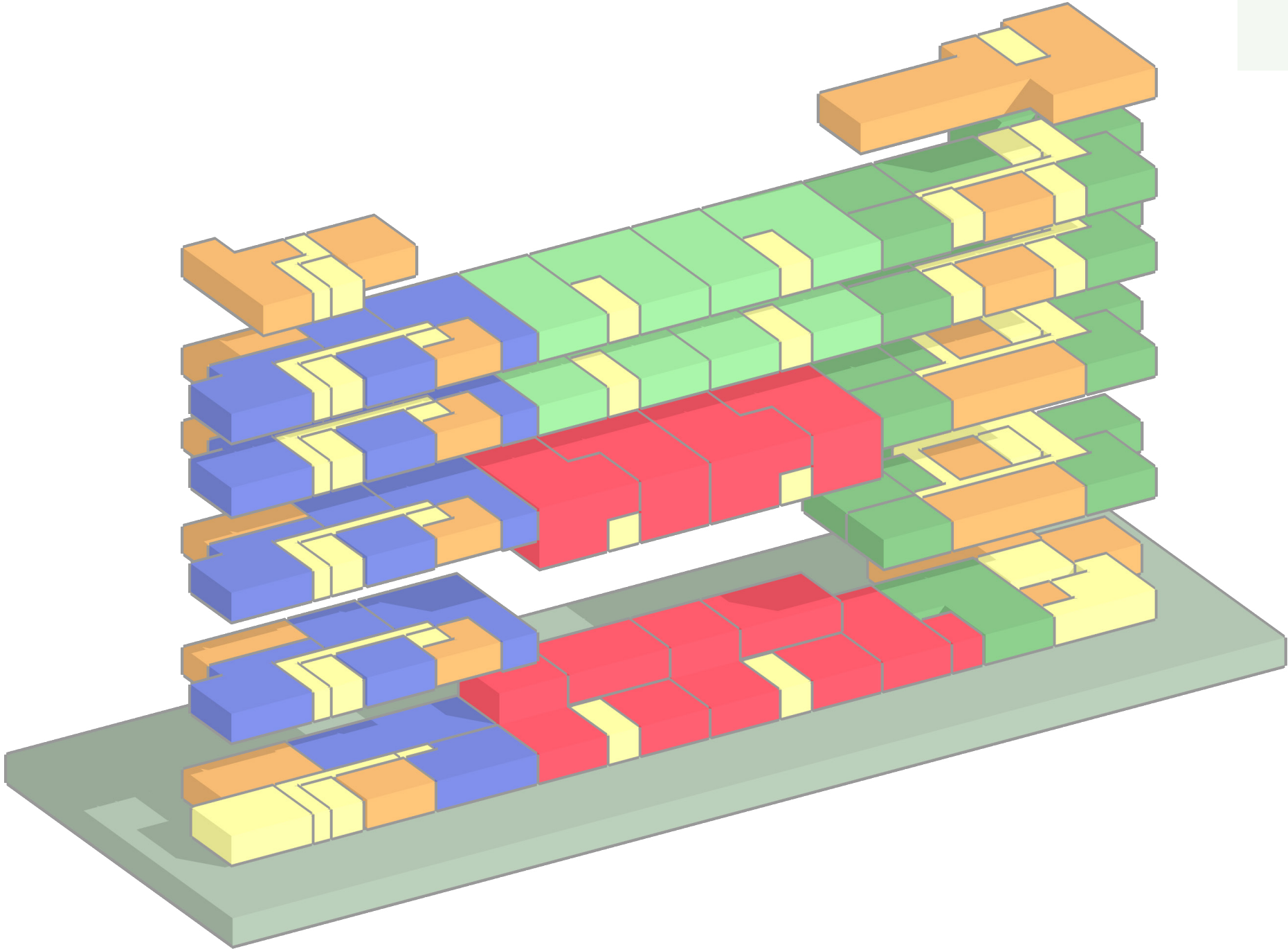
Shared Space:
Collective/semi.

18%



SPATIAL_LAYOUT

Schematic program



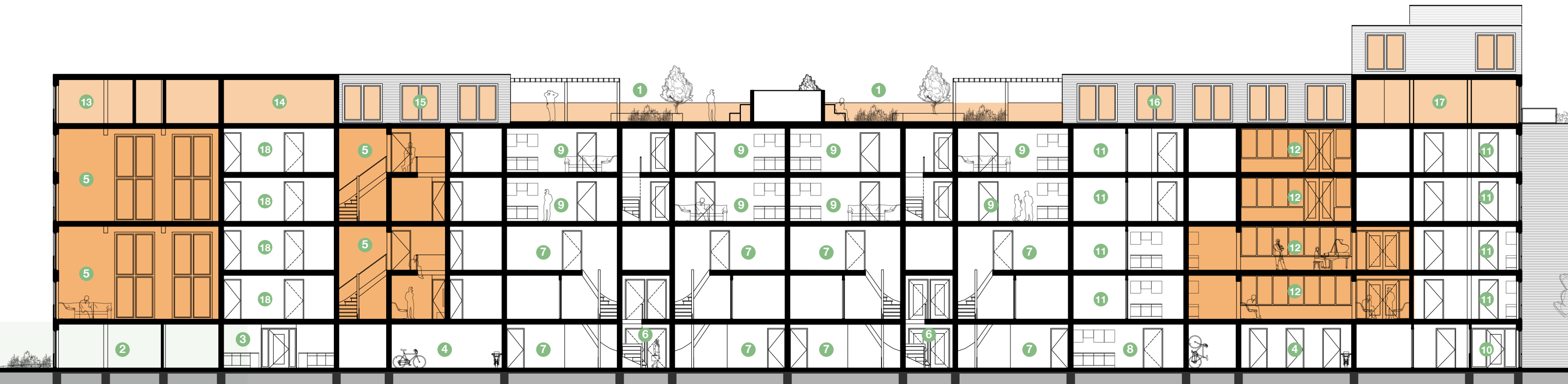
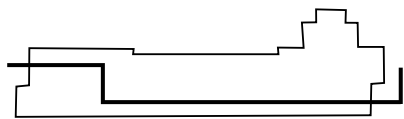
Legend:

46	dwellings for students (small)	students
9	family dwellings (big)	family
8	young elderly dwellings (medium)	young elderly
23	elderly care dwellings (small)	elderly
		shared/collective
		circulation

SPATIAL_LAYOUT

Shared spaces

- Legend:
- shared
 - collective



- 1 Roof terrace/garden
- 2 Main entrance student wing
- 3 Laundry room (students)
- 4 Storage
- 5 Student housing cluster
- 6 Porch entrance maisonnette

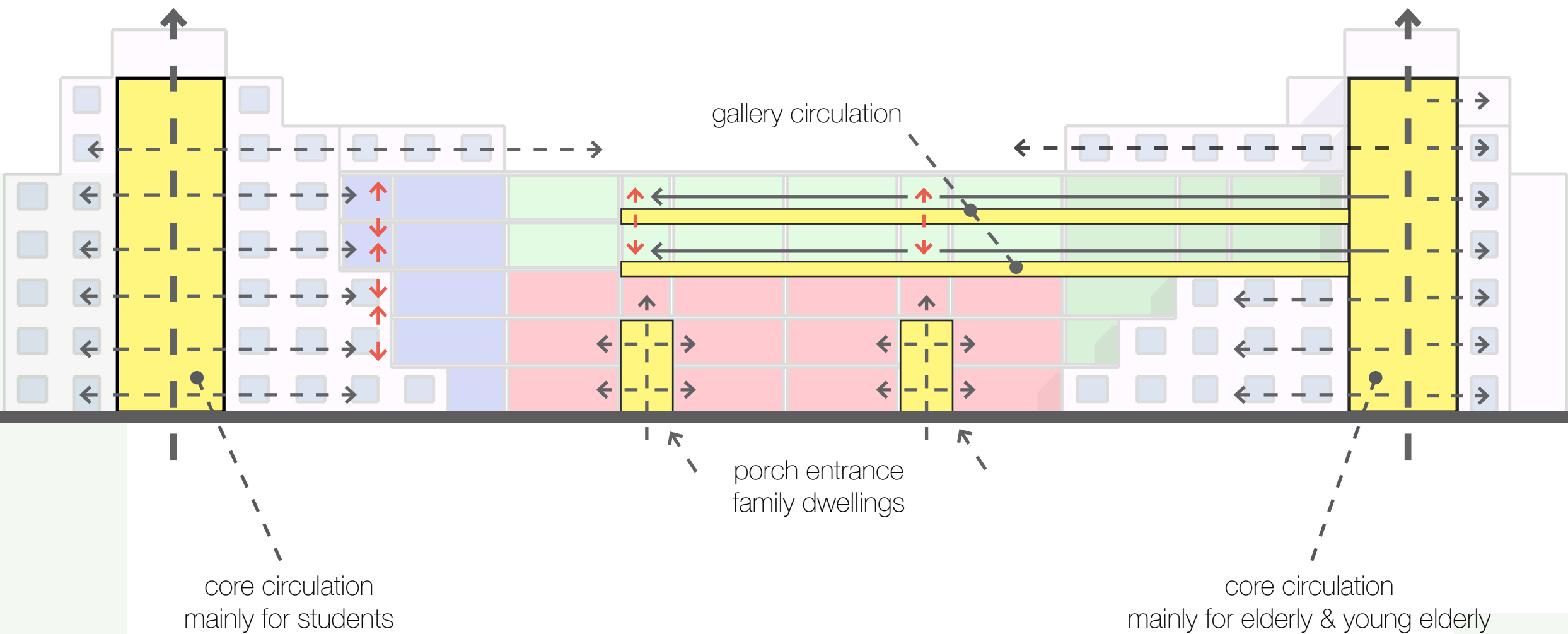
- 7 Maisonnette dwelling
- 8 Family dwelling
- 9 Standard dwellings
- 10 Main entrance elderly
- 11 Elderly dwellings
- 12 Shared spaces Elderly

- 13 Flexible space (students)
- 14 Collective Gym
- 15 Winter garden
- 16 Green house
- 17 Flexible space (collective)
- 18 Student studio

SPATIAL_LAYOUT

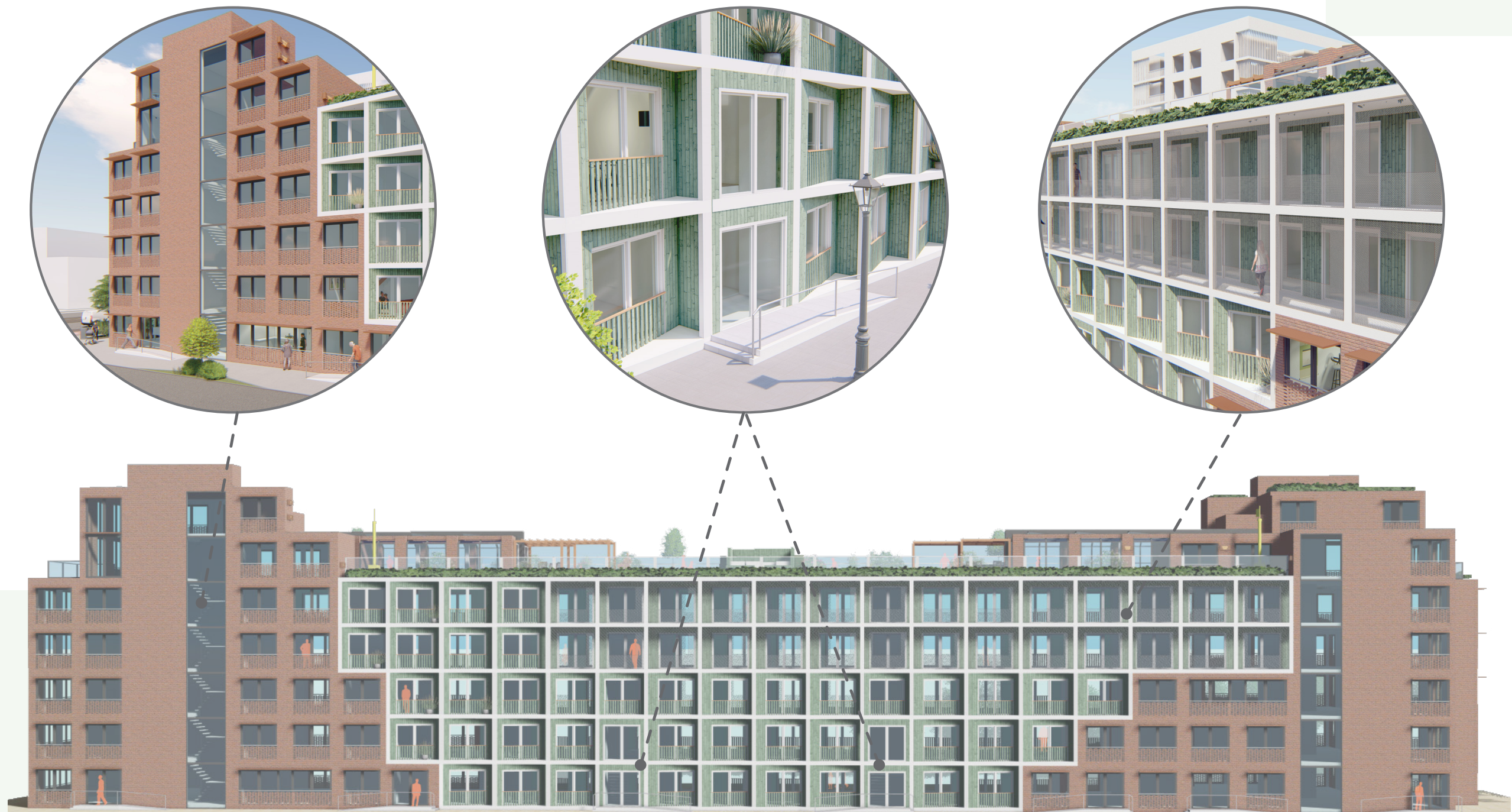
New circulation

- = gallery circulation
- - - - -> = corridor circulation
- ↕ = secondary safety route



SPATIAL_LAYOUT

New circulation

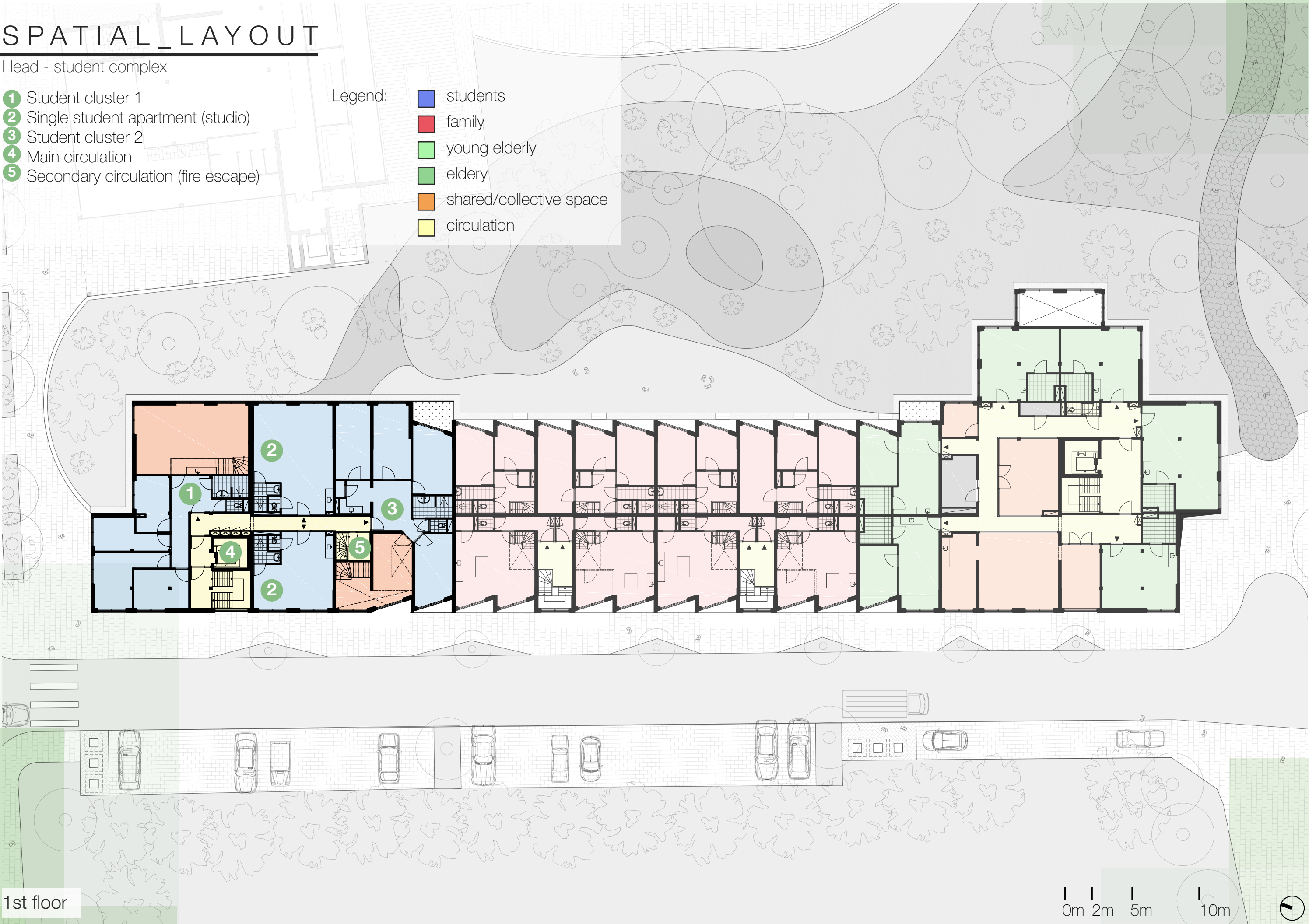


SPATIAL_LAYOUT

Head - student complex

- 1 Student cluster 1
- 2 Single student apartment (studio)
- 3 Student cluster 2
- 4 Main circulation
- 5 Secondary circulation (fire escape)

