

DE BUREN

connectedness while preserving one's own independence

Graduation precentation by:

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29 Januari 2021



Mentors:

Architecture

Ir. Theo W. Kupers

Research

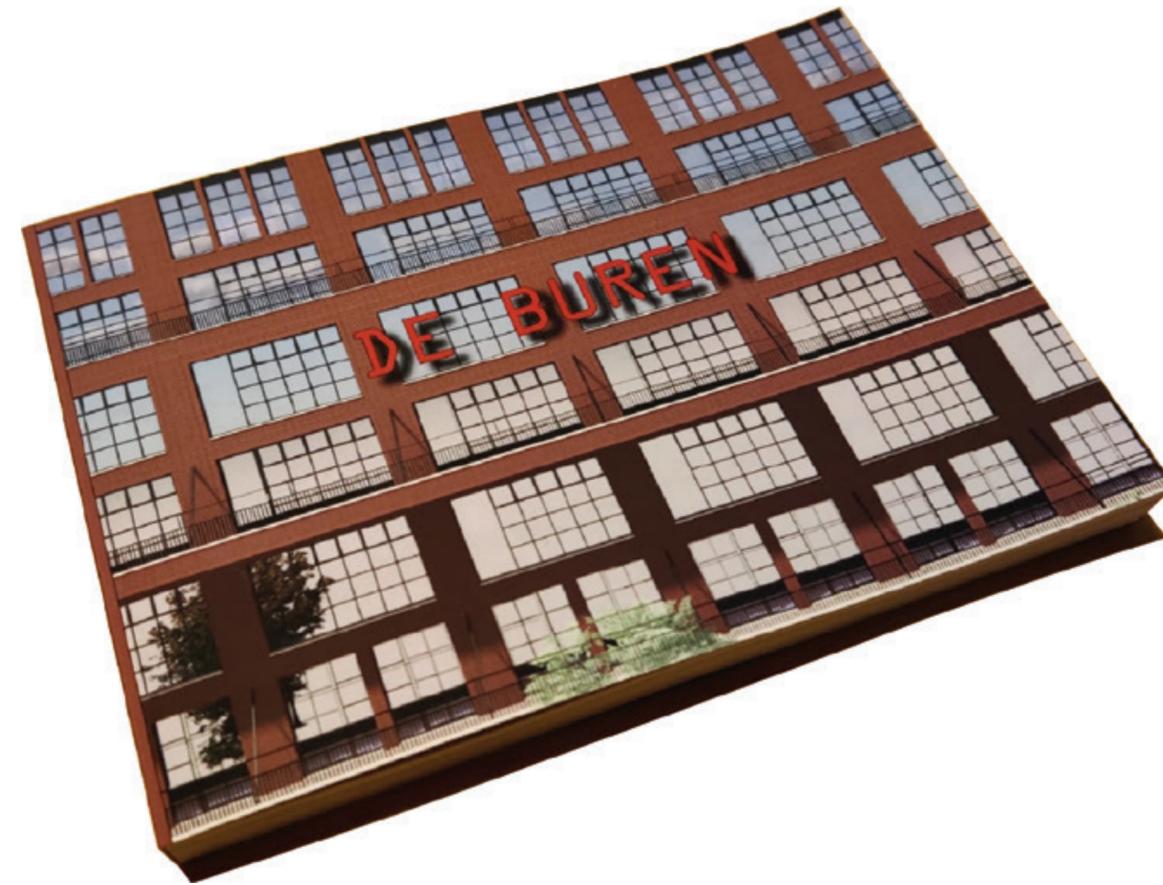
Ir. Pierijn S. van der Putt

Building Technology

Ir. Ferry Adema

Delegate Board of Examiners

Prof. Dr. Paul W. Chan



Booklet

Organization of the presentation.

- Assignment
- Research
- Target audience
- Makers
- Design hypotheses
- Design Location
- Building Design
- Sustainability
- Conclusion

- **Assignment**

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Technische Universiteit Delft

Faculty of Architecture & Build Environment

Master Architecture, Urbanism and Building Sciences

Track Architecture

Graduation studio Dwelling, Dutch Housing

Project Development of Merwe-vierhavens (M4H), Rotterdam, Netherlands



(DELVA, n.d.)

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Hi Buurman!

Connectedness while preserving one's own independence

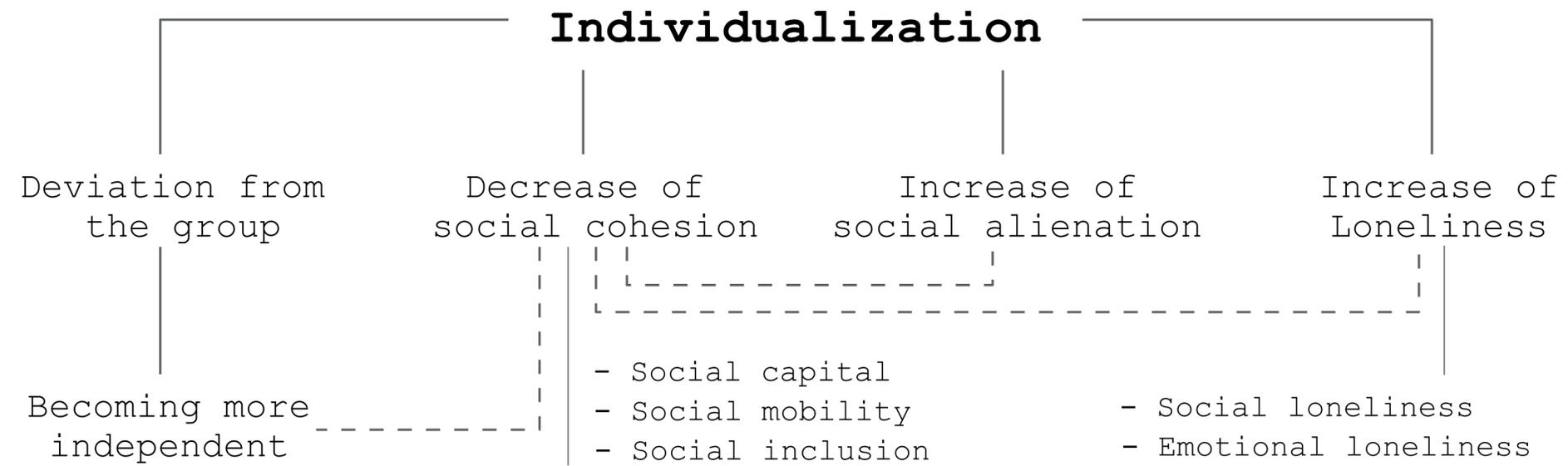
NL - "Let een beetje op elkaar, ik reken op u"

EN - **"Pay a little attention to each other, I'm counting on you"**

Quote Rutte, Prime minister of the Netherlands, March 16th 2020

Research Question:

Is it possible for an architectural design to counter the negative effects implicated with the individualization and improve the social cohesion within a residential building?

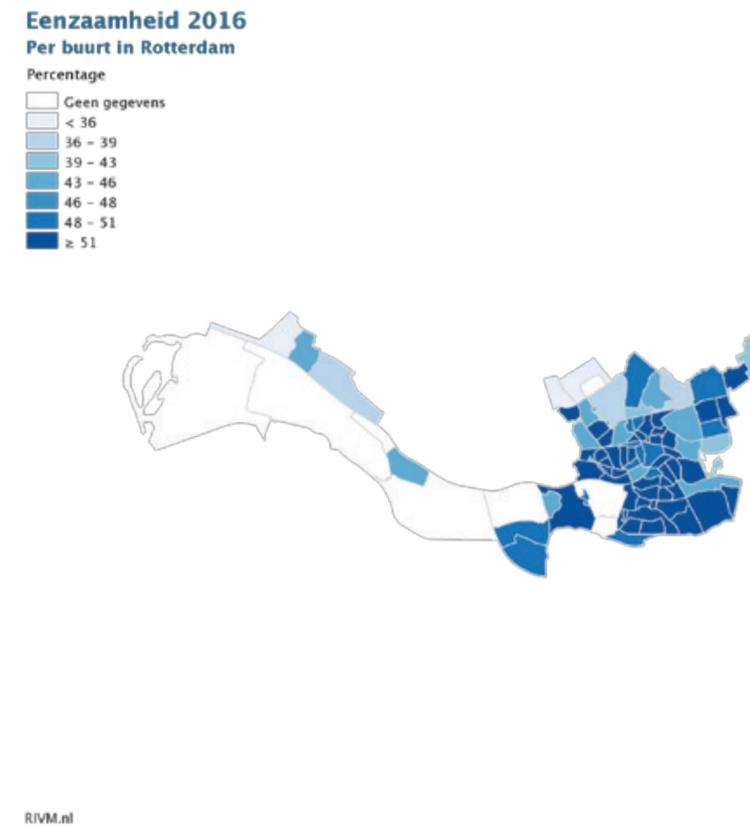
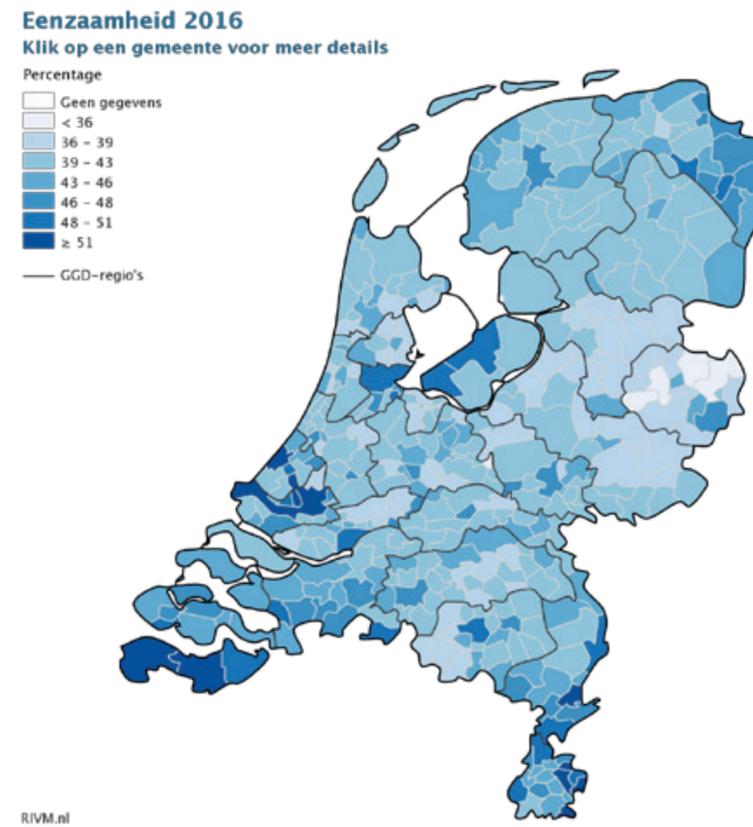


Social cohesion is about the way a society functions on a social- and task relationship level, on perceived unity, and emotions such as solidarity and feeling at home (CBS, 2020c; Putnam, 2000; Qwe, n.d.).

	Nederland	Zuid-holland	Rotterdam
People hardly know each other	24,8	28,2	37,4
People get along well	71,6	67,2	57,5
Cozy neighborhood with a lot of togetherness	44,8	39,6	32,3
Feel at home with people in this neighborhood	67,9	57,6	49,8
Lots of contact with other local residents	61,5	33,6	29,4
Satisfied with population composition	36,6	64,3	55,2
Total score	6,3	6	5,5

Table 1. Percentage scores on the items and total score of social cohesion among Dutch citizens (CBS, 2020b)

"We no longer know who our neighbours are" (Akkermans et al., 2019).

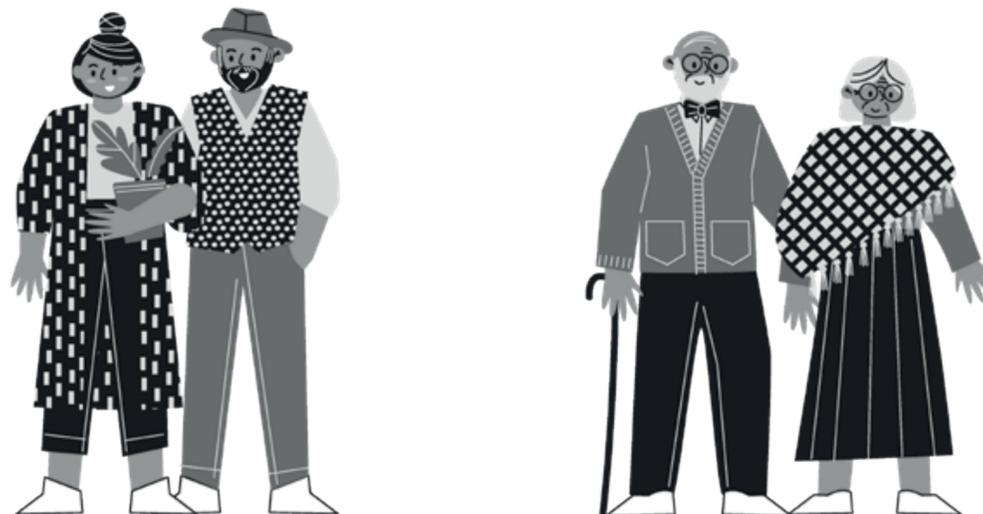


(Rijksinsituut voor Volksgezondheid en Milieu, 2016)

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Multi Generation



Small households such as starters and empty nesters. Households consisting of 1 or 2 persons from the age of 18 without children with a middle to low income.