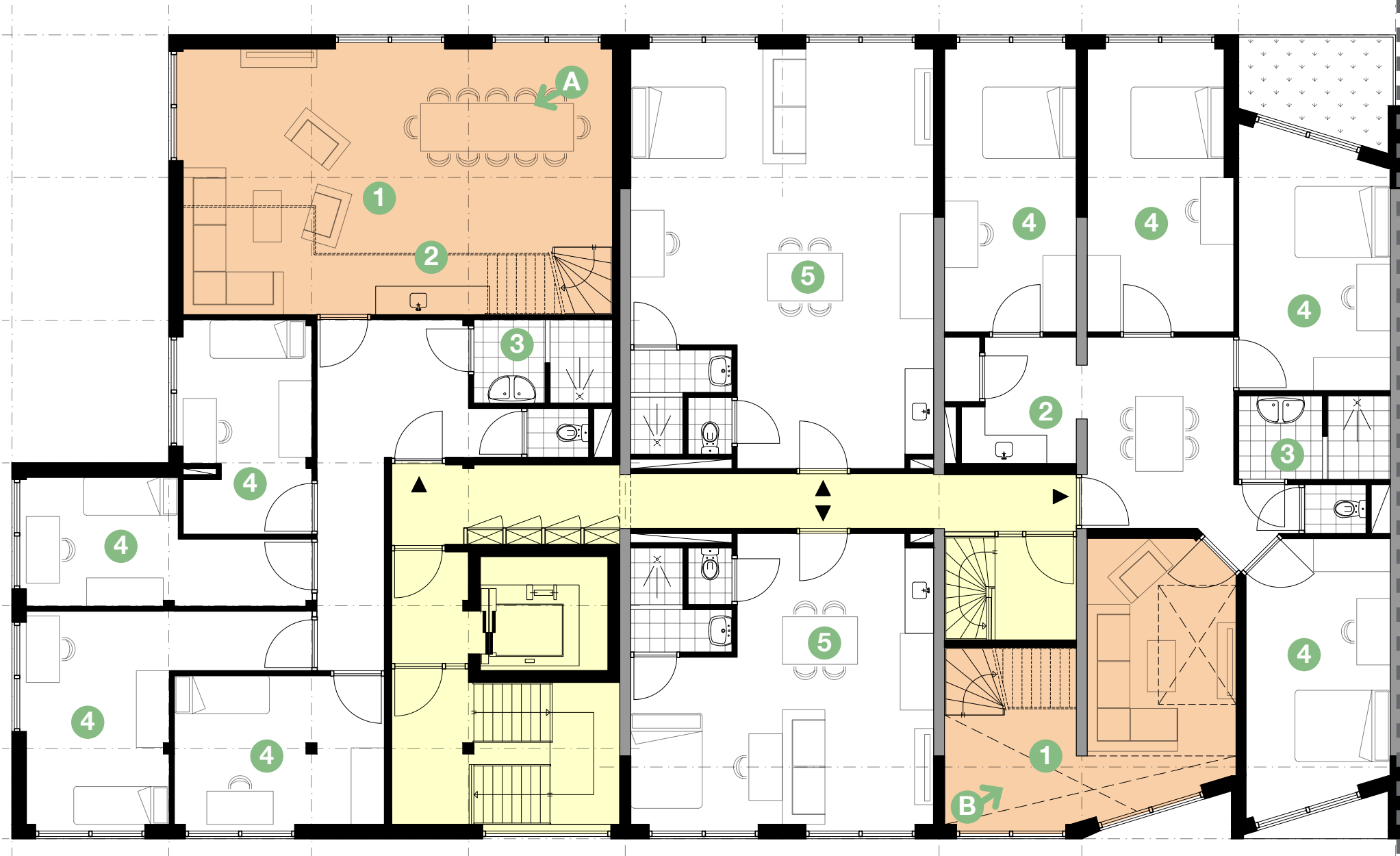
- Legend:
- students
 - family
 - young elderly
 - elderly
 - shared/collective space
 - circulation



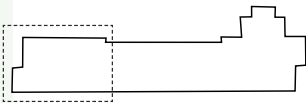
1st floor

SPATIAL_LAYOUT

Head - student complex



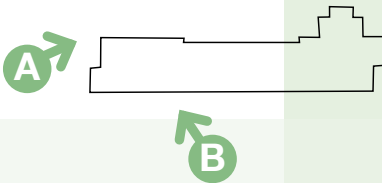
- Legend:
- shared
 - circulation
 - 1 Shared livingroom
 - 2 Kitchen
 - 3 Bathroom
 - 4 Bedroom
 - 5 Studio dwelling



0 1 3 6m Existing walls New walls

SPATIAL_LAYOUT

Head - student complex



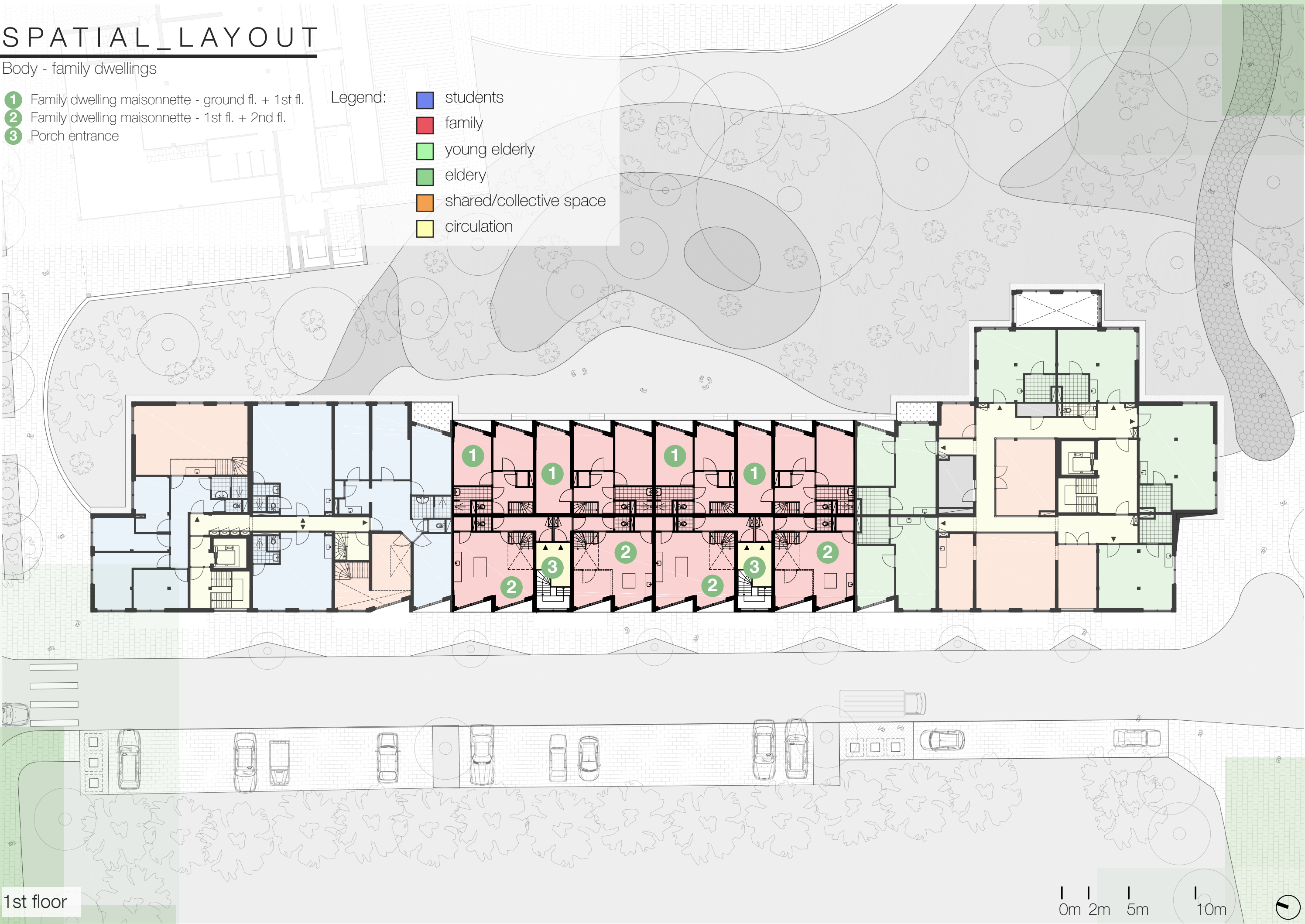
SPATIAL_LAYOUT

Body - family dwellings

- 1 Family dwelling maisonnette - ground fl. + 1st fl.
- 2 Family dwelling maisonnette - 1st fl. + 2nd fl.
- 3 Porch entrance

Legend:

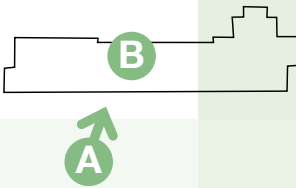
- students
- family
- young elderly
- elderly
- shared/collective space
- circulation



1st floor

SPATIAL_LAYOUT

Body - family dwellings

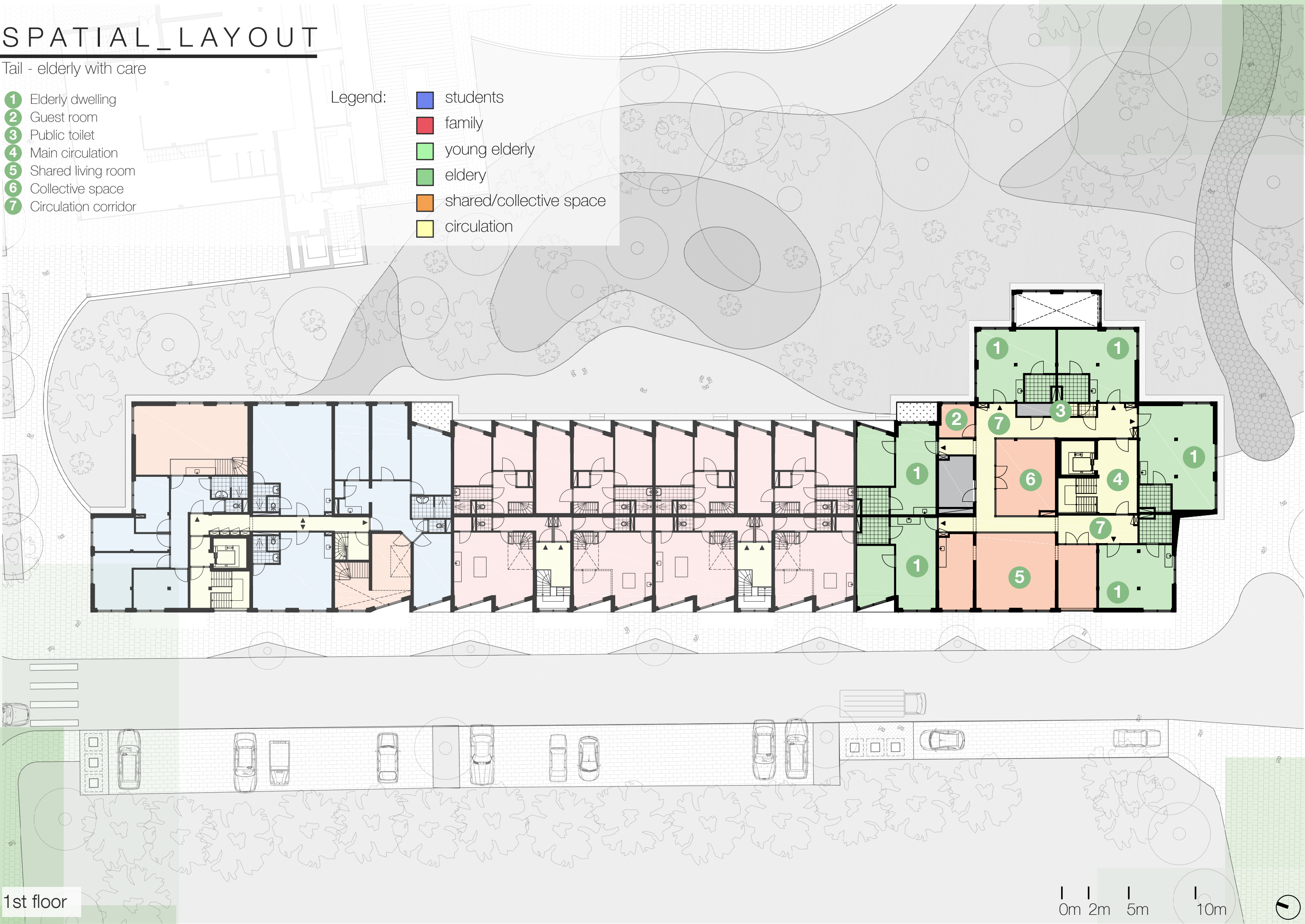


SPATIAL_LAYOUT

Tail - elderly with care

- 1 Elderly dwelling
- 2 Guest room
- 3 Public toilet
- 4 Main circulation
- 5 Shared living room
- 6 Collective space
- 7 Circulation corridor

- Legend:
- students
 - family
 - young elderly
 - elderly
 - shared/collective space
 - circulation



1st floor

SPATIAL_LAYOUT

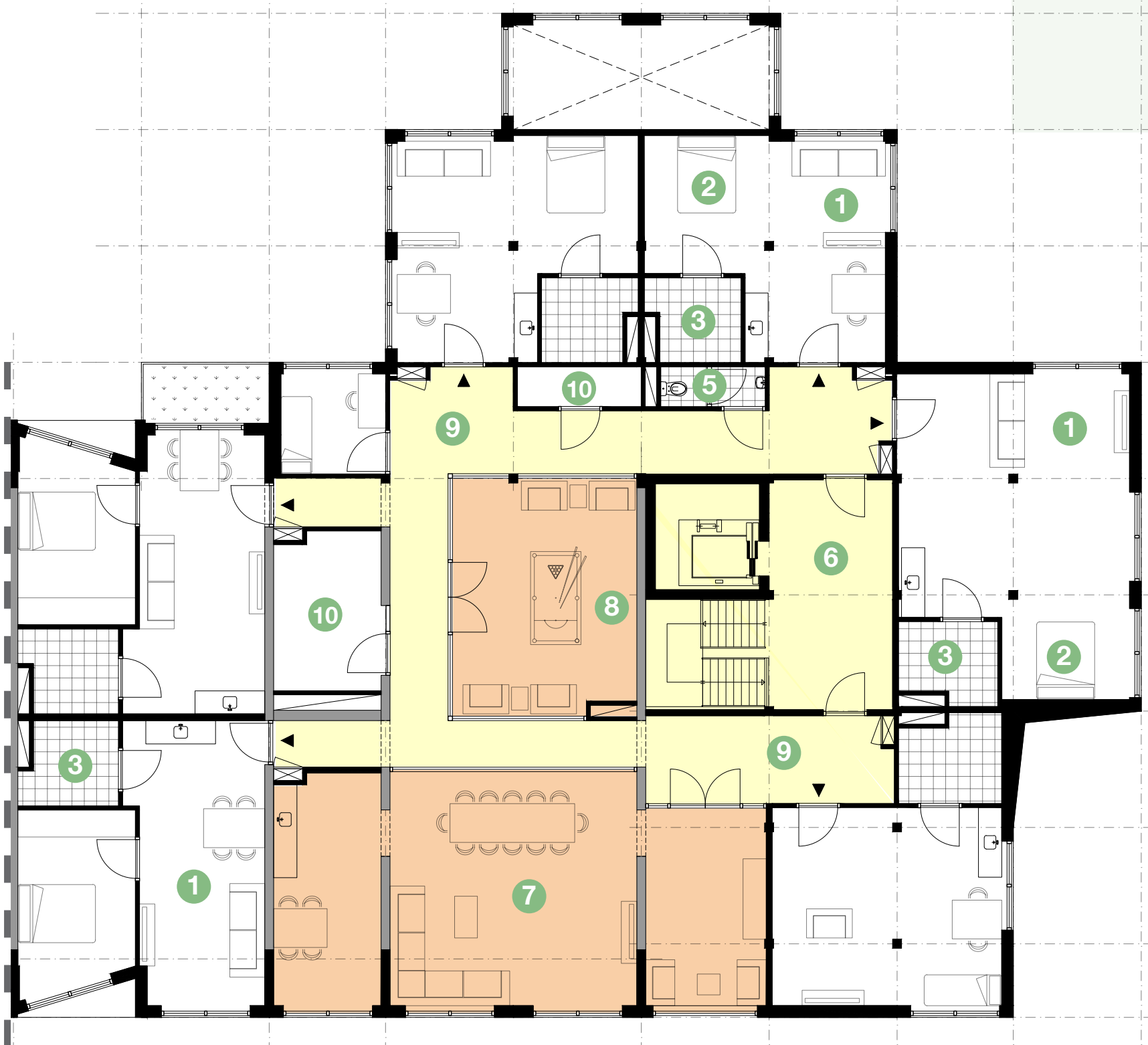
Tail - elderly with care

- Legend:
- shared
 - circulation
- 1 Living room
 - 2 Bedroom
 - 3 Bathroom
 - 4 Guest room
 - 5 Public toilet
 - 6 Main circulation
 - 7 Shared living room
 - 8 Collective space
 - 9 Circulation corridor
 - 10 Storage

0 1 3 6m

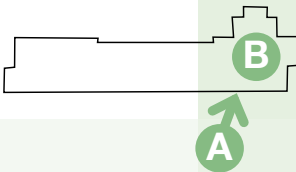
Existing walls

New walls



SPATIAL_LAYOUT

Tail - elderly with care



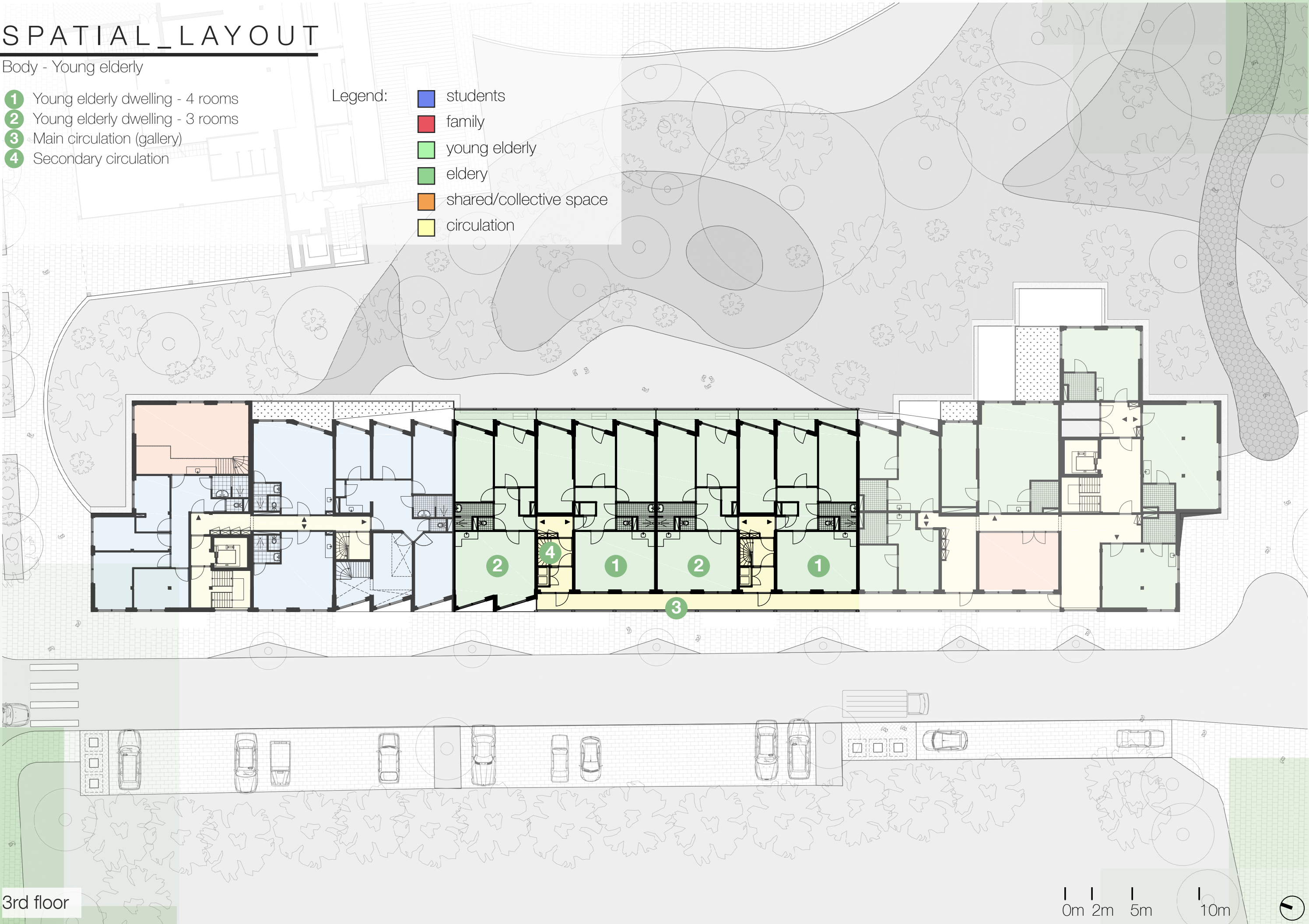
SPATIAL_LAYOUT

Body - Young elderly

- 1 Young elderly dwelling - 4 rooms
- 2 Young elderly dwelling - 3 rooms
- 3 Main circulation (gallery)
- 4 Secondary circulation

Legend:

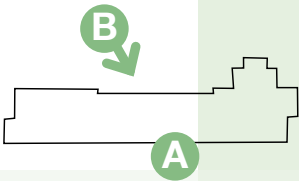
- students
- family
- young elderly
- elderly
- shared/collective space
- circulation



3rd floor

SPATIAL_LAYOUT

Body - Young elderly



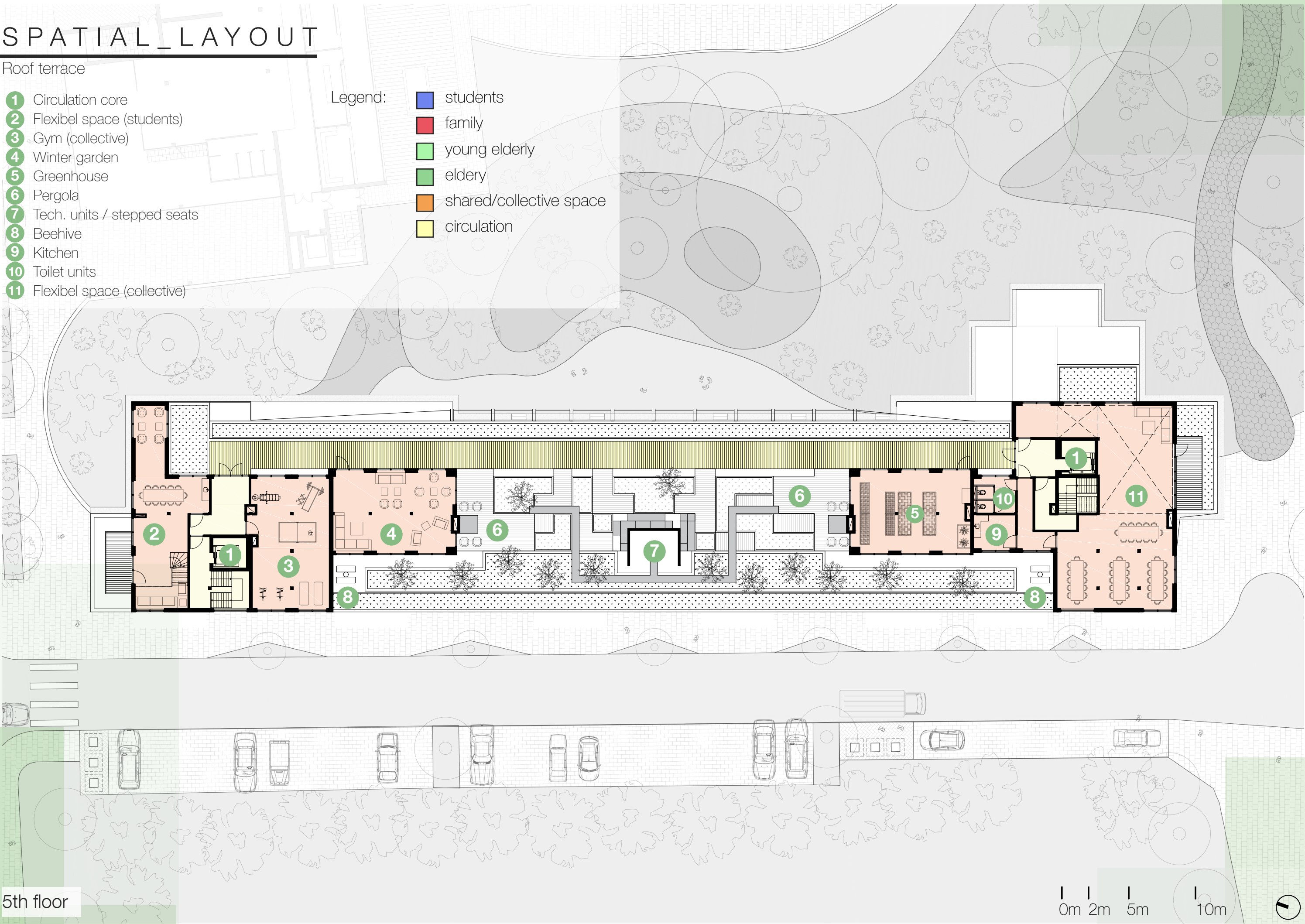
SPATIAL_LAYOUT

Roof terrace

- 1 Circulation core
- 2 Flexibel space (students)
- 3 Gym (collective)
- 4 Winter garden
- 5 Greenhouse
- 6 Pergola
- 7 Tech. units / stepped seats
- 8 Beehive
- 9 Kitchen
- 10 Toilet units
- 11 Flexibel space (collective)

Legend:

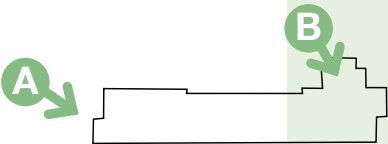
- students
- family
- young elderly
- elderly
- shared/collective space
- circulation



5th floor

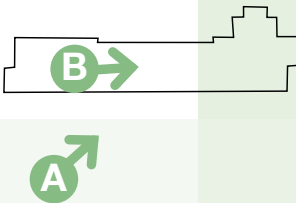
SPATIAL_LAYOUT

Roof terrace



SPATIAL_LAYOUT

Roof terrace





Building Technology

technical applications

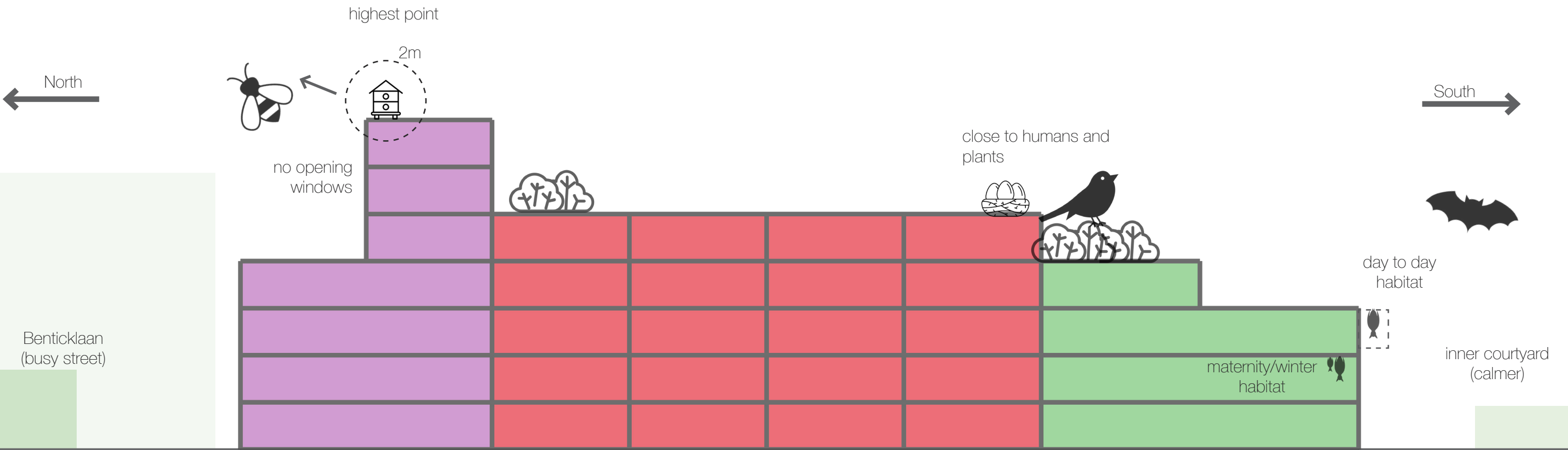
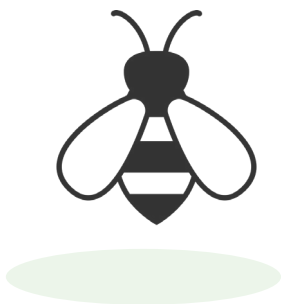
Birds (coal tit)

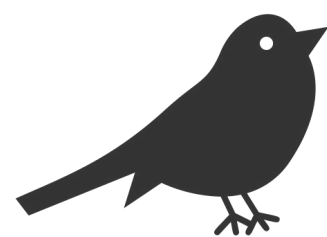


Bats (Serotine bat)

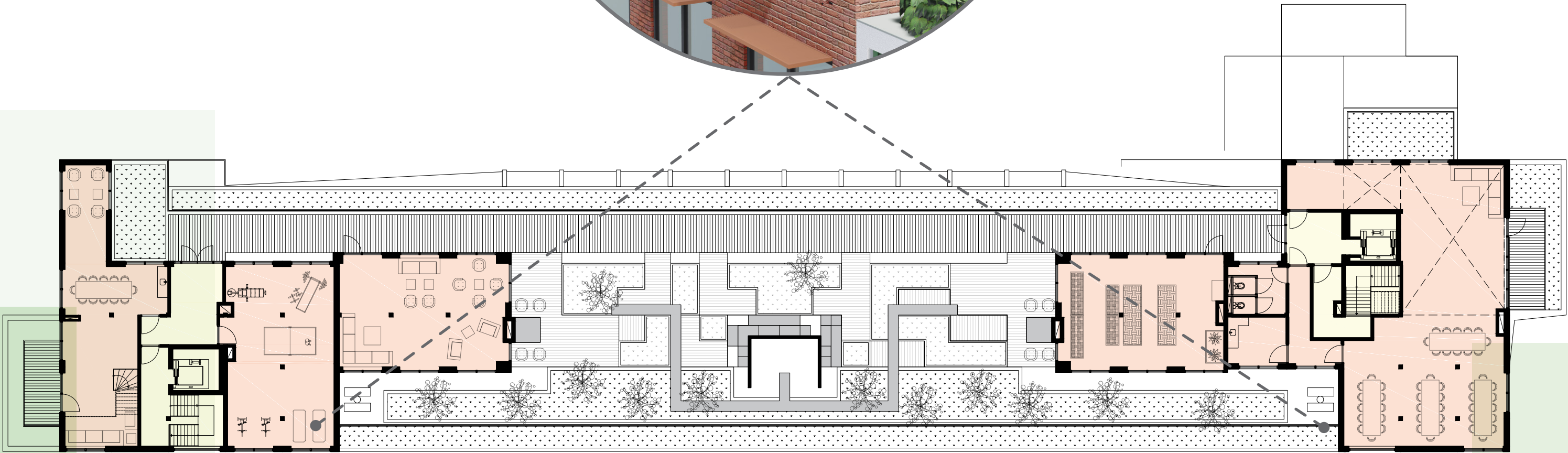


Honey Bees





Birds (coal tit)