Medium-sized households such as families up to and including 4 people (no distinction is made based on the composition of the family):
Households consisting of 1 or 2 persons and 1 or 2 children with a middle to high income.

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Examples of makers

- Small-scale food production: city brewery, bakery, coffee bean roaster, and catering companies.
- Small-scale & Technical industry: small-scale workshops, interior builders, and (repair) workshops.
- Public Workspaces & Home Working: designers, industrial designers, and architectural firms.

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Case studies



(Justus van Effencomplex, n.d.)



(Narkomfin, 2017)

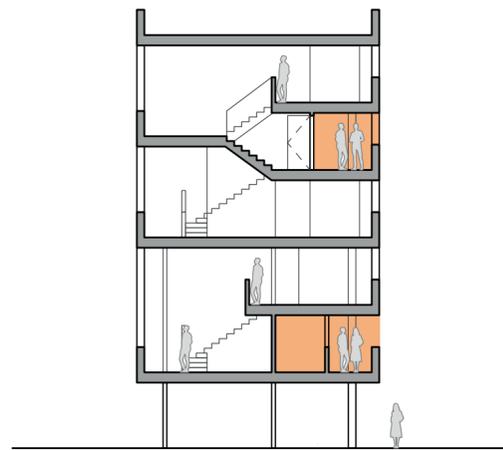


Robin Hood Gardens (Nicholas, n.d.)