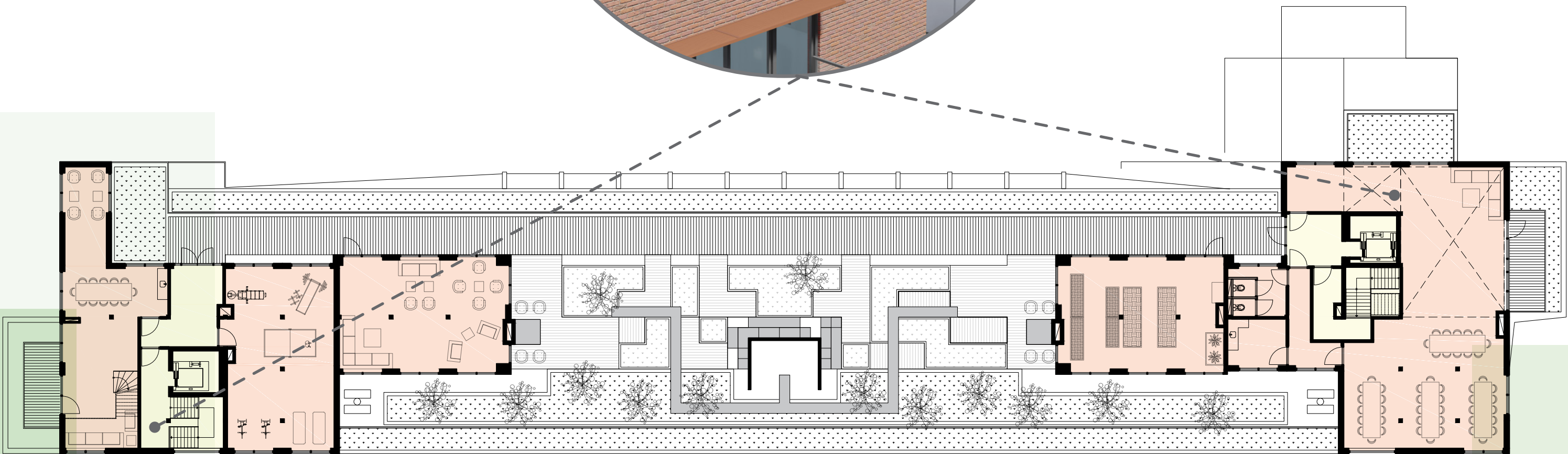
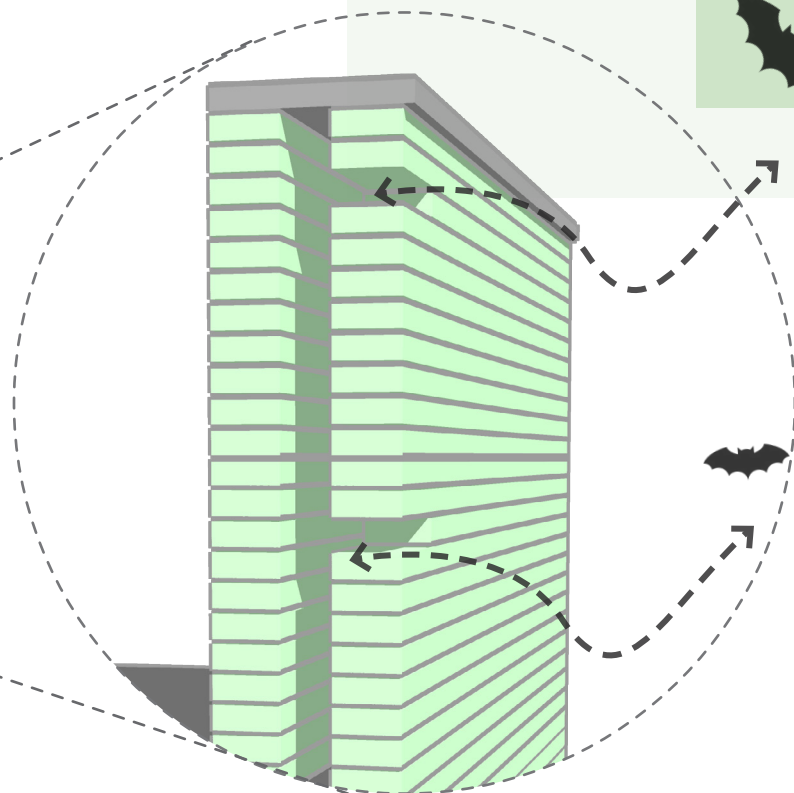
5th floor / roof

0m 2m 5m 10m





Bats (Serotine bat)



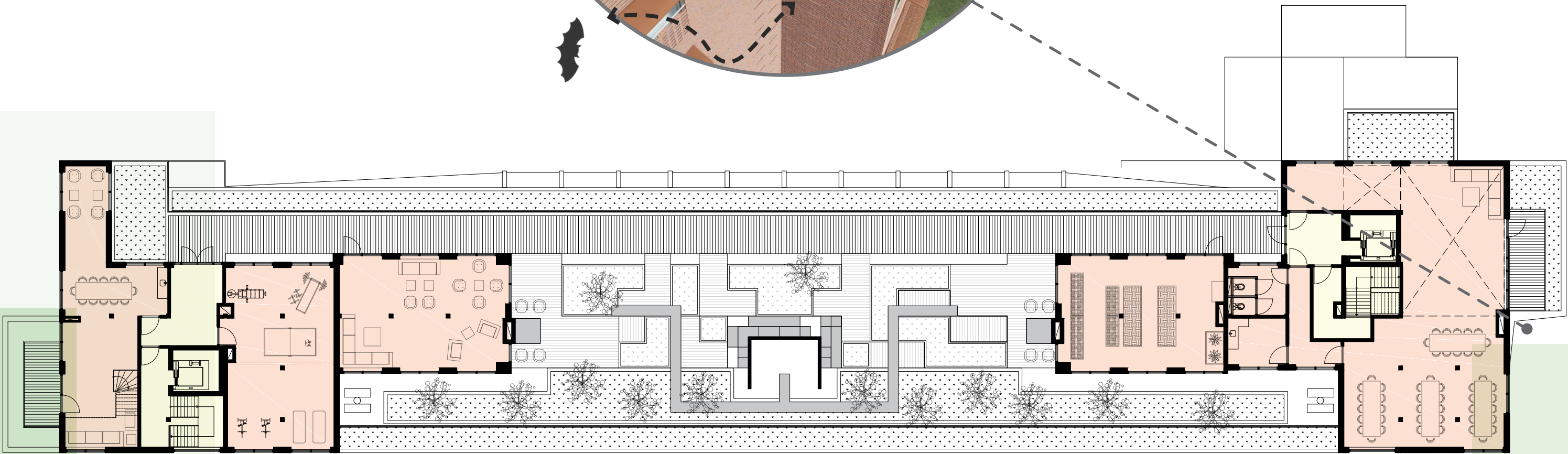
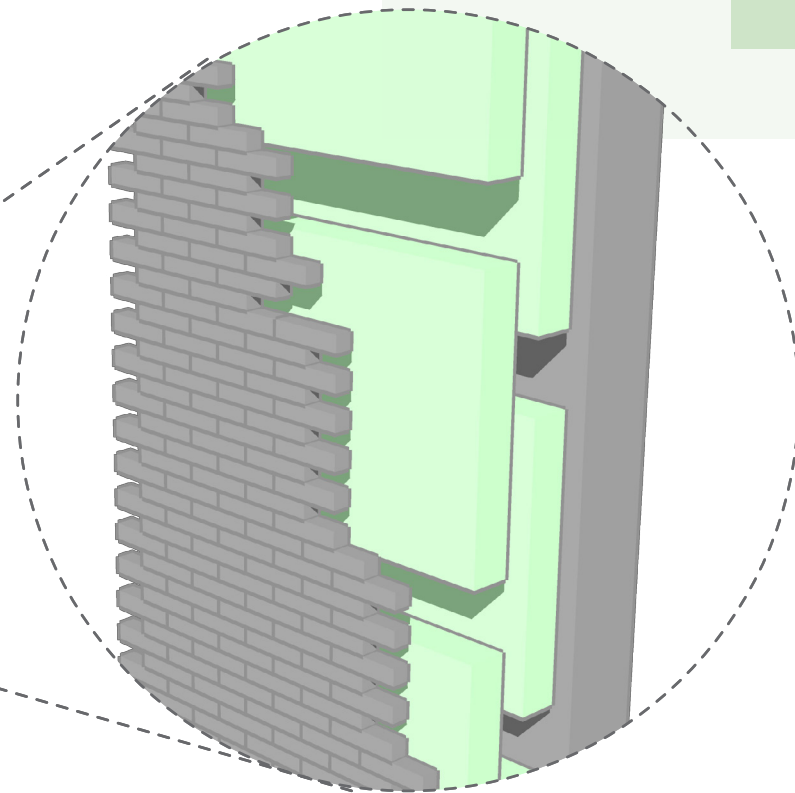
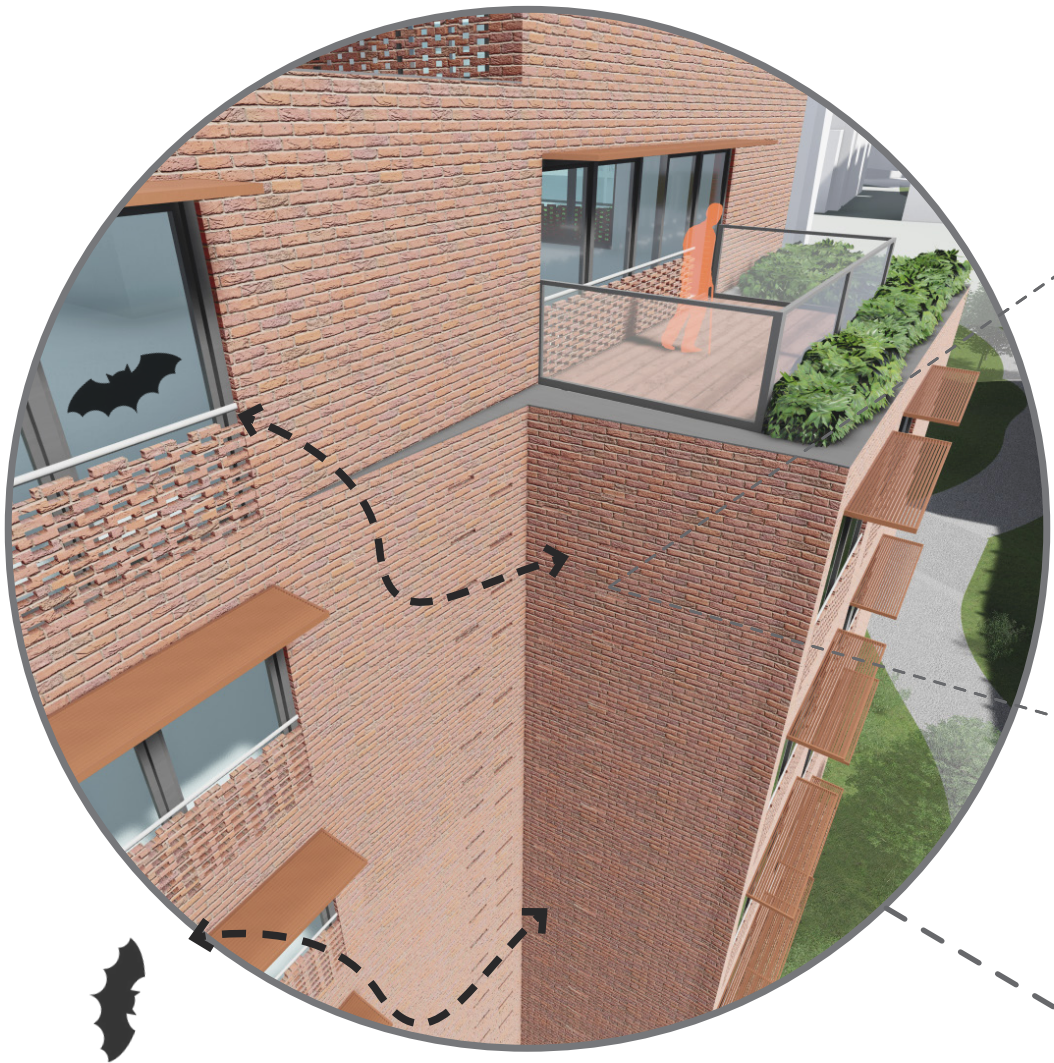
5th floor / roof

0m 2m 5m 10m





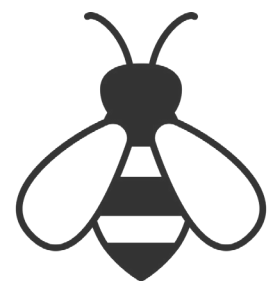
Bats (Serotine bat)



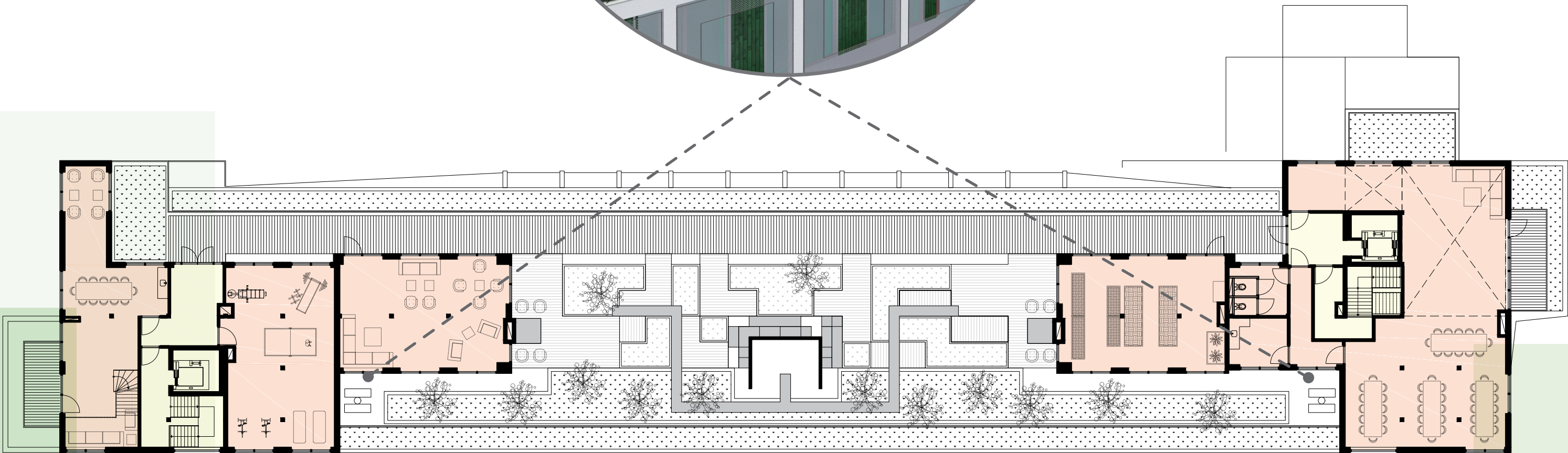
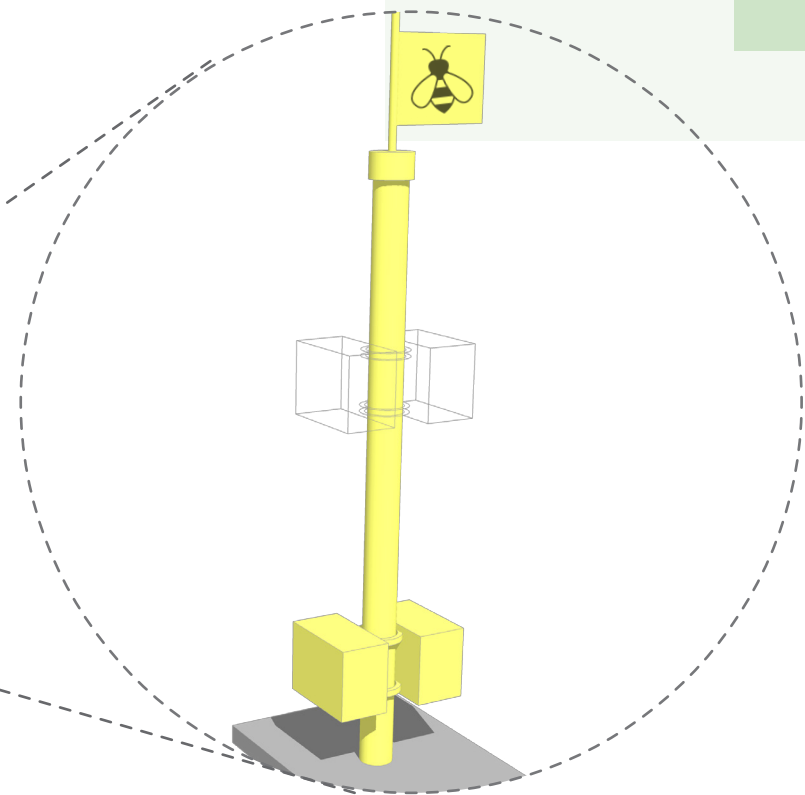
5th floor / roof