8 House (Fleming, n.d.)

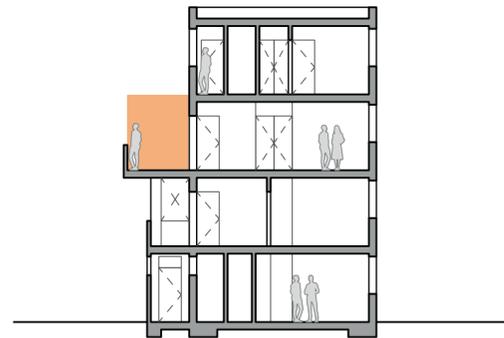
Case studies



Justus van Effen Complex

Michiel Brinkman

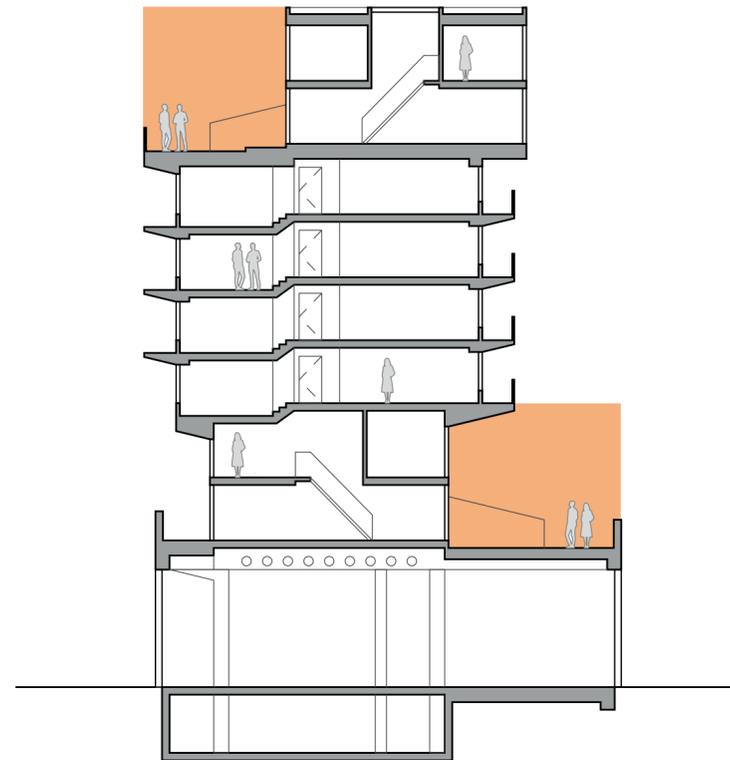
1922



Narkomfin

Moisei Ginzburg &
Ignaty Milinis

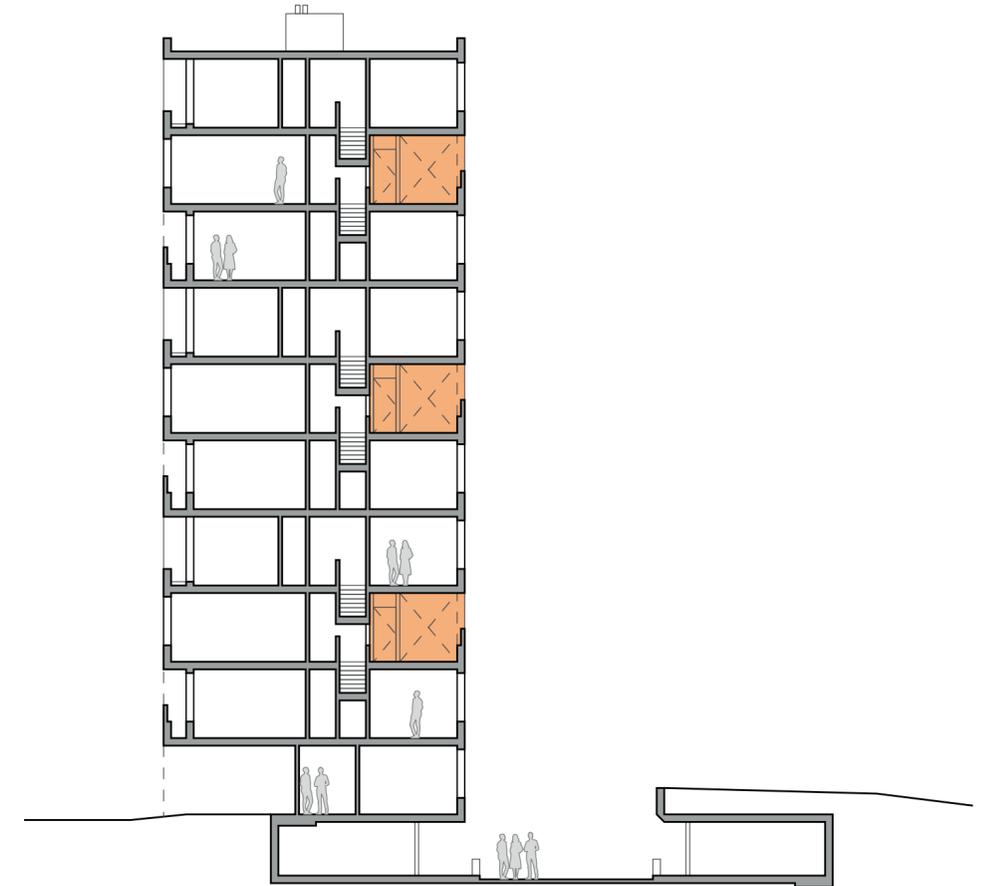
1932



Robin Hood Gardens

Alison & Peter Smithson

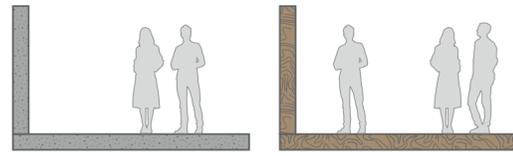
1972



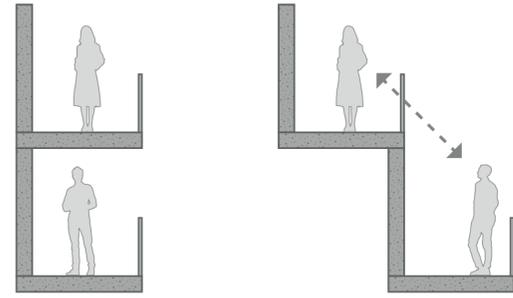
8 House

Bjarke Ingels Group

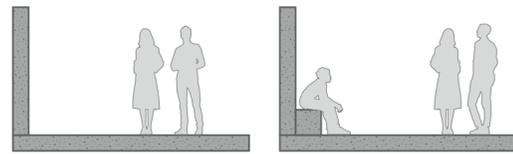
2010



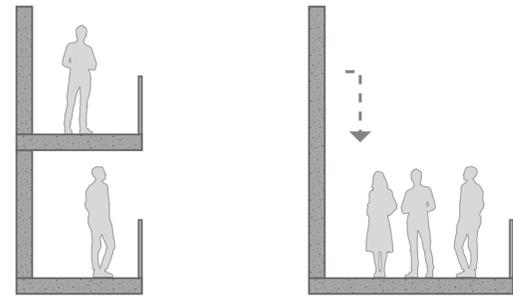
Materials & Colour



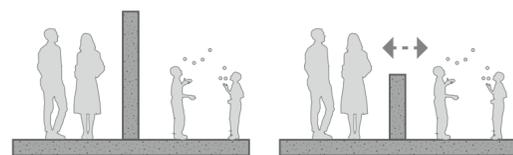
Visually connecting the galleries



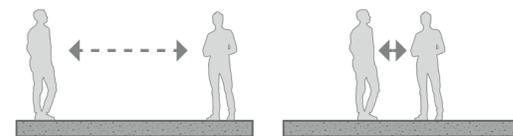
Integrated elements



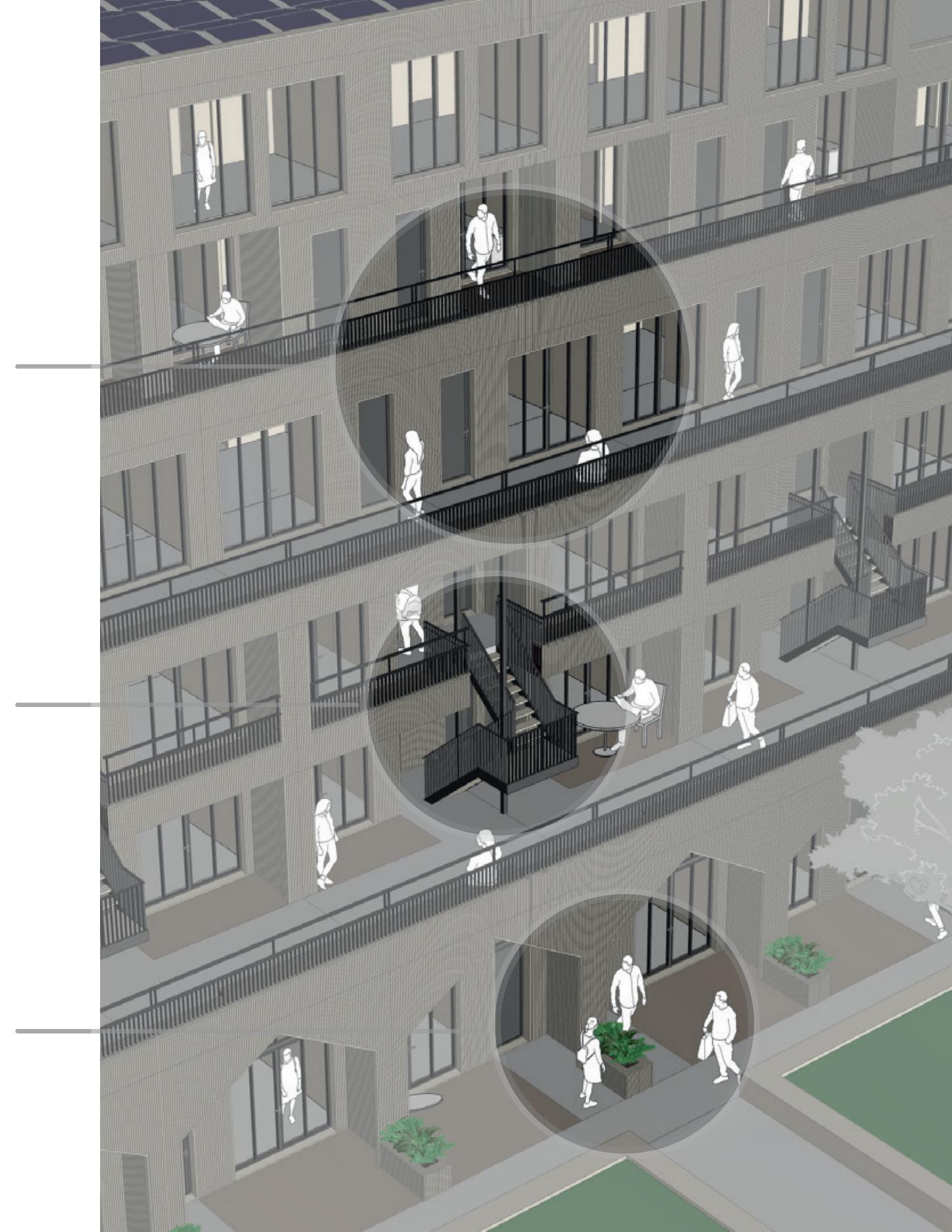
Intensifying the corridor / gallery

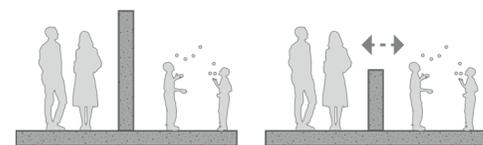


View of liveliness / vibrancy

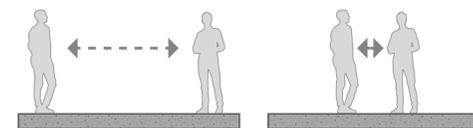


Distance from each other

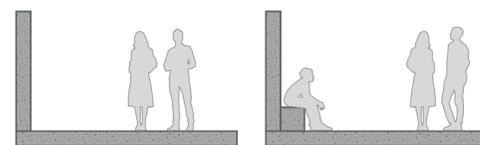




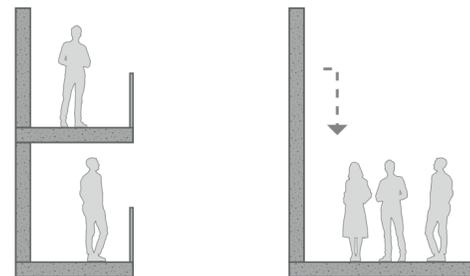
View of liveliness / vibrancy



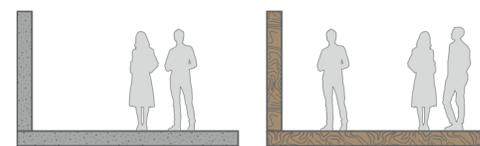
Distance from each other



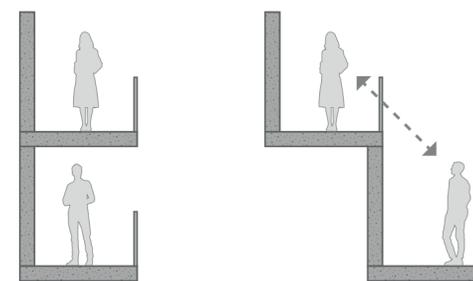
Integrated elements



Intensifying the corridor / gallery



Materials & Colour



Visually connecting the galleries



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Keilewerf

Building plot

Parking Hub

Sappen cluster

Katoenveem

Sappen cluster

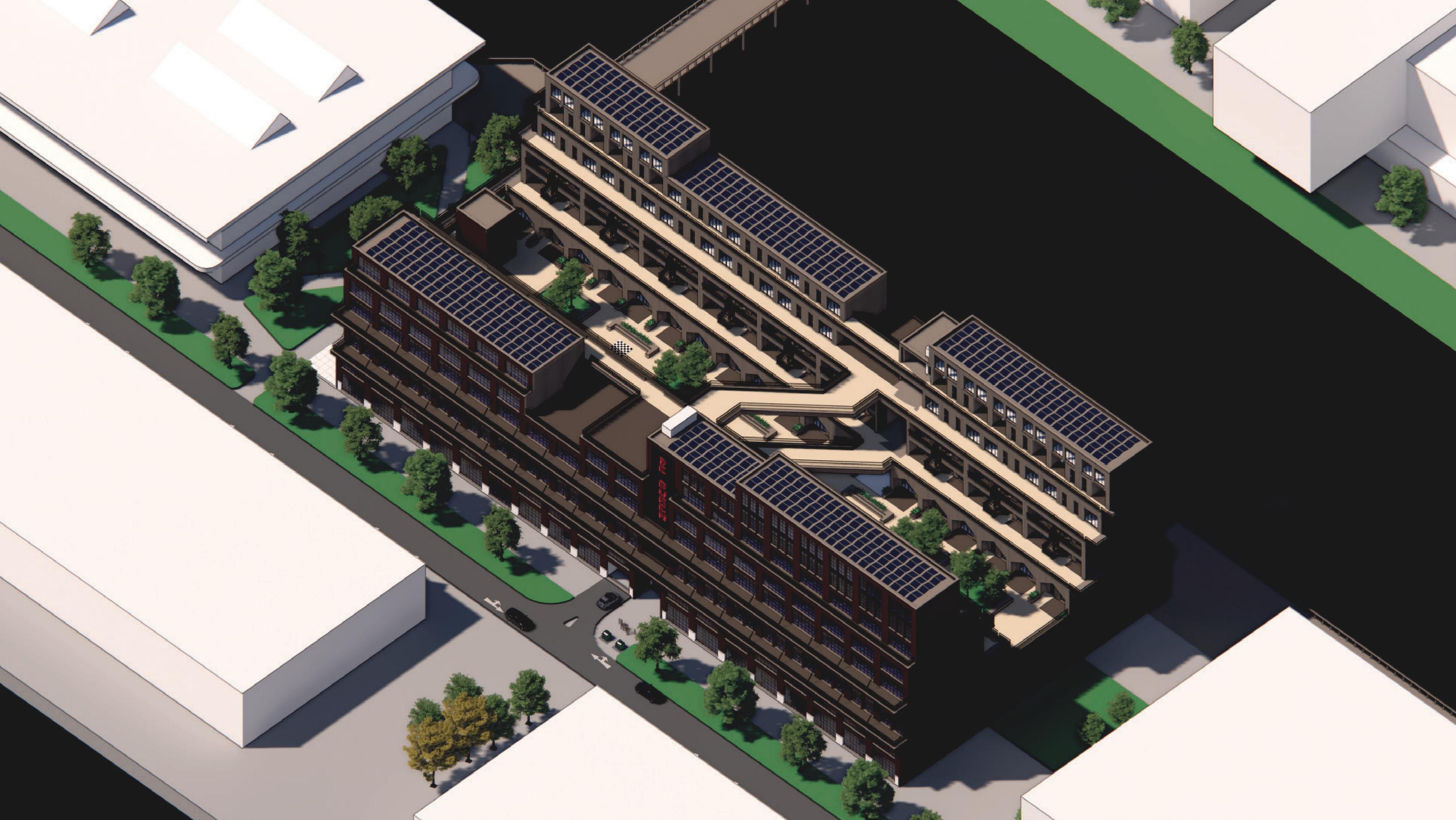
74 34

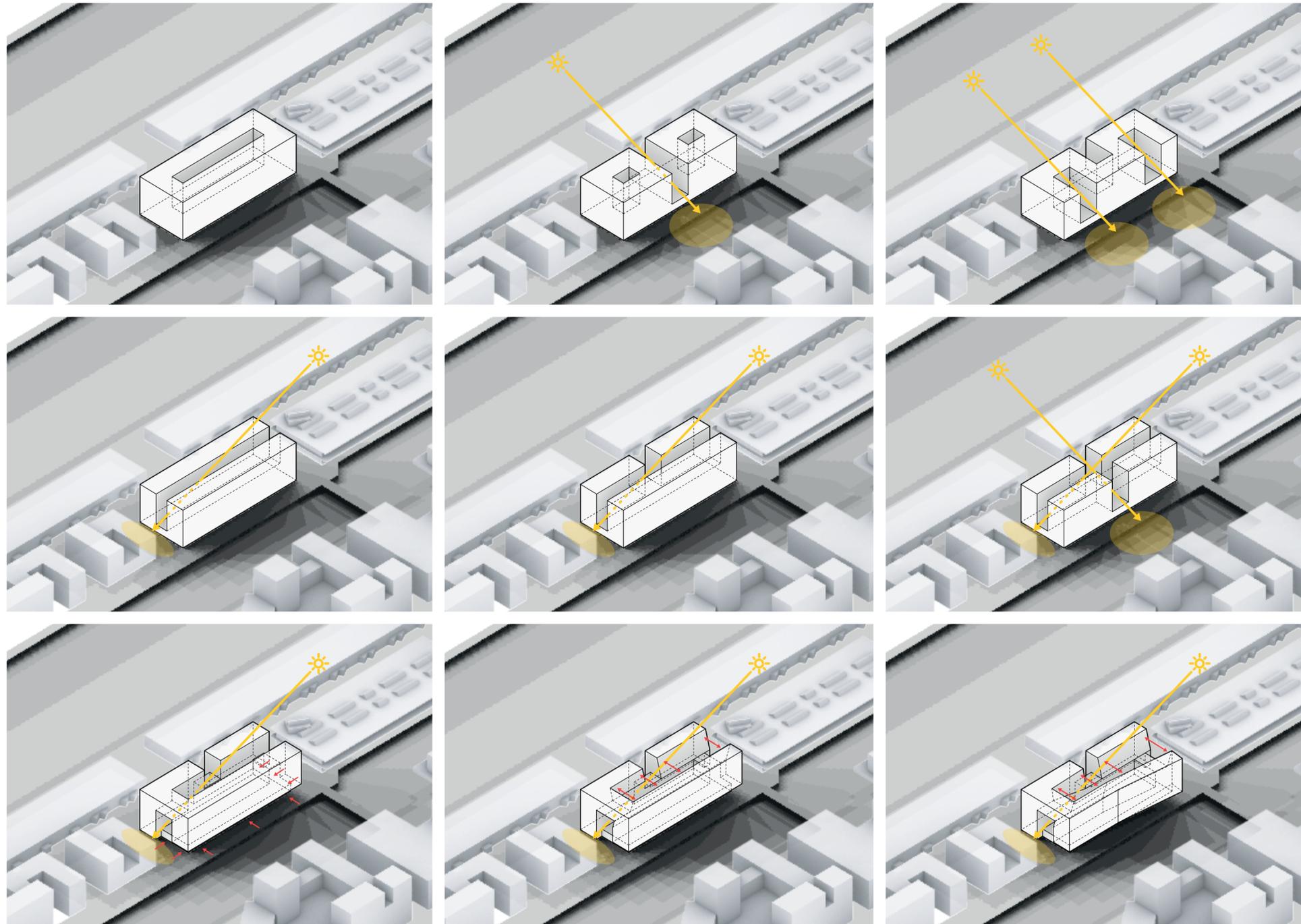


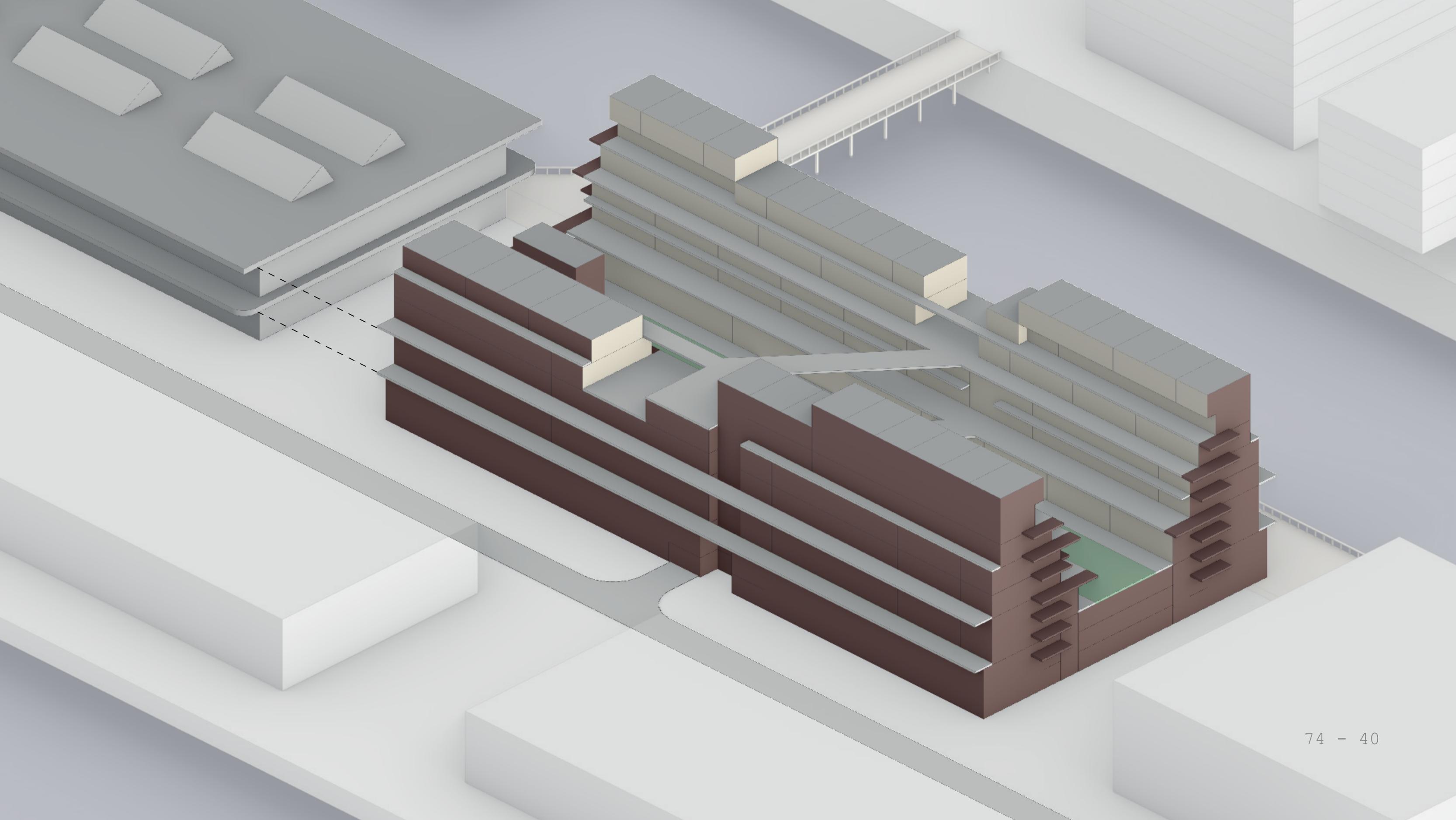


Katoenveem (van den Berge, n.d.)

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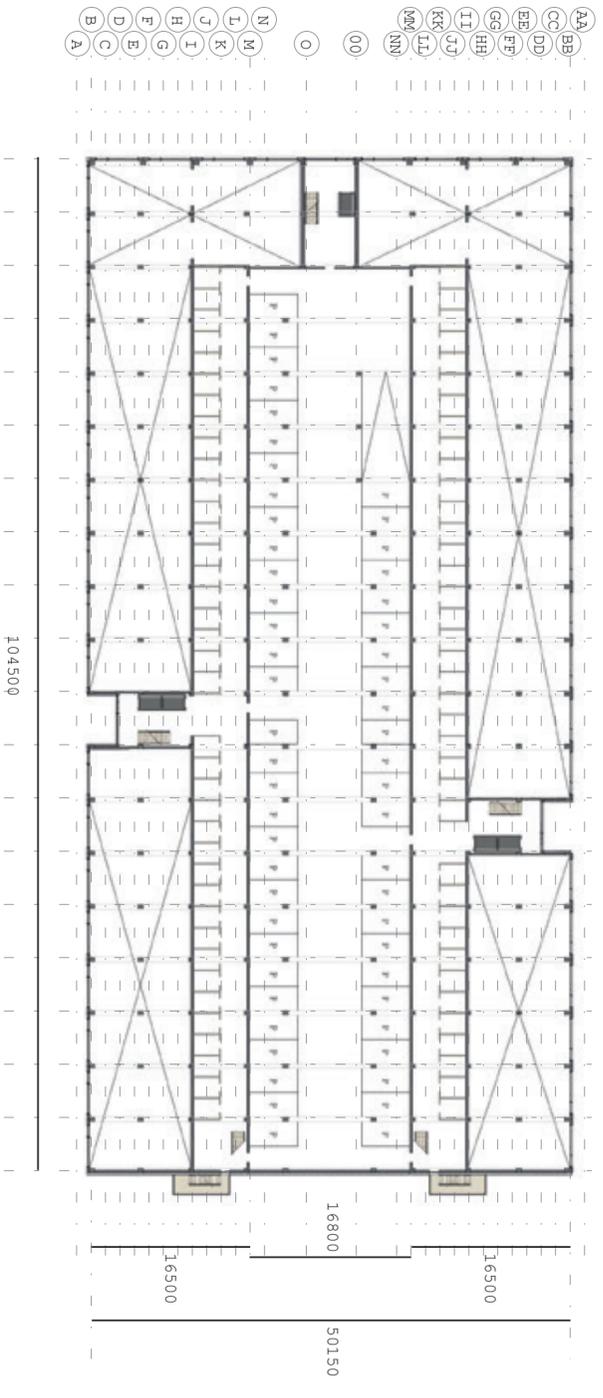