0m 2m 5m 10m





Honey Bees



5th floor / roof

0m 2m 5m 10m



BUILDING_TECHNOLOGY

Materialisation

wood as balustrade



Re-use
Existing bricks
red-brown



New bricks
Wienerberger Donau
Hand-formed, red-brown



Wooden window frames
anthracite

Head & tail



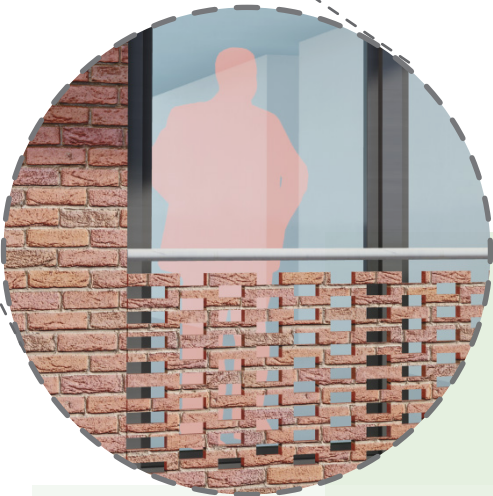
Vertical Thermowood
cladding
mint green



Rockpanel vertical &
horizontal lines
white



Wooden window frames
white

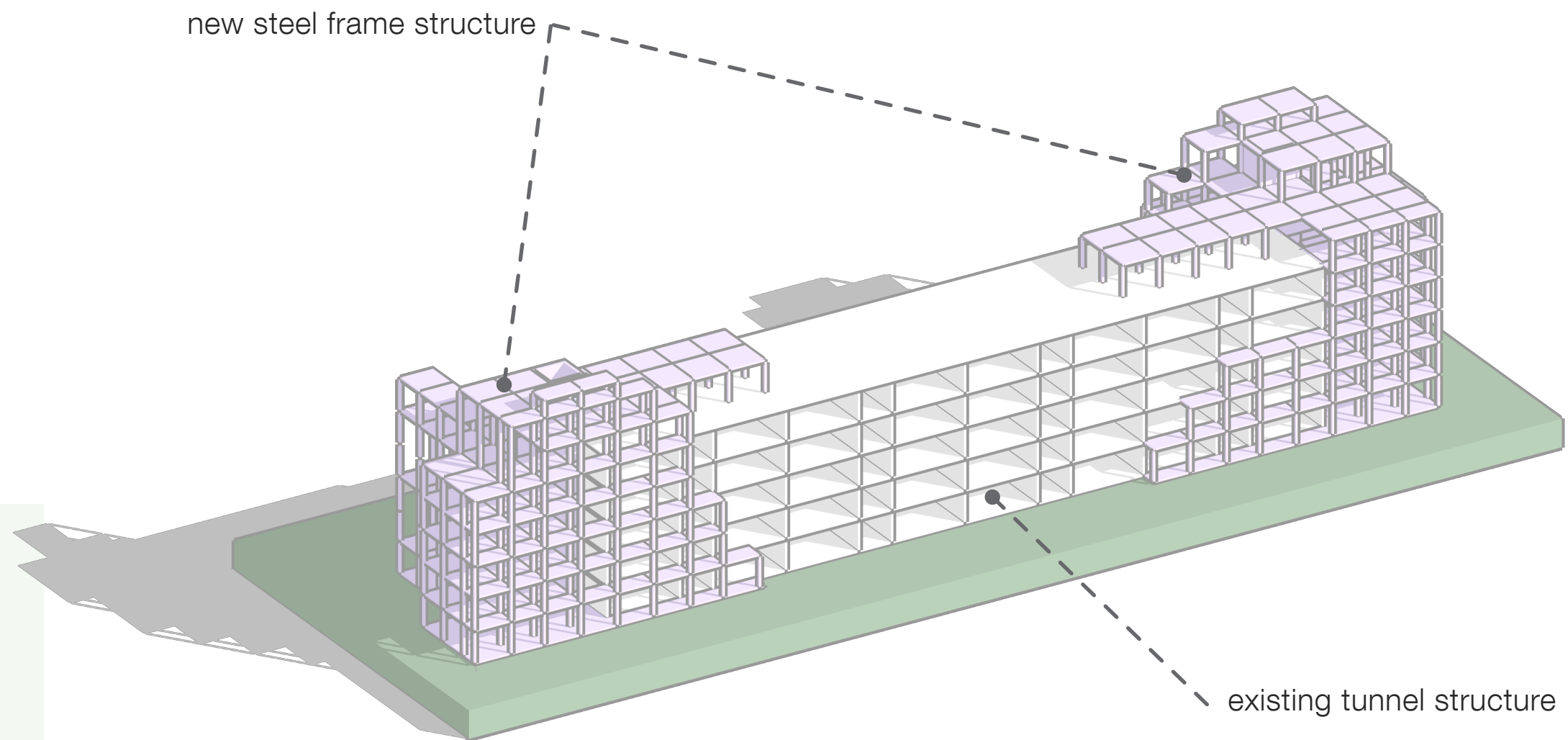


brick as balustrade

Body

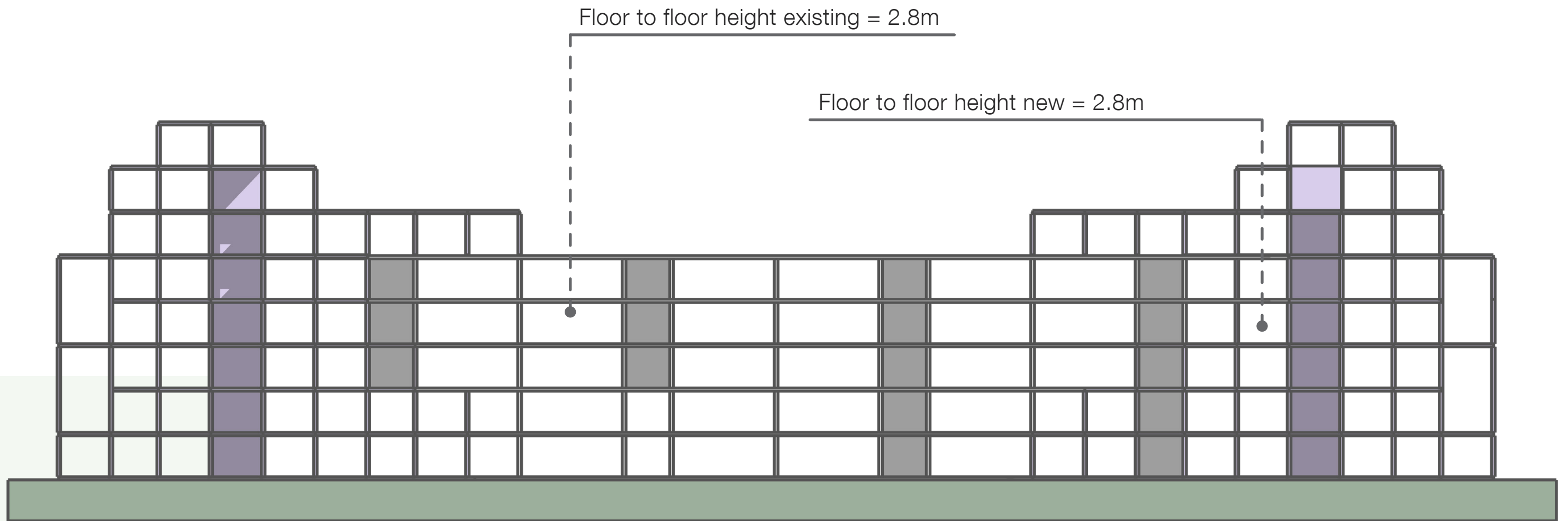
STRUCTURE

Construction principle



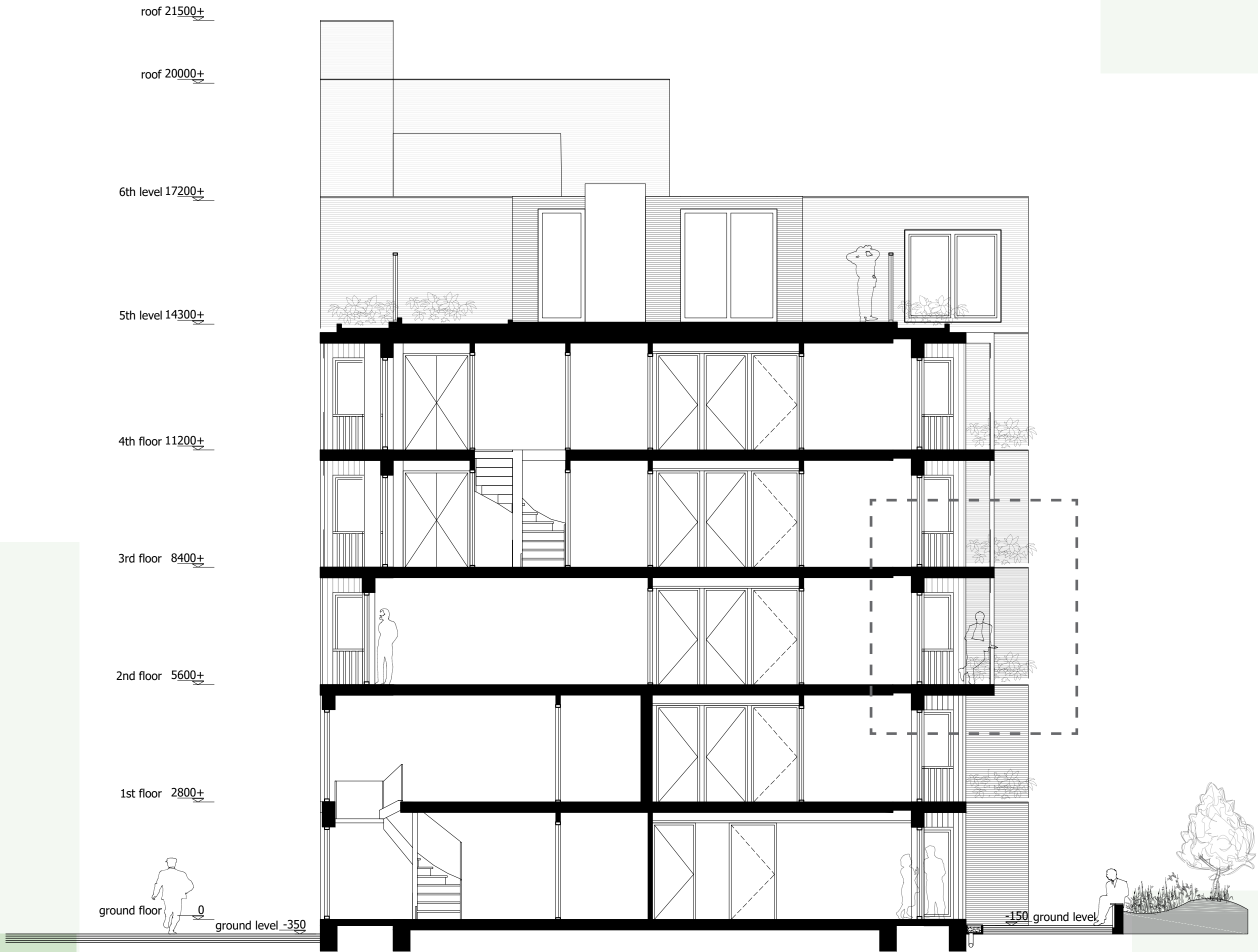