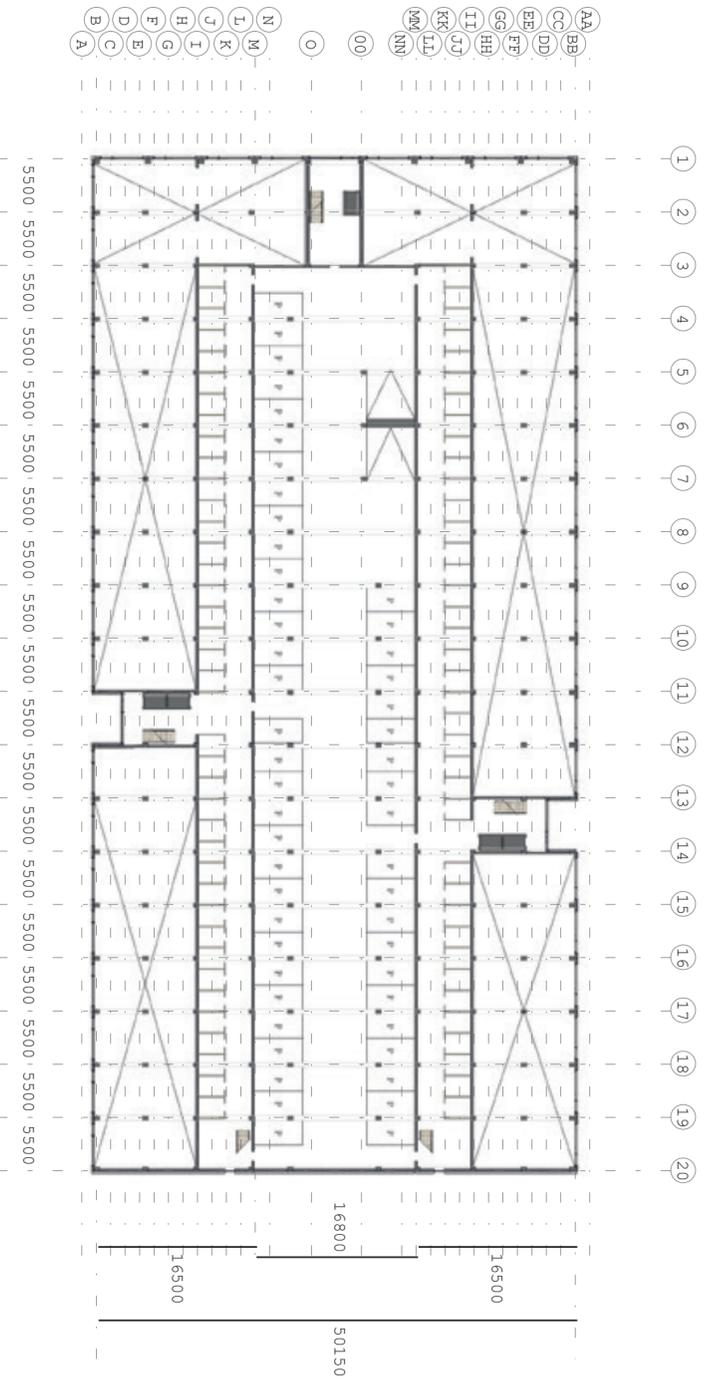
FLOOR 1



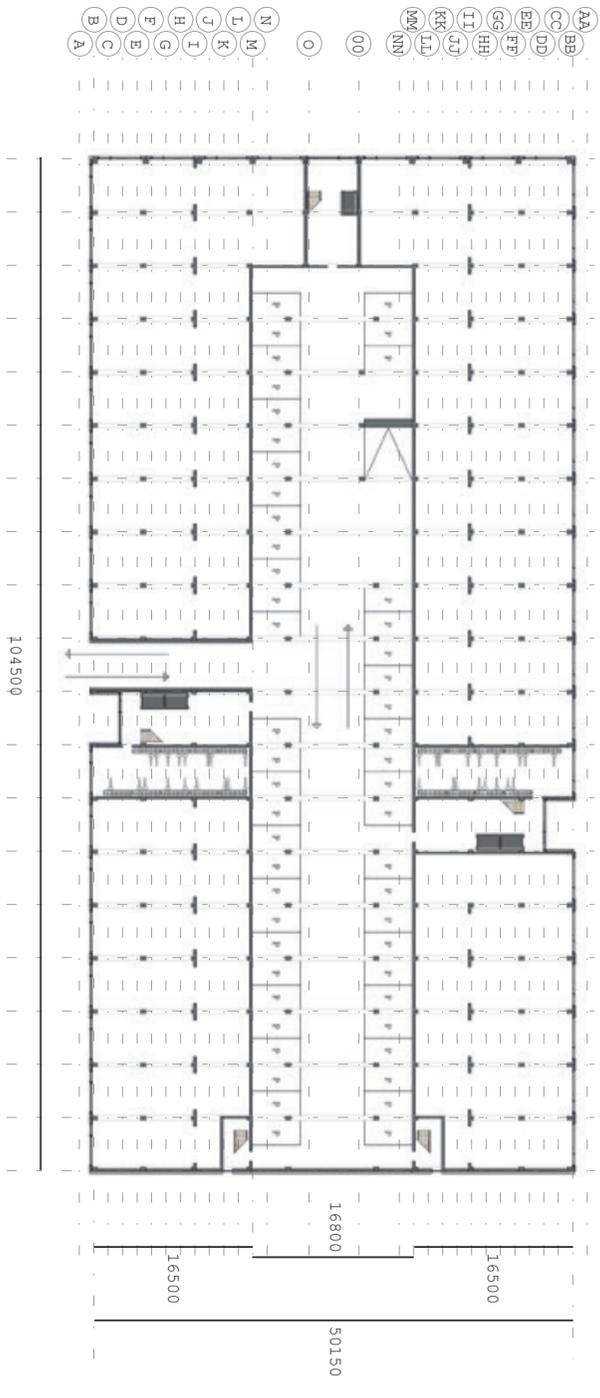
PARKING FLOOR 3

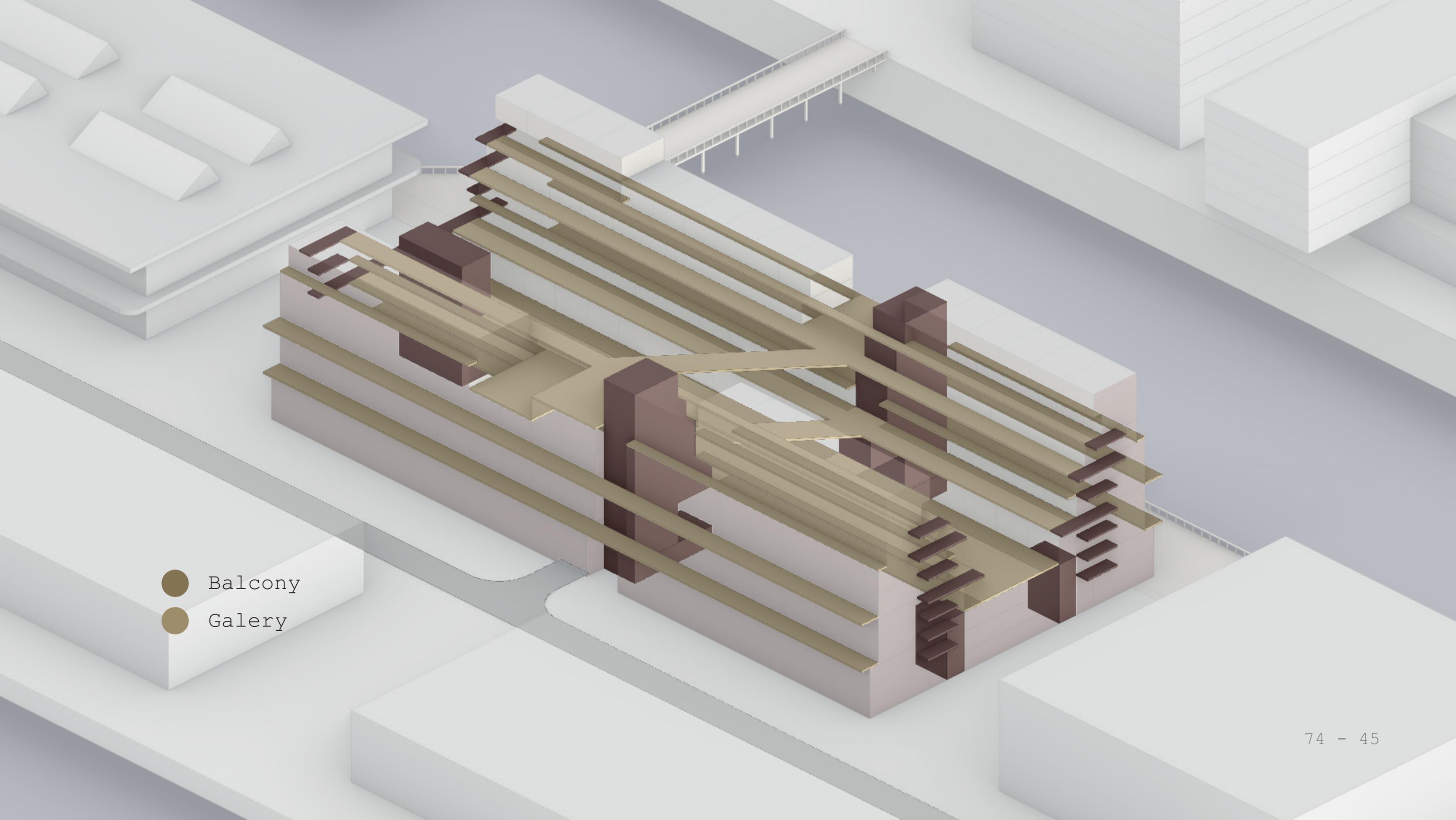


PARKING FLOOR 2



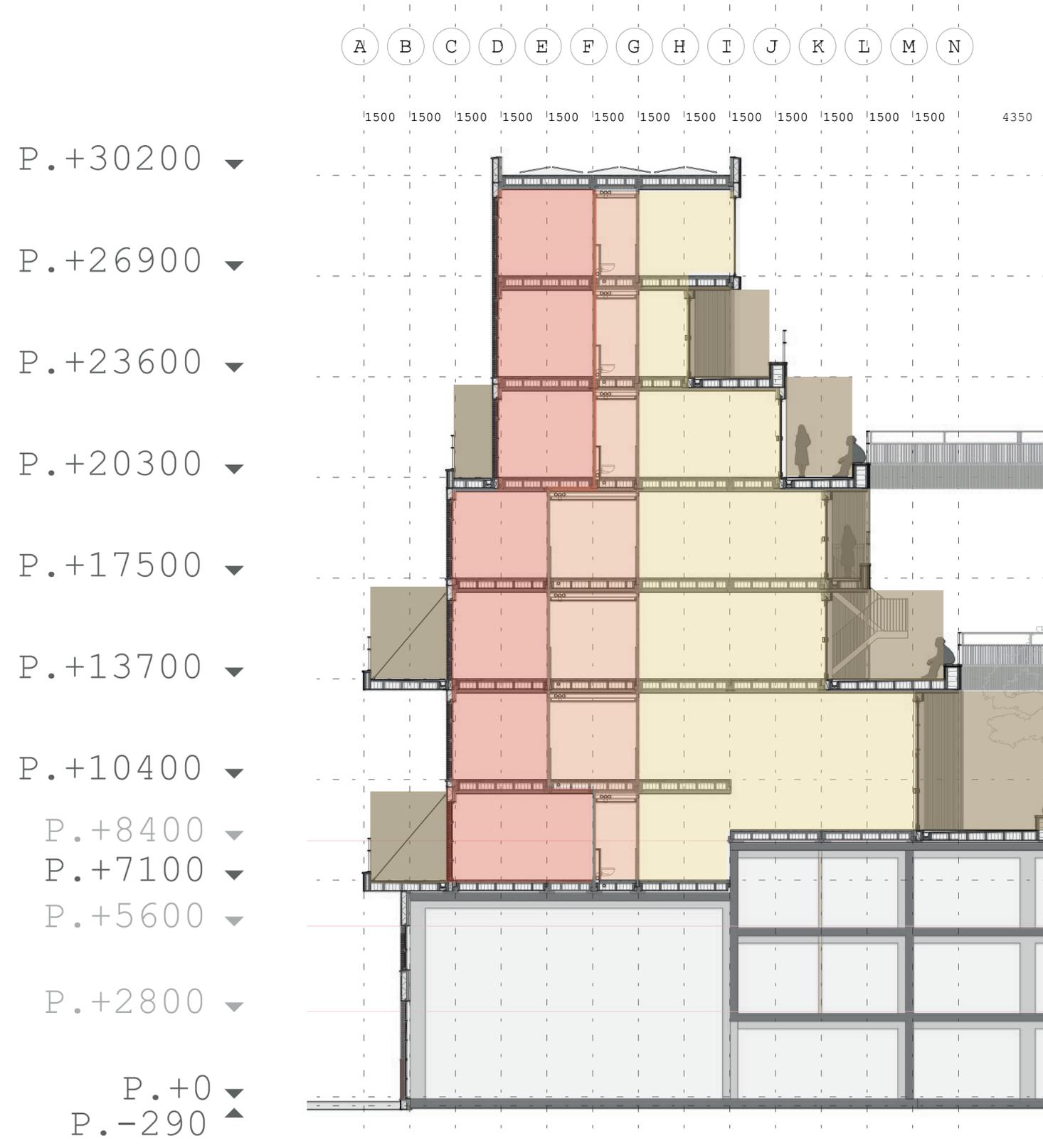
GROUND FLOOR

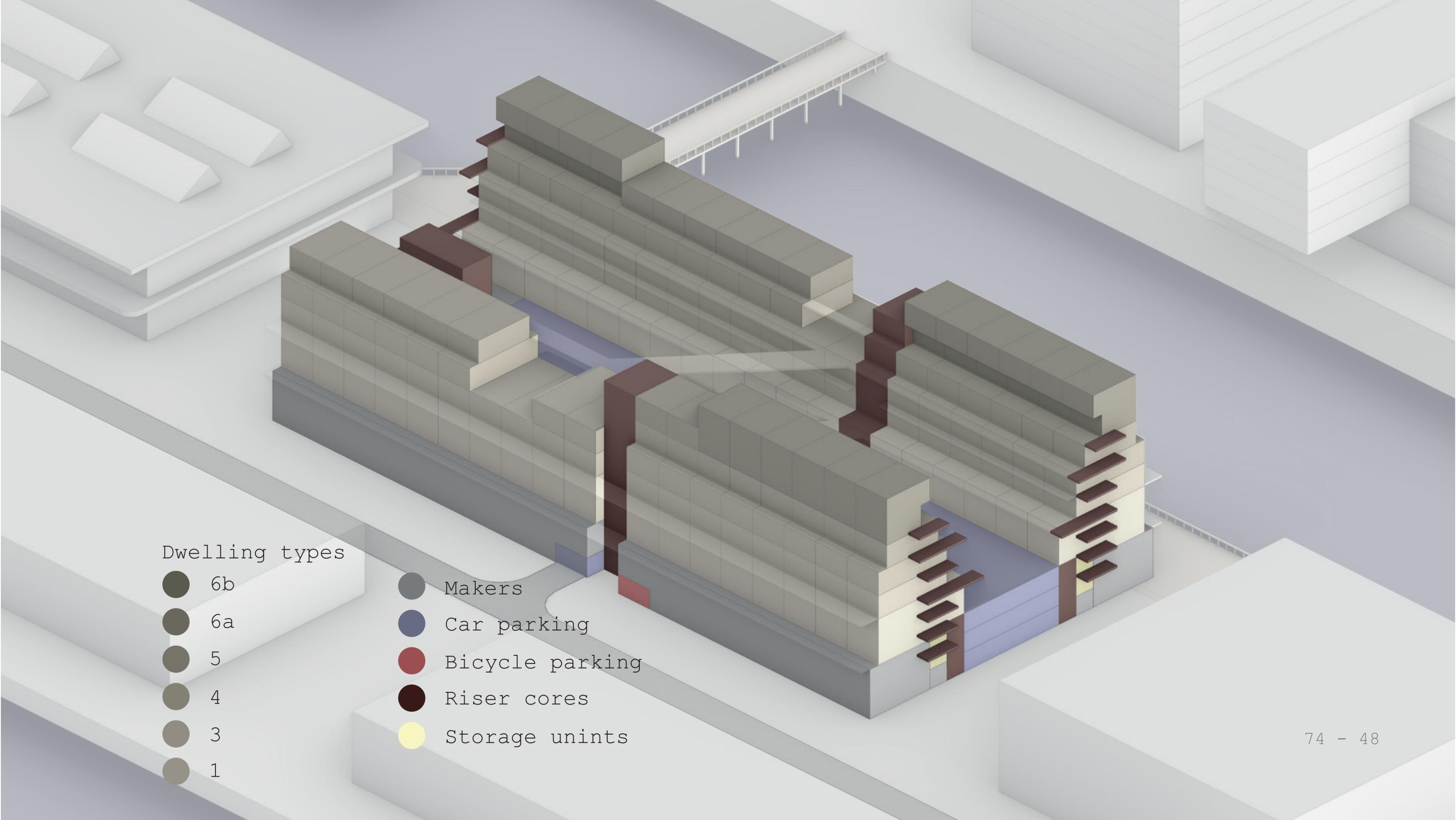




- Balcony
- Galery



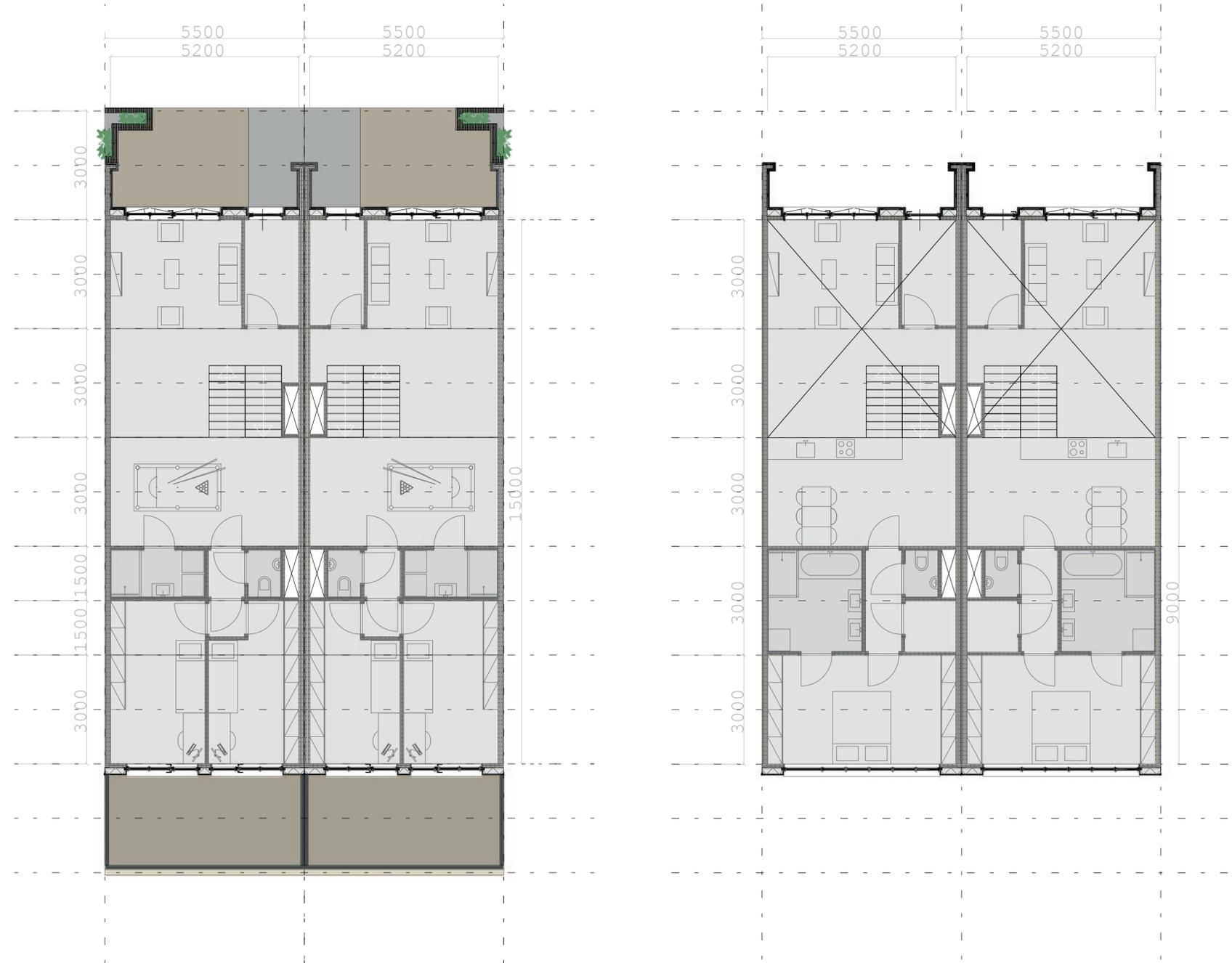




Dwelling types

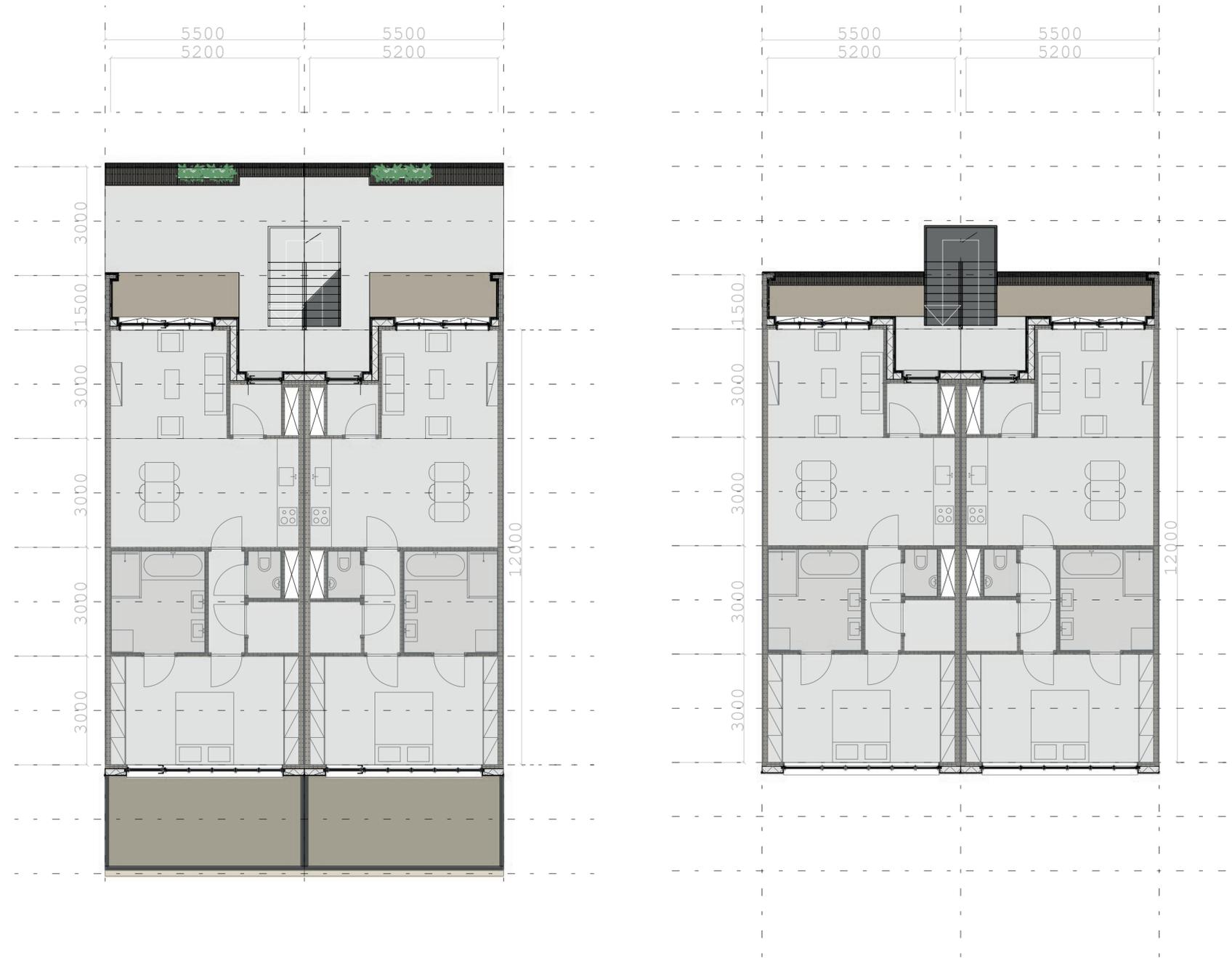
- 6b
- 6a
- 5
- 4
- 3
- 1

- Makers
- Car parking
- Bicycle parking
- Riser cores
- Storage units



Dwelling type 1

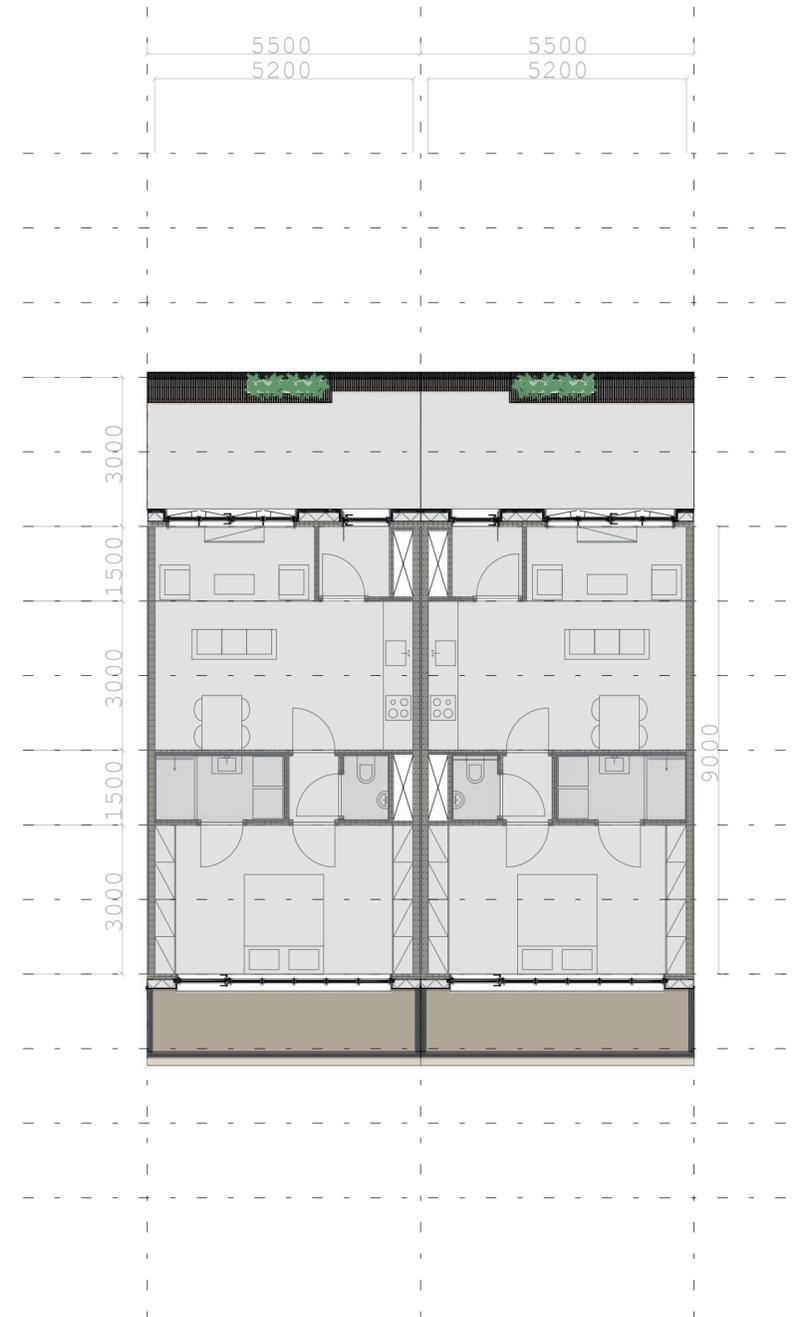
36 units, 124,8 m²



Dwelling type 3 & 4

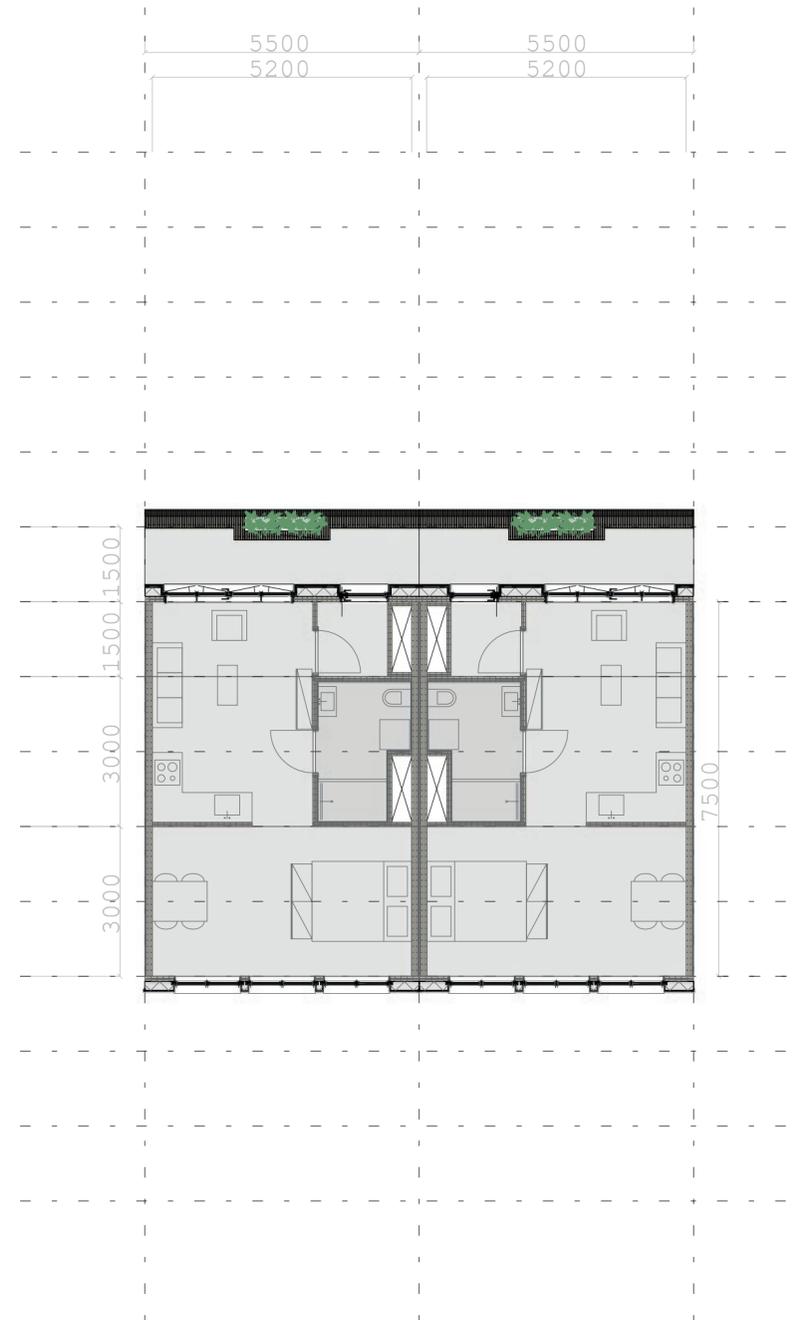
70 units, 36 type 3 & 34 type 4

62,4 m²



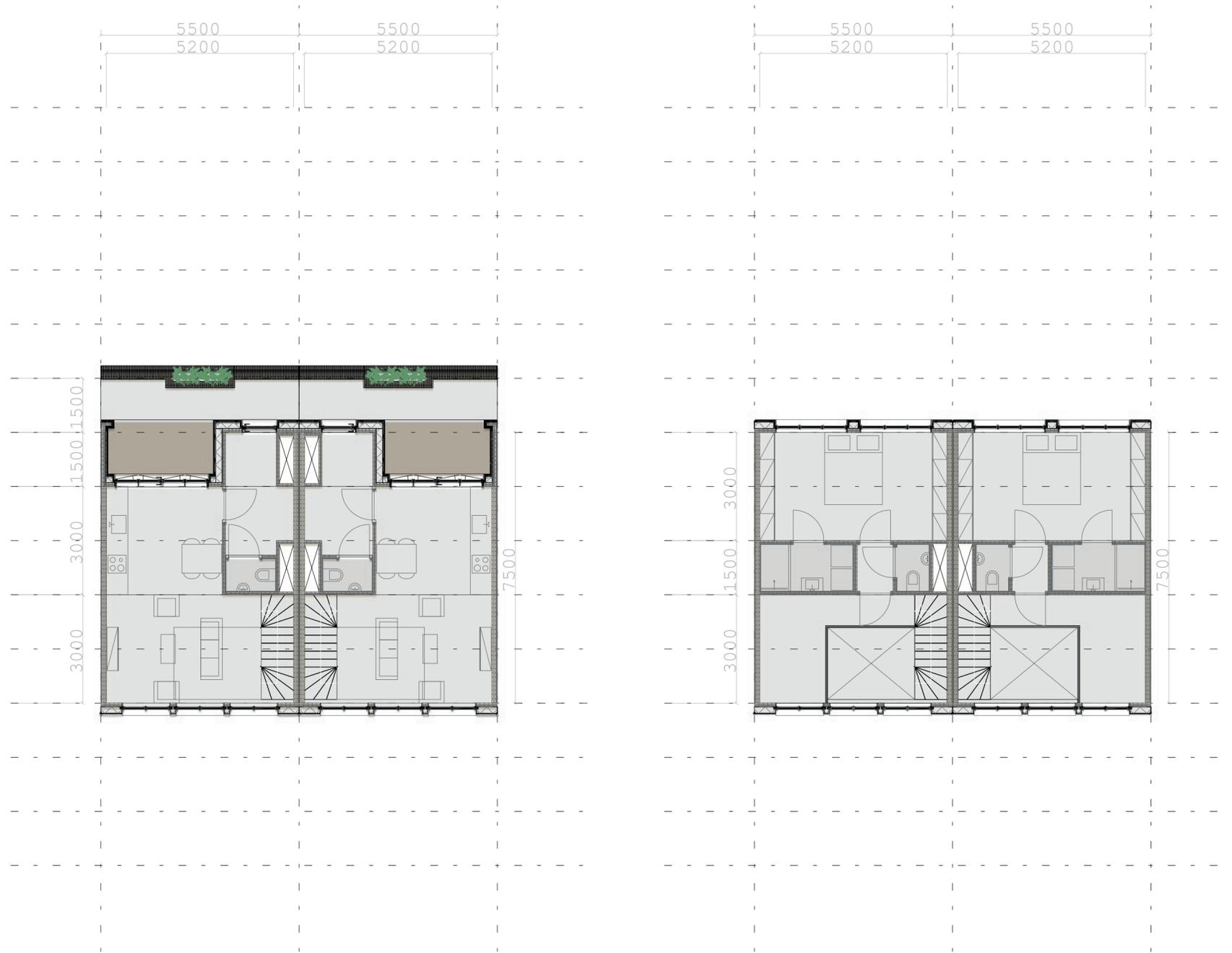
Dwelling type 5

30 units, 46,8 m²



Dwelling type 6a

8 units, 39 m²