STRUCTURE

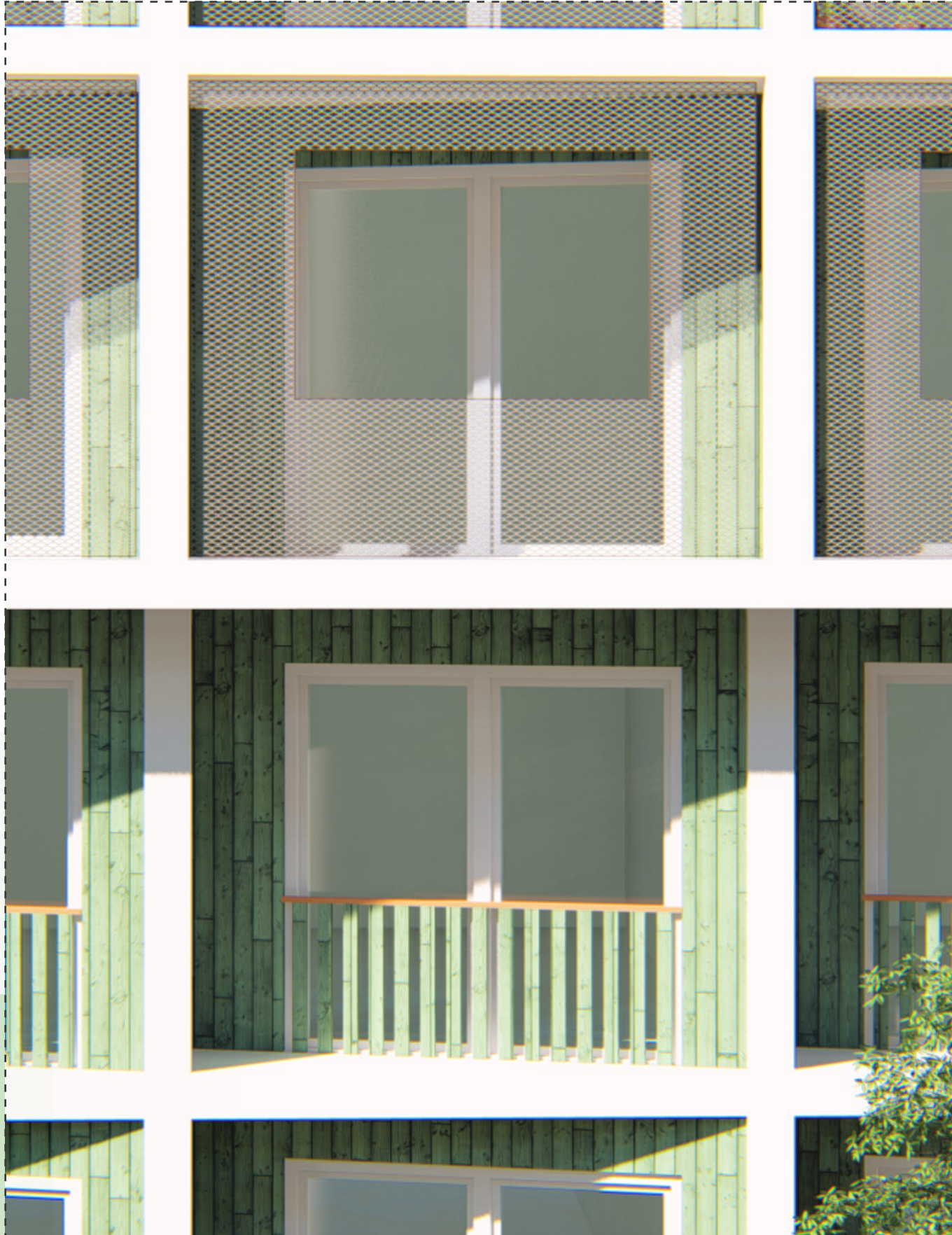
Construction principle



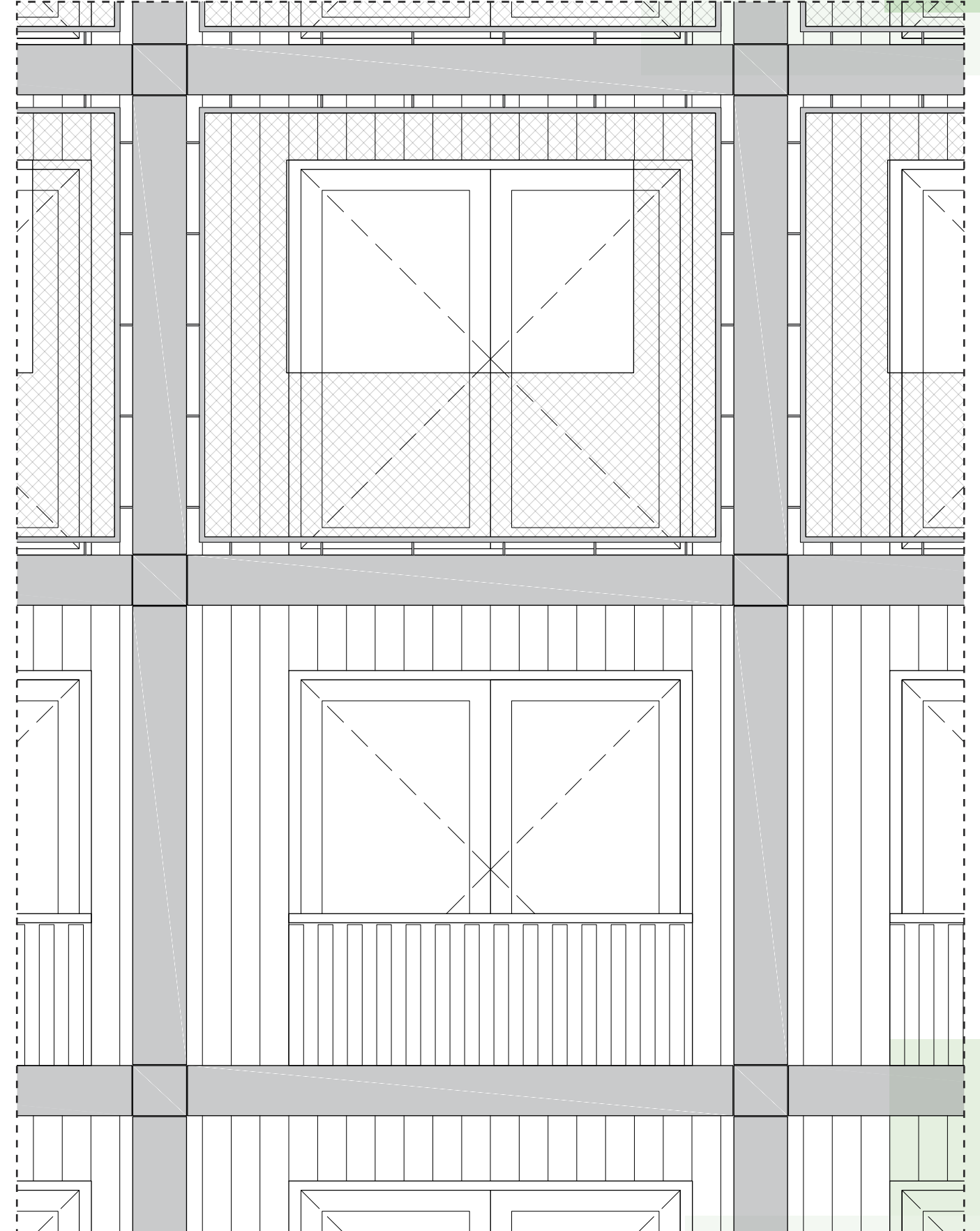
STRUCTURE

Construction principle

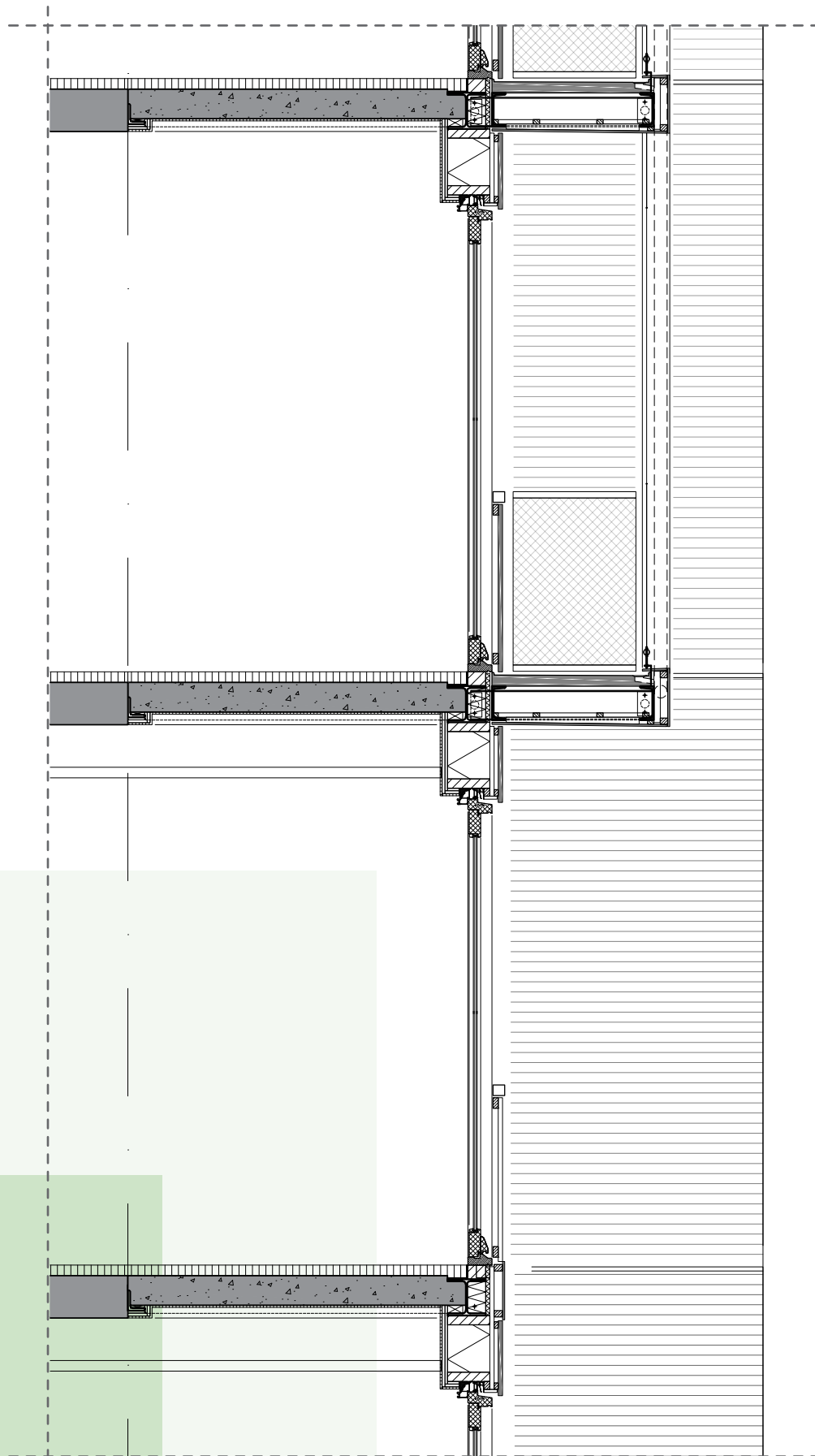




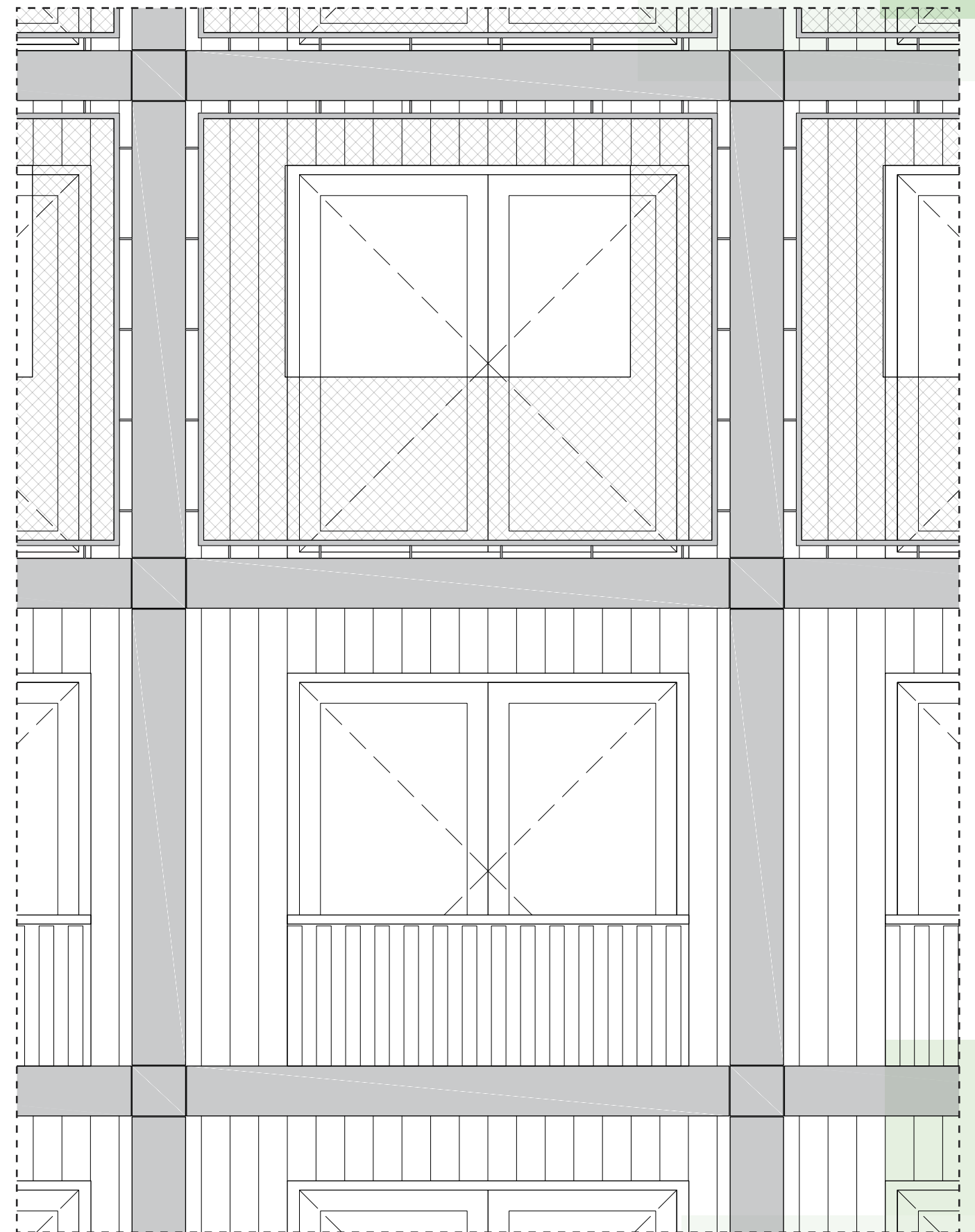
Fragment - zigzag facade - artist impression



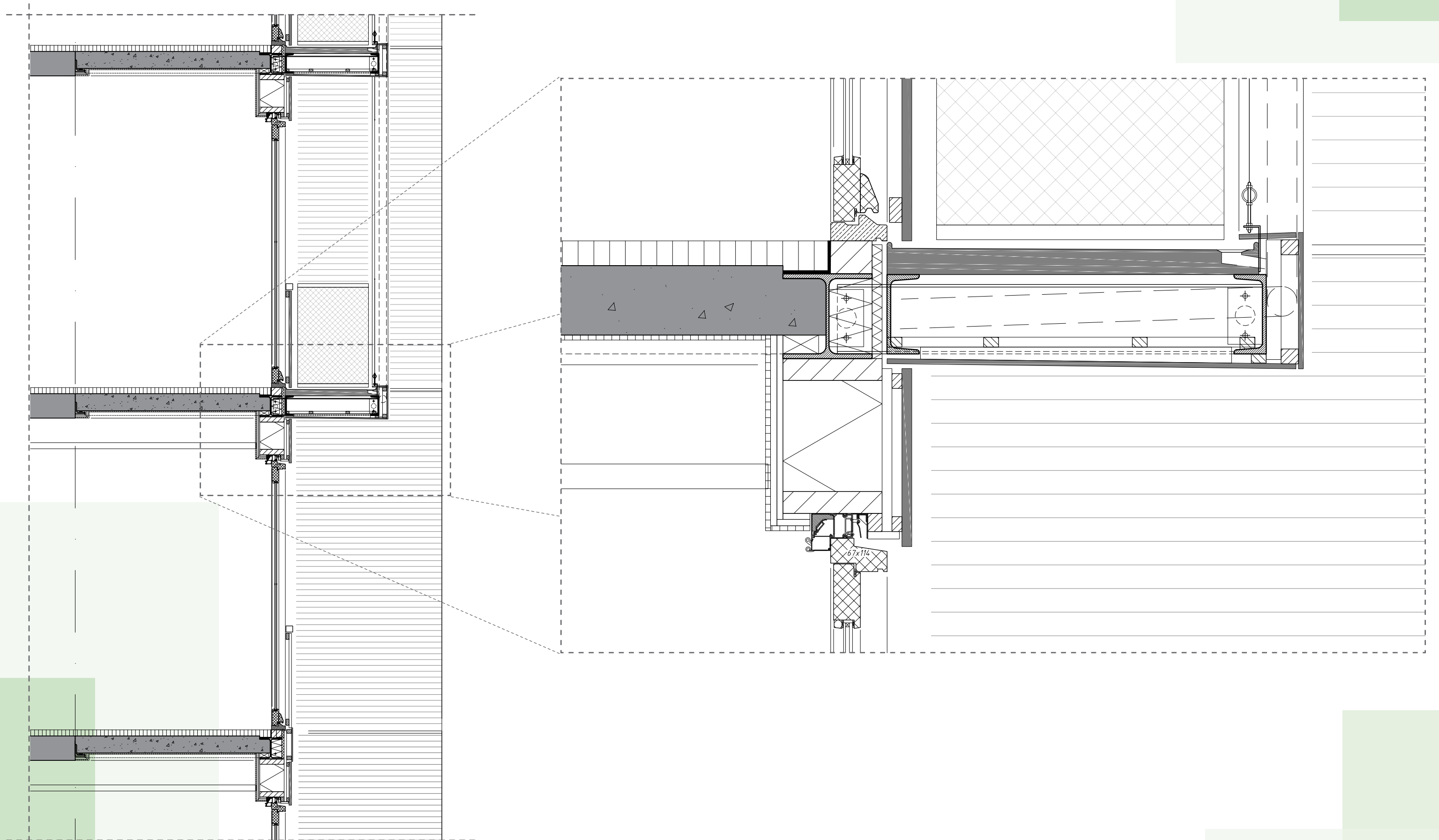
Fragment - zigzag facade - 1:20



Fragment - Section zigzag facade - 1:20



Fragment - zigzag facade - 1:20

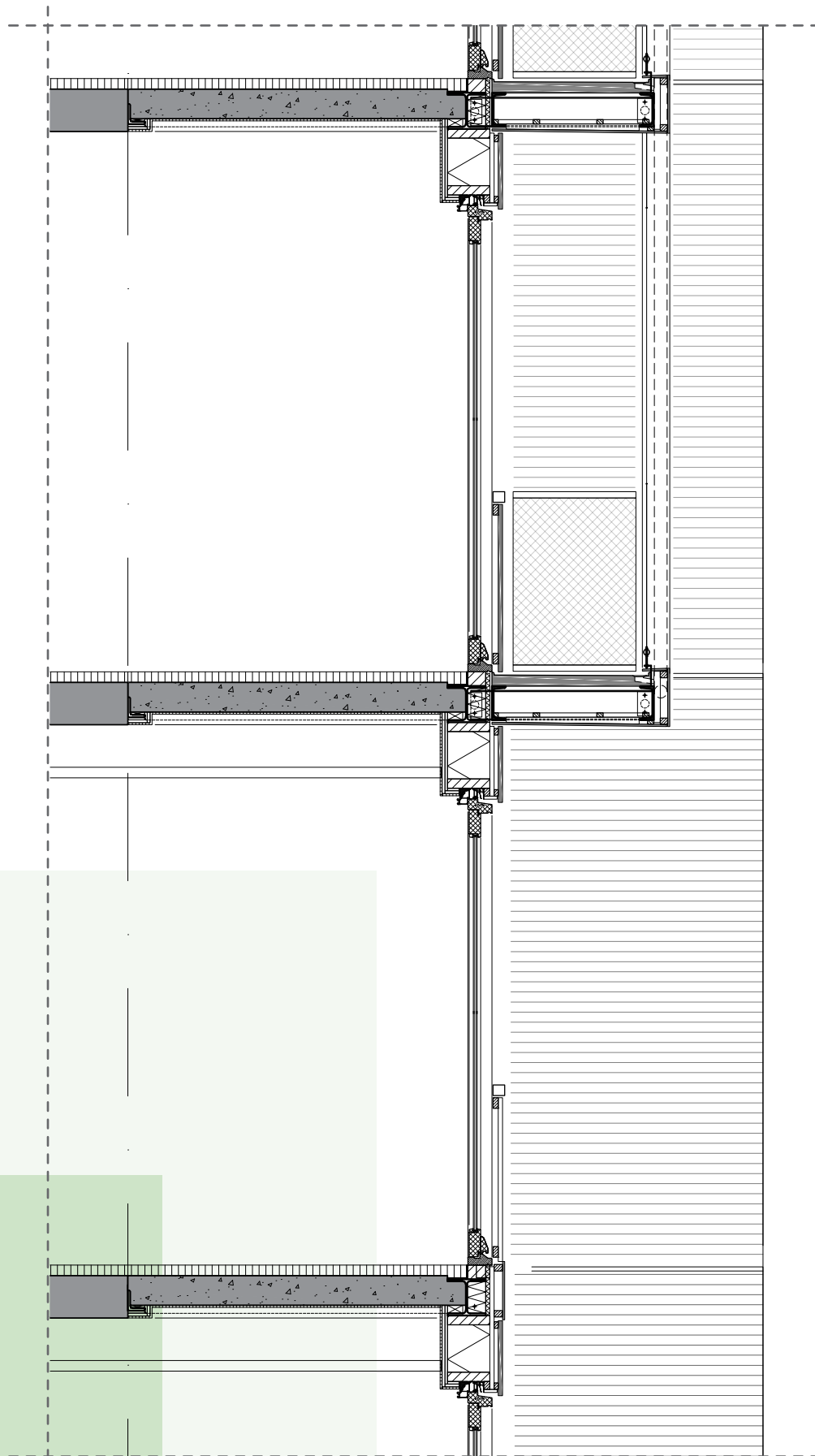


Fragment - Section zigzag facade - 1:20

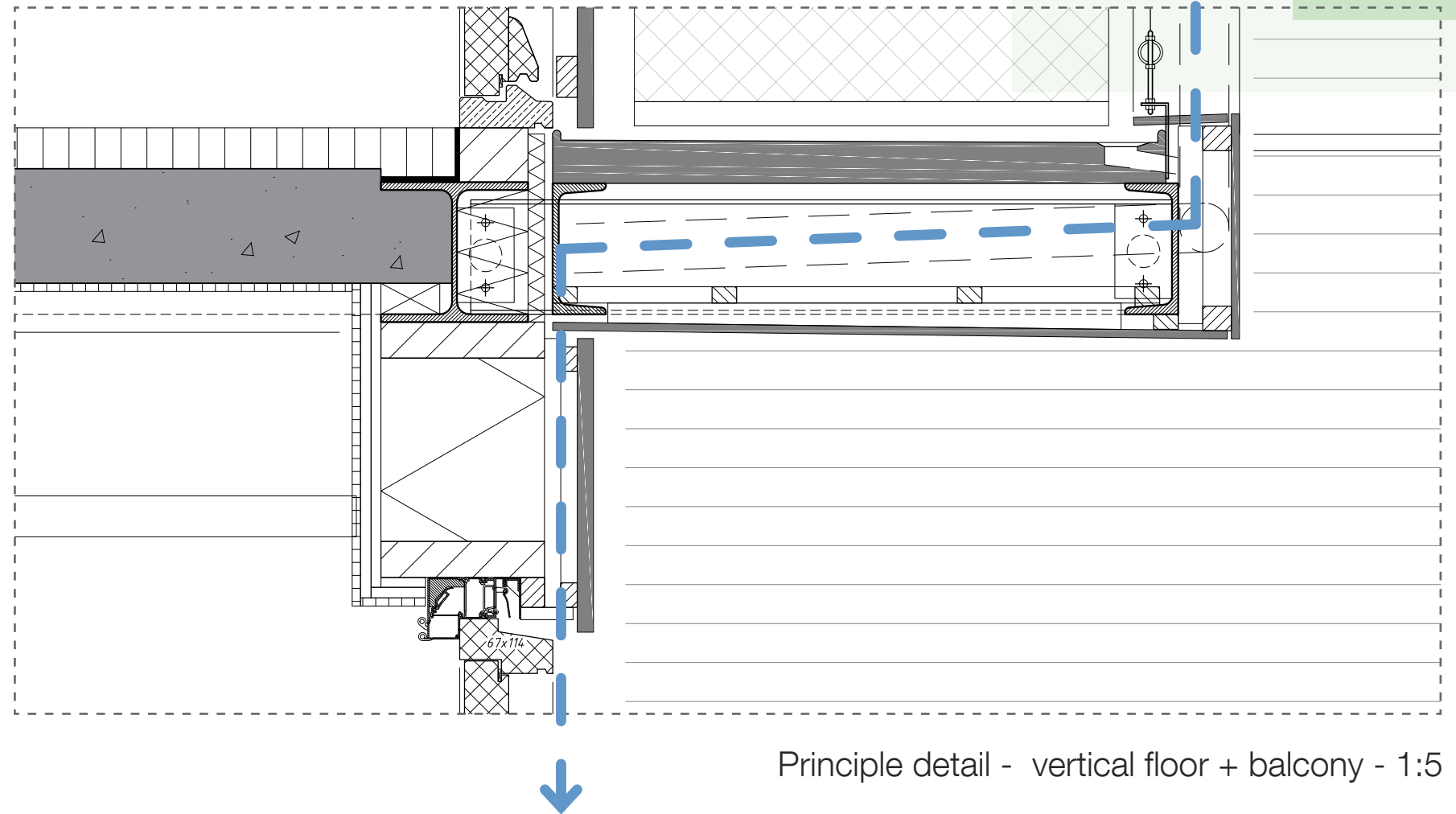
Principle detail - floor + balcony - 1:5

STRUCTURE

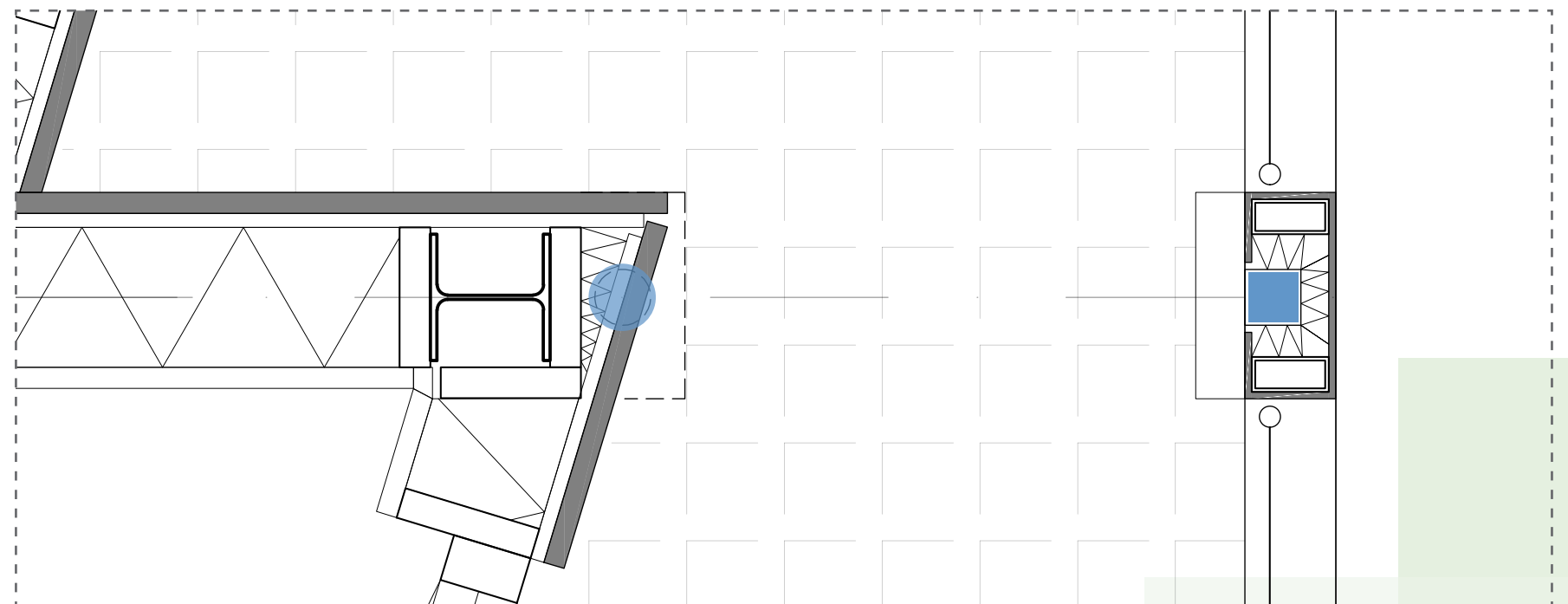
Engineering principle



Fragment - Section zigzag facade - 1:20



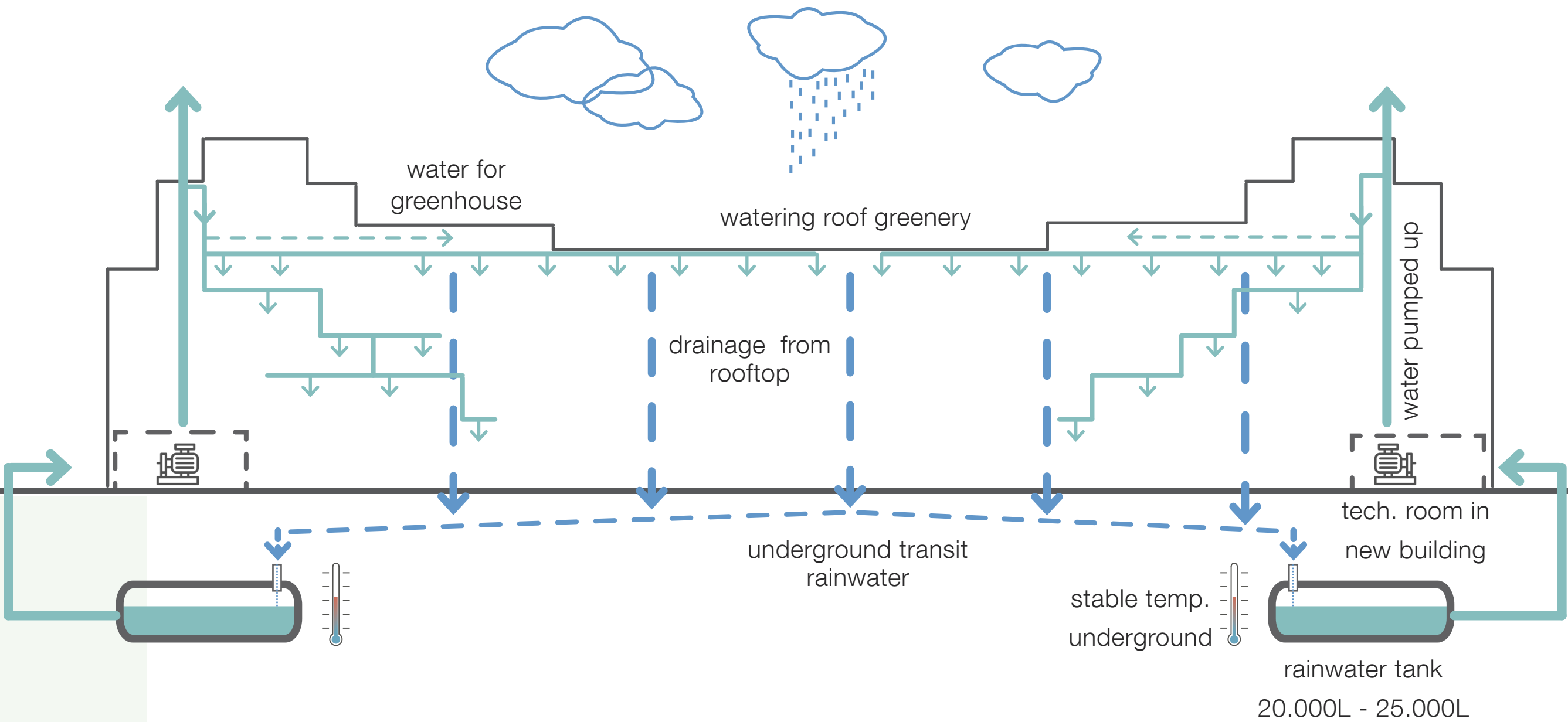
Principle detail - vertical floor + balcony - 1:5



Principle detail - horizontal floor + balcony - 1:5

S U S T A I N A B I L I T Y

Water Re-use

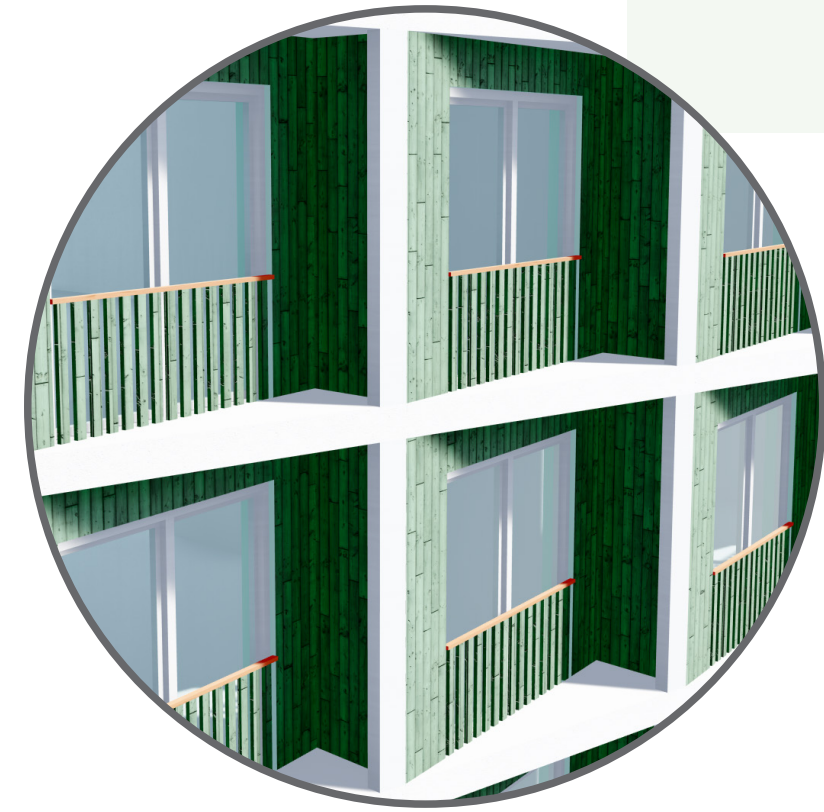


S U S T A I N A B I L I T Y

Shading principle



Permanent brise-soleil shading on the facade

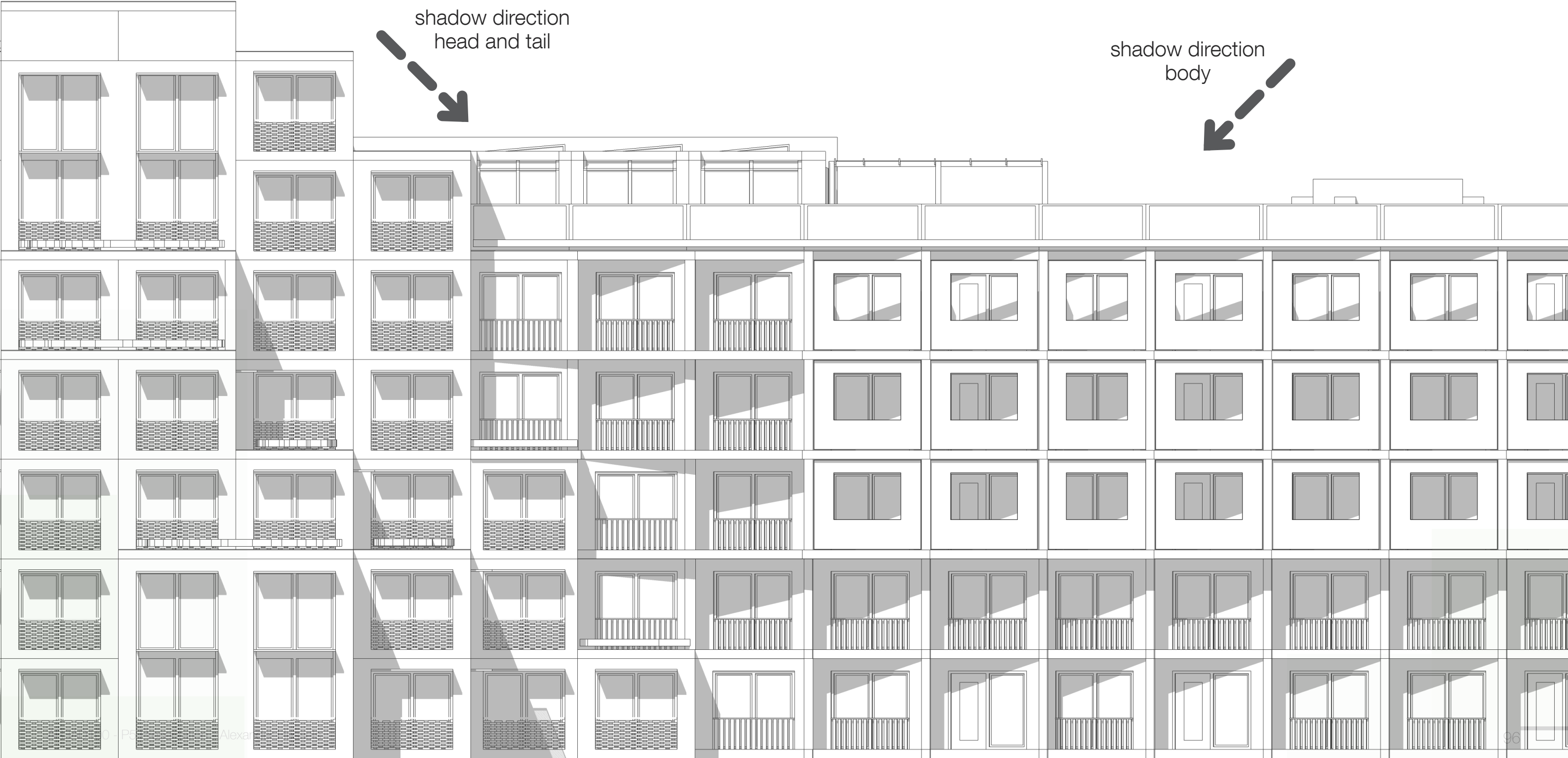
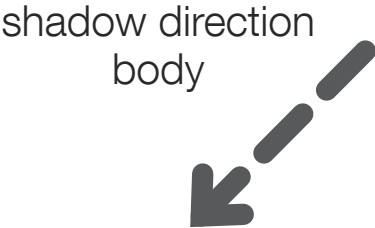
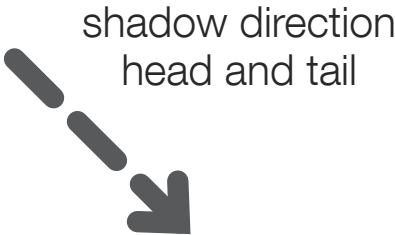
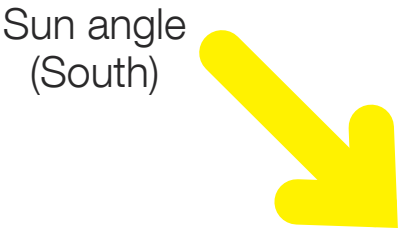


Zigzag facade results in passive sunshading



S U S T A I N A B I L I T Y

Shading principle



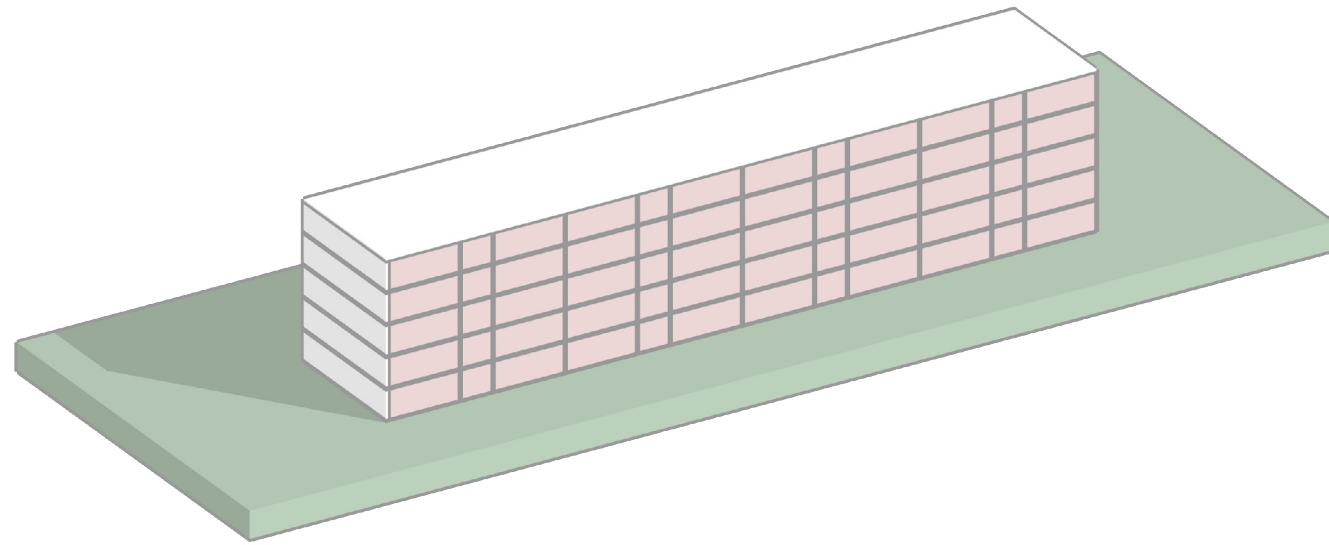
The background features a series of overlapping squares in various shades of green, ranging from light mint to a darker forest green. A prominent dark grey stepped line runs vertically down the left side of the page, with horizontal segments extending to the right at several points. A thick horizontal dark grey line spans the width of the page, positioned below the word 'Conclusion'.