Dwelling type 6b

16 units, 78 m²

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1.000.000 homes before 2030

Quote by architect Andrew Waugh about traditional onsite construction
(VPRO Tegenlicht, 2019)

**"1 in 3 jobs has to be done twice ... nearly half of the material that
arrive on a construction site are thrown away."**

**"10% of a typical budget, on a house, is going back in and fixing all
the things that were done wrong."**

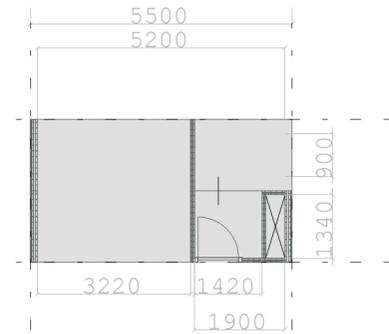
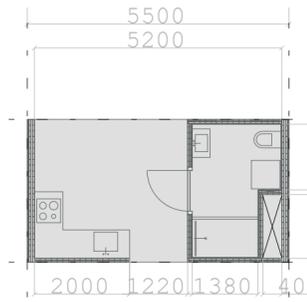
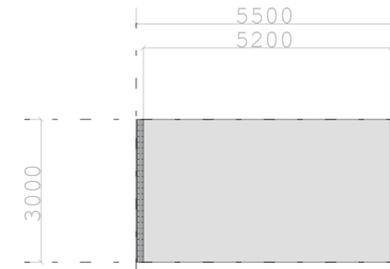
Modules
844 in total

Module:
Living-
Bedroom

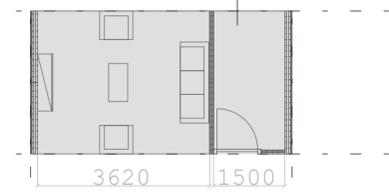
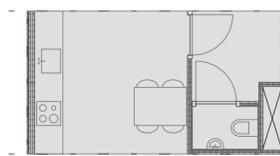
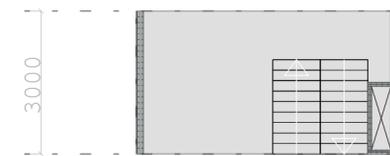
Module:
Facilities

Module:
Entrance

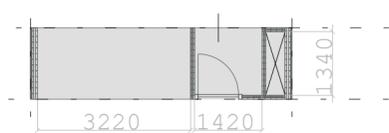
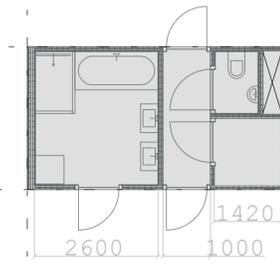
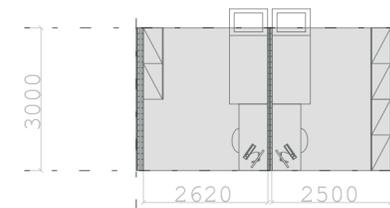
Module A:



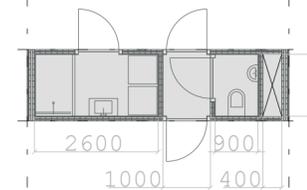
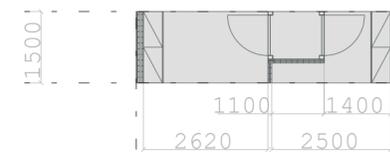
Module B:

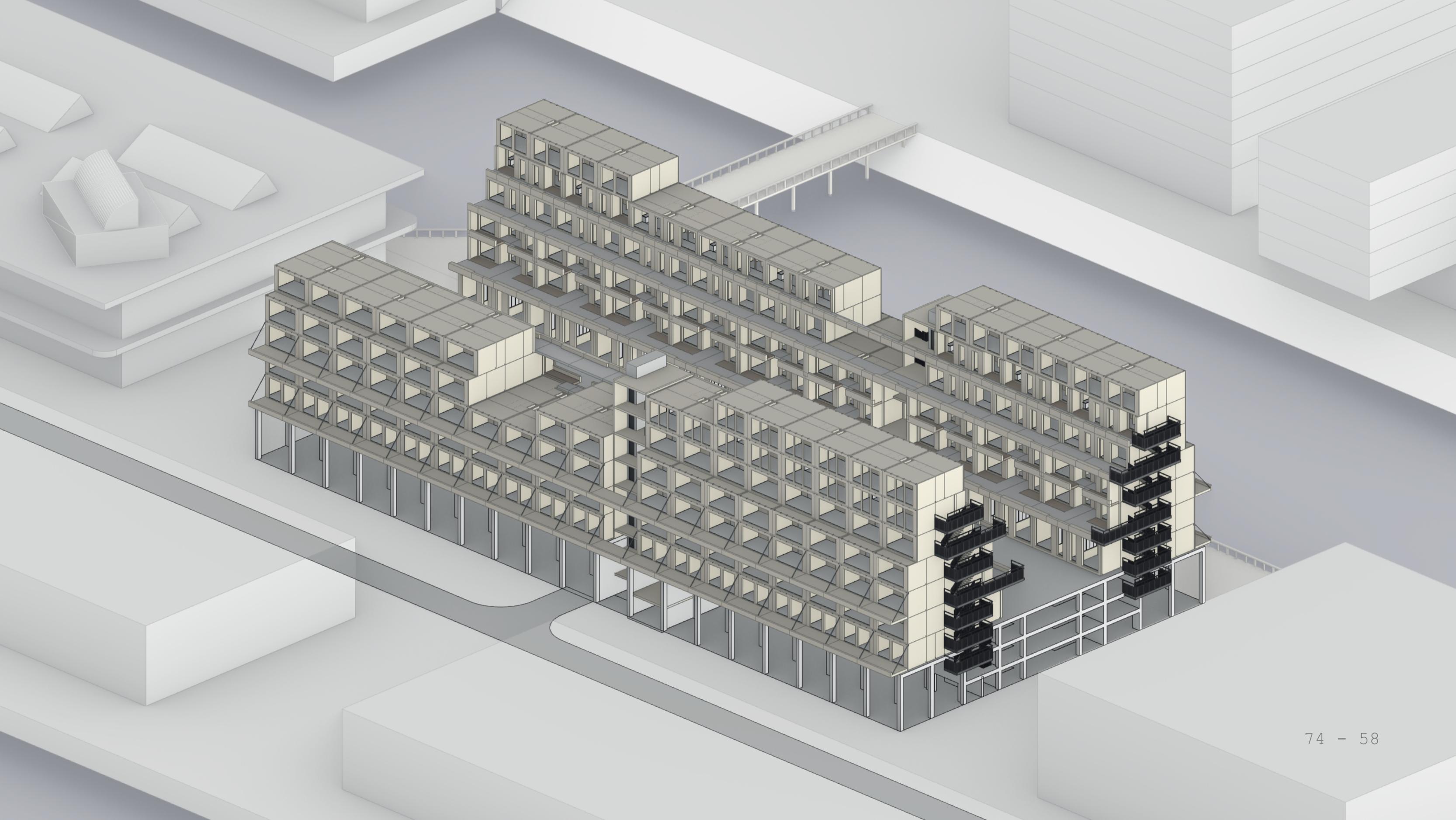


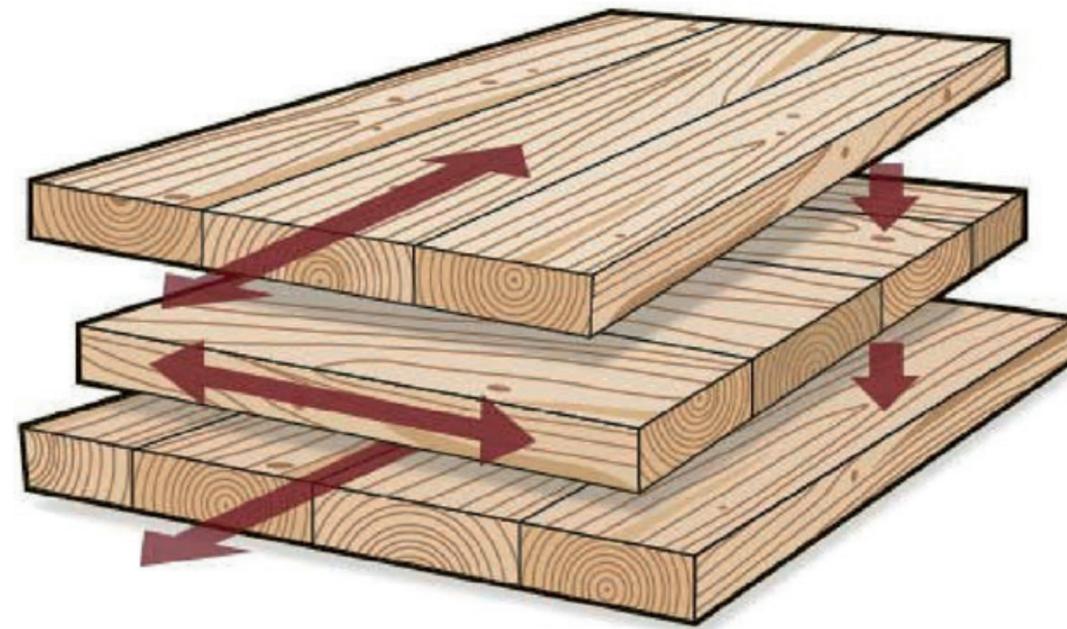
Module C:



Module D:







CLT - Cross Laminated Timber

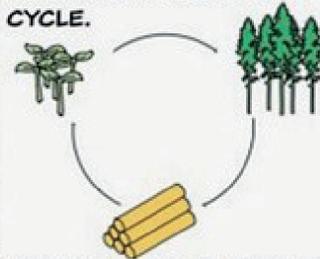
HOW CLT CAN SAVE THE WORLD

TREES ABSORB CO₂ WHILE THEY GROW



BUT THAT STOPS WHEN THEY MATURE.

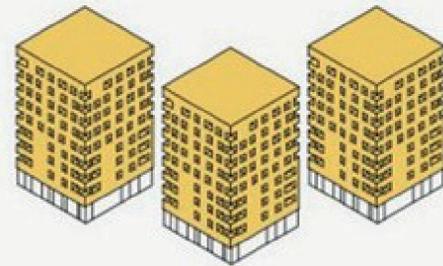
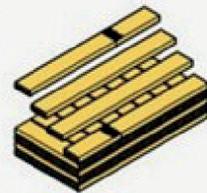
IF WE CUT THEM DOWN WE CAN REPLANT AND MAINTAIN THE CARBON CYCLE.



USING THE TIMBER TO BUILD A HOUSE CREATES A LONG TERM CARBON STORE.



CLT IS A WAY OF ENGINEERING TIMBER ALLOWING US TO BUILD LARGE NUMBERS OF HOMES...