Conclusion

final words

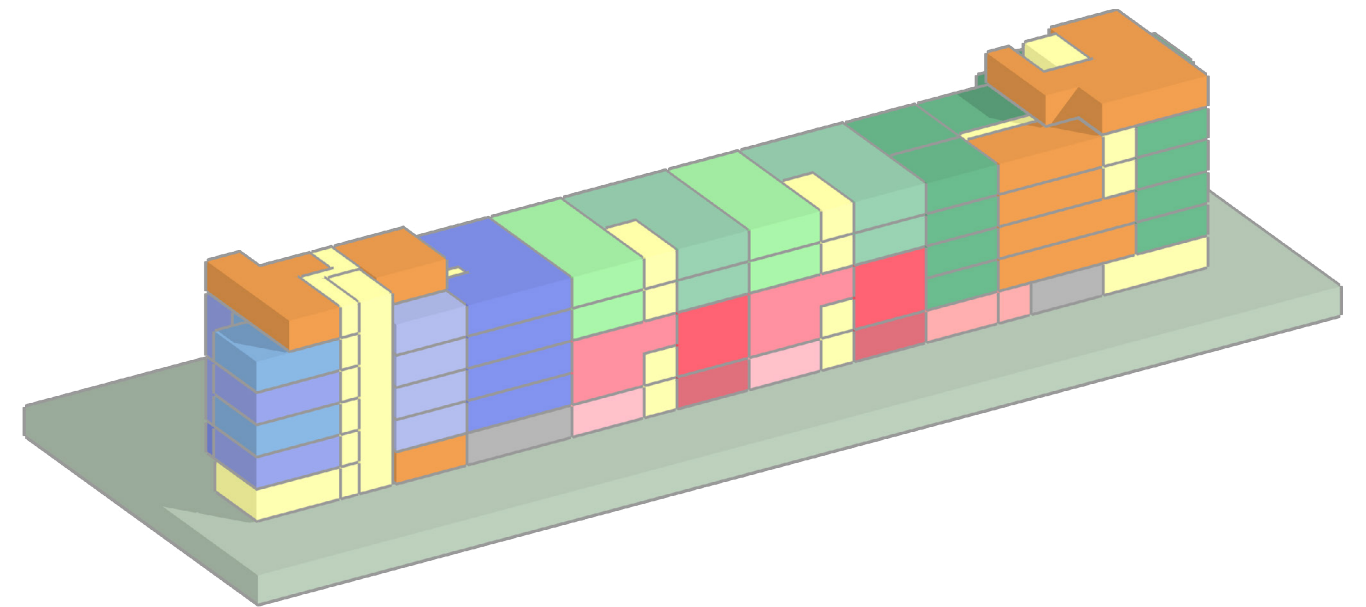
DESIGN_IN_A_FEW_STEPS

Old vs. new



Old:

ground floor: 890m²
total: 4.450m²
35 dwellings
1 household type
social housing

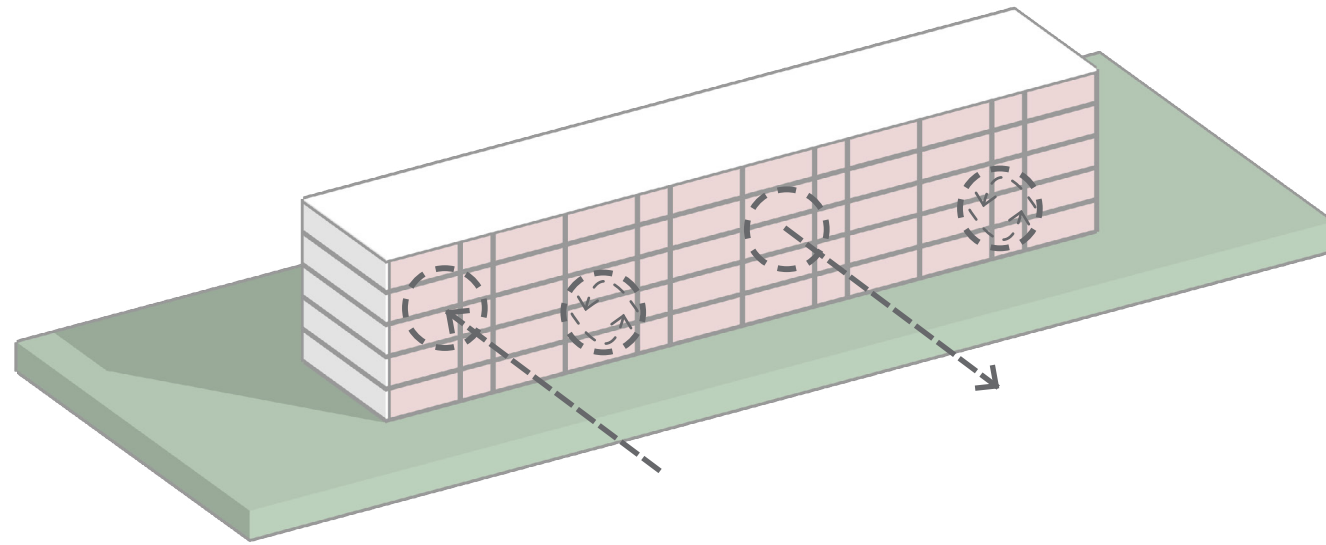


New:

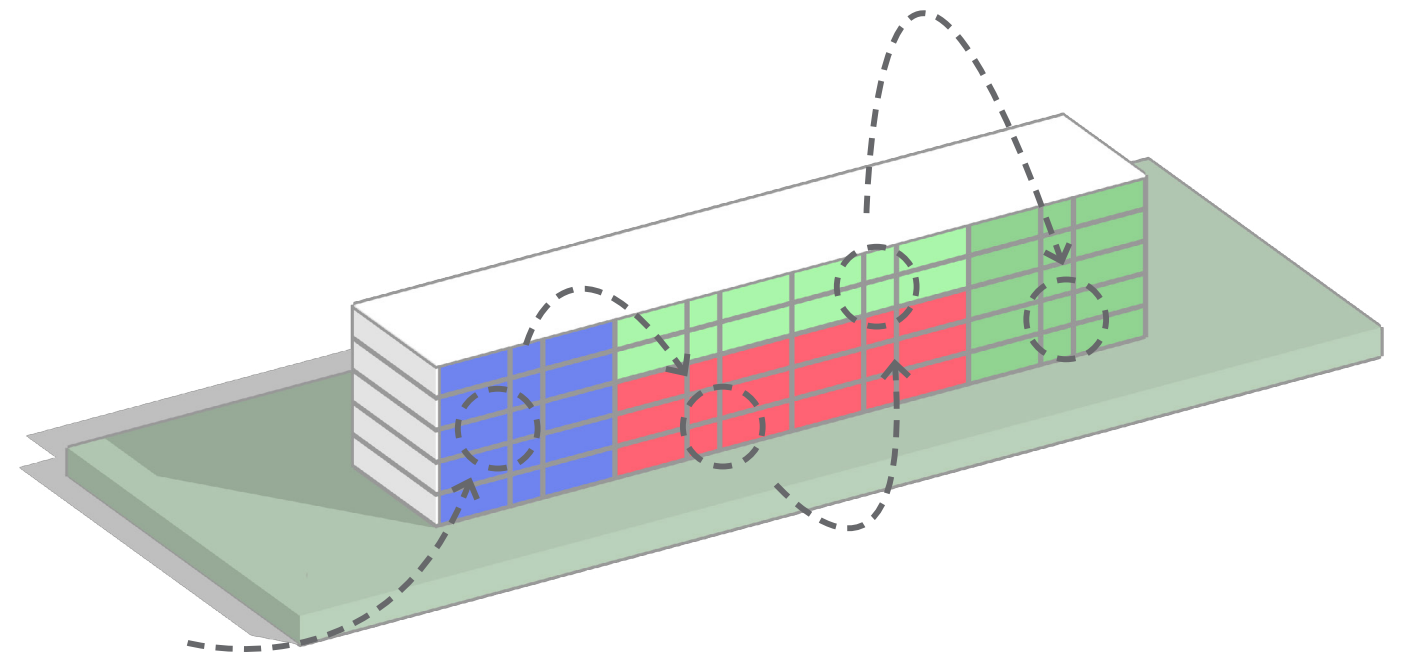
ground floor: 1560m²
total: 7.450m²
86 dwellings
4 household types
Collective/student housing/elderly care
shared and collective spaces
divided circulation
650m² roof terrace

DESIGN_IN_A_FEW_STEPS

Old vs. new

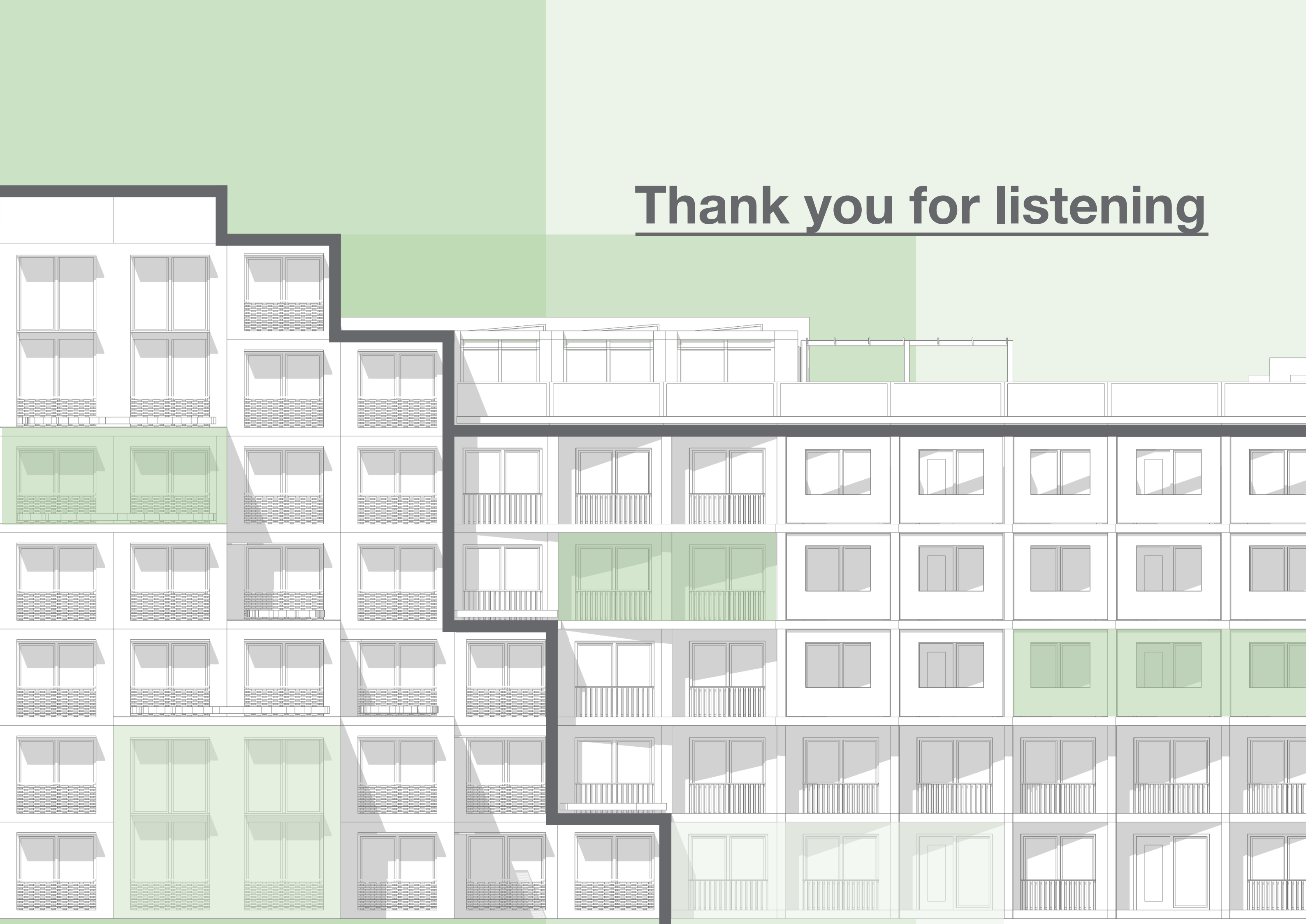


Designed for one householdtype

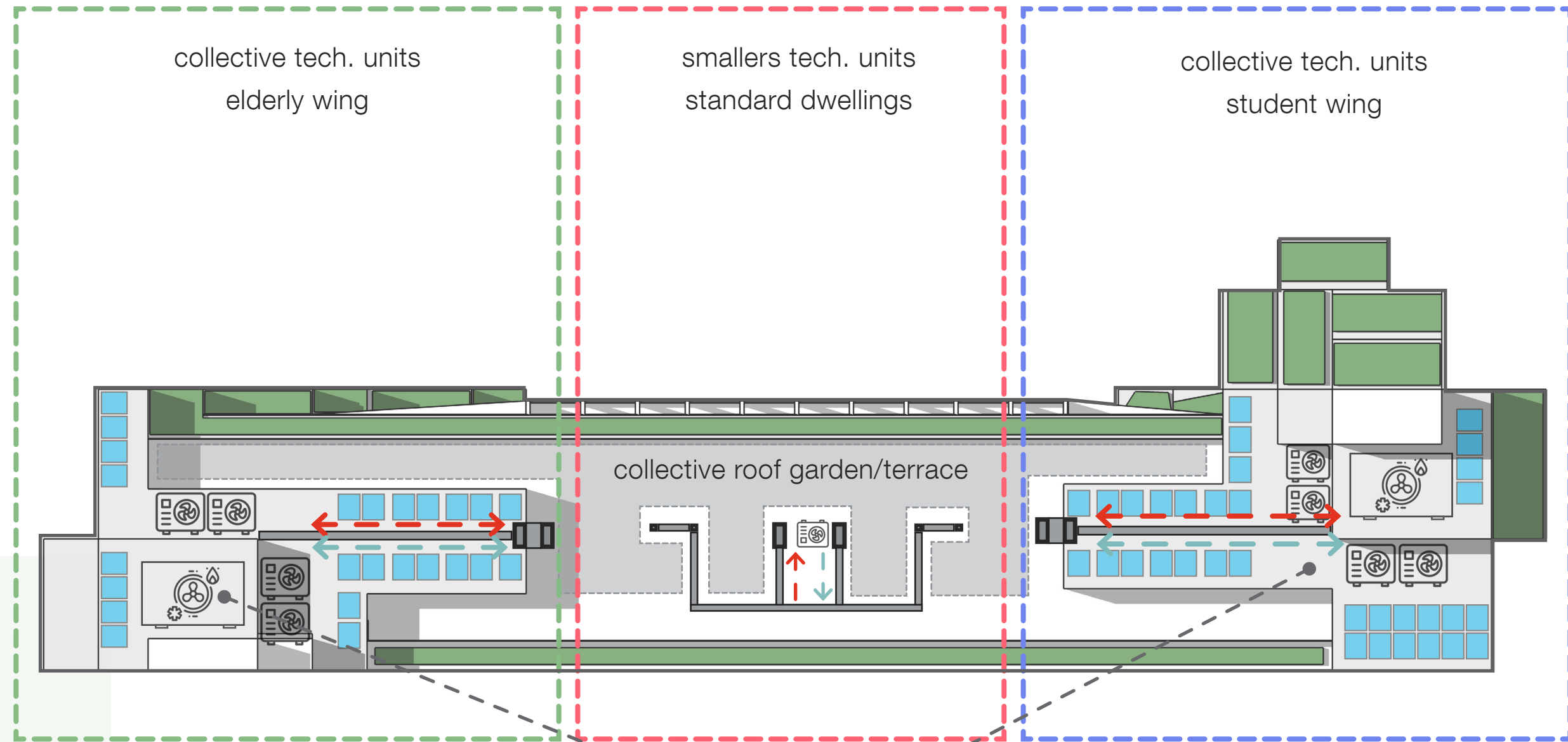


Designed for multiple household types

Thank you for listening



division of tech. units per building function.



tech. units on higher
roofs & top floor, out of sight.

SPATIAL_LAYOUT

Body - family dwellings

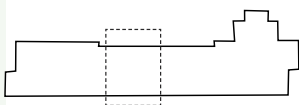


1st floor



2nd floor

- Legend:
- shared
 - circulation
- 1 Porch entrance
 - 2 Dwelling entrance
 - 3 Toilet
 - 4 Kitchen + dinning room
 - 5 Storage
 - 6 Room/workspace option
 - 7 Stairs + void
 - 8 Living room
 - 9 Corridor
 - 10 Bedroom
 - 11 Workspace/bedroom
 - 12 Bathroom
 - 13 Balcony



0 1 3 6m Existing walls New walls



SPATIAL_LAYOUT

Body - Young elderly

- Legend:
- shared
 - circulation
- 1 Dwelling entrance
 - 2 Corridor
 - 3 Kitchen
 - 4 Living room
 - 5 Bedroom
 - 6 Workspace/bedroom
 - 7 Bathroom
 - 8 Balcony
 - 9 Gallery circulation
 - 10 Secondary circulation
 - 11 Shared utilities

0 1 3 6m

Existing walls

New walls