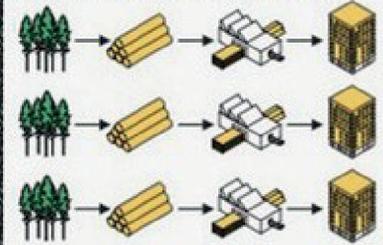


... SO WE CAN STORE LOTS OF CARBON

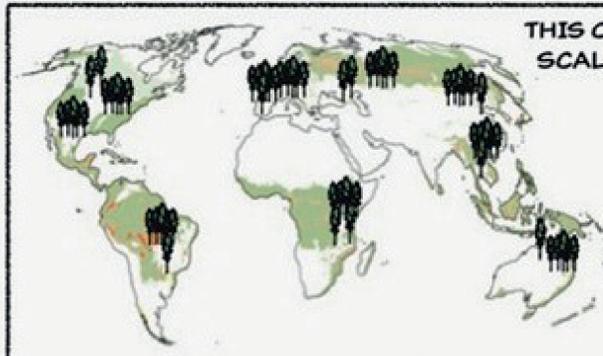
AND REDUCES THE USE OF POLLUTING AND HIGH ENERGY MATERIALS.



THE MORE WE BUILD WITH TIMBER, THE MORE DEMAND WE CREATE.



THIS COULD LEAD TO LARGE SCALE REFORESTATION OF THE PLANET...



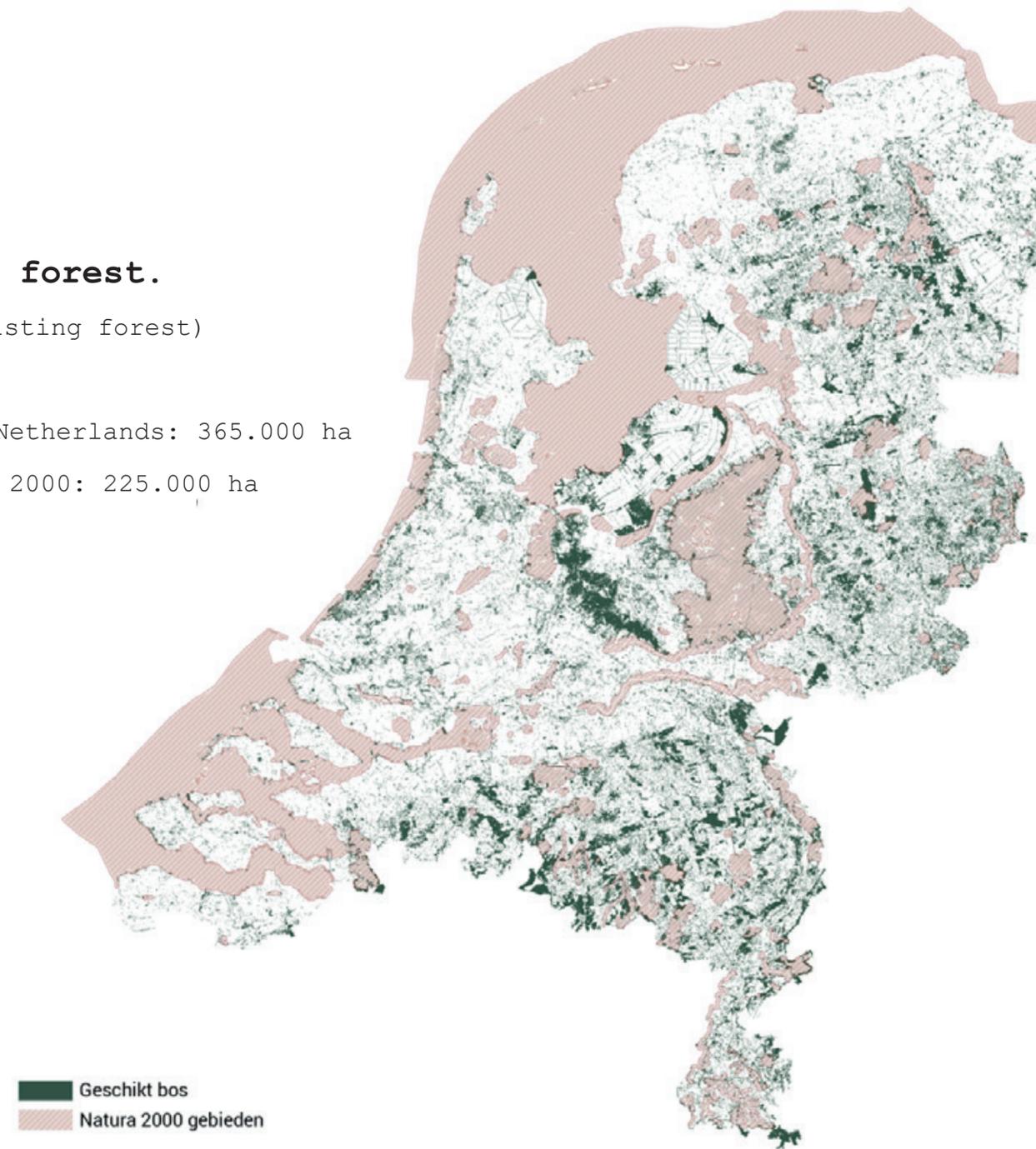
... WHICH IS THE ONLY VIABLE WAY OF HALTING GLOBAL WARMING.

Existing production forest.

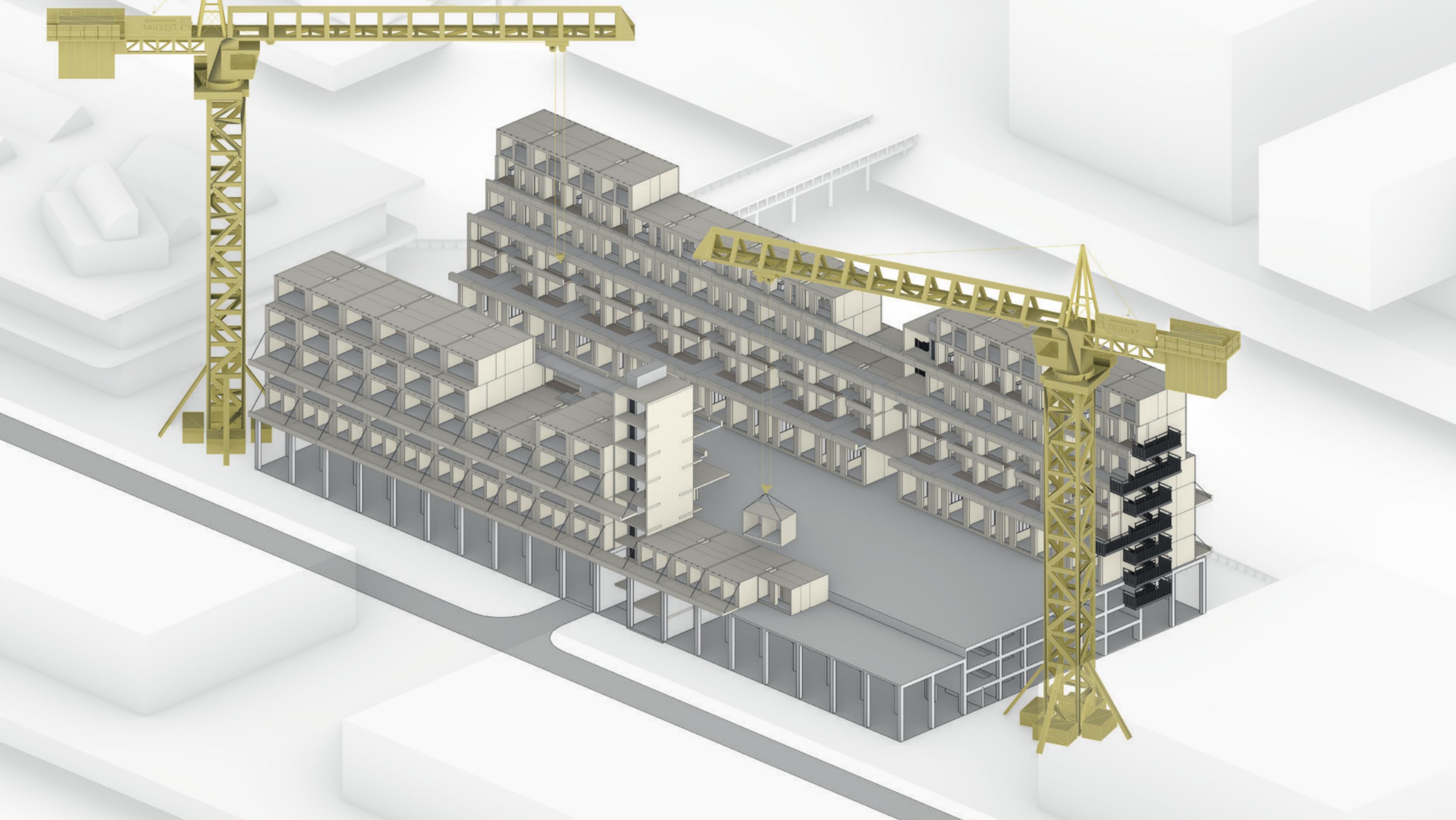
140.000 ha (38% of existing forest)

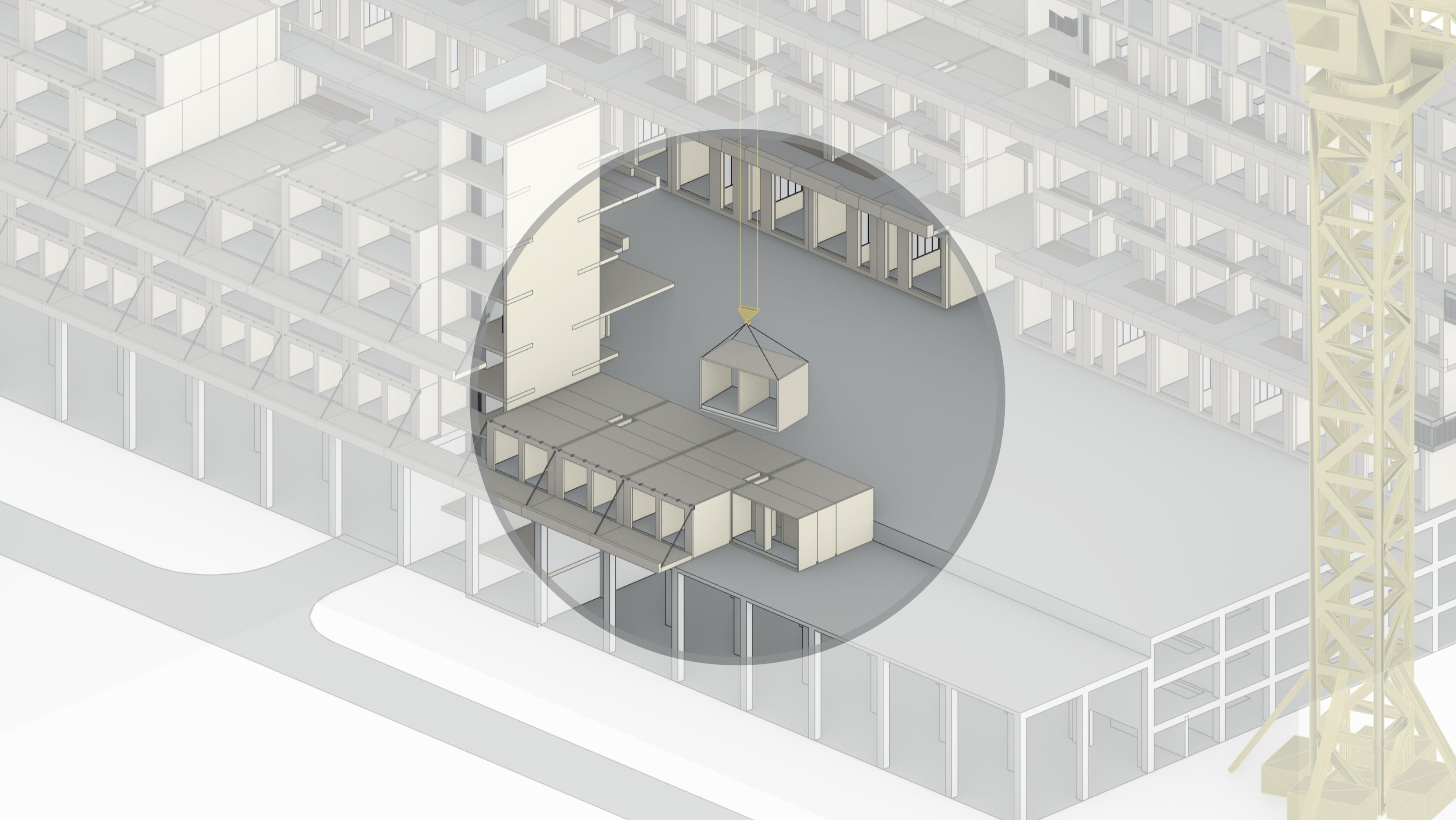
Total forest area in the Netherlands: 365.000 ha

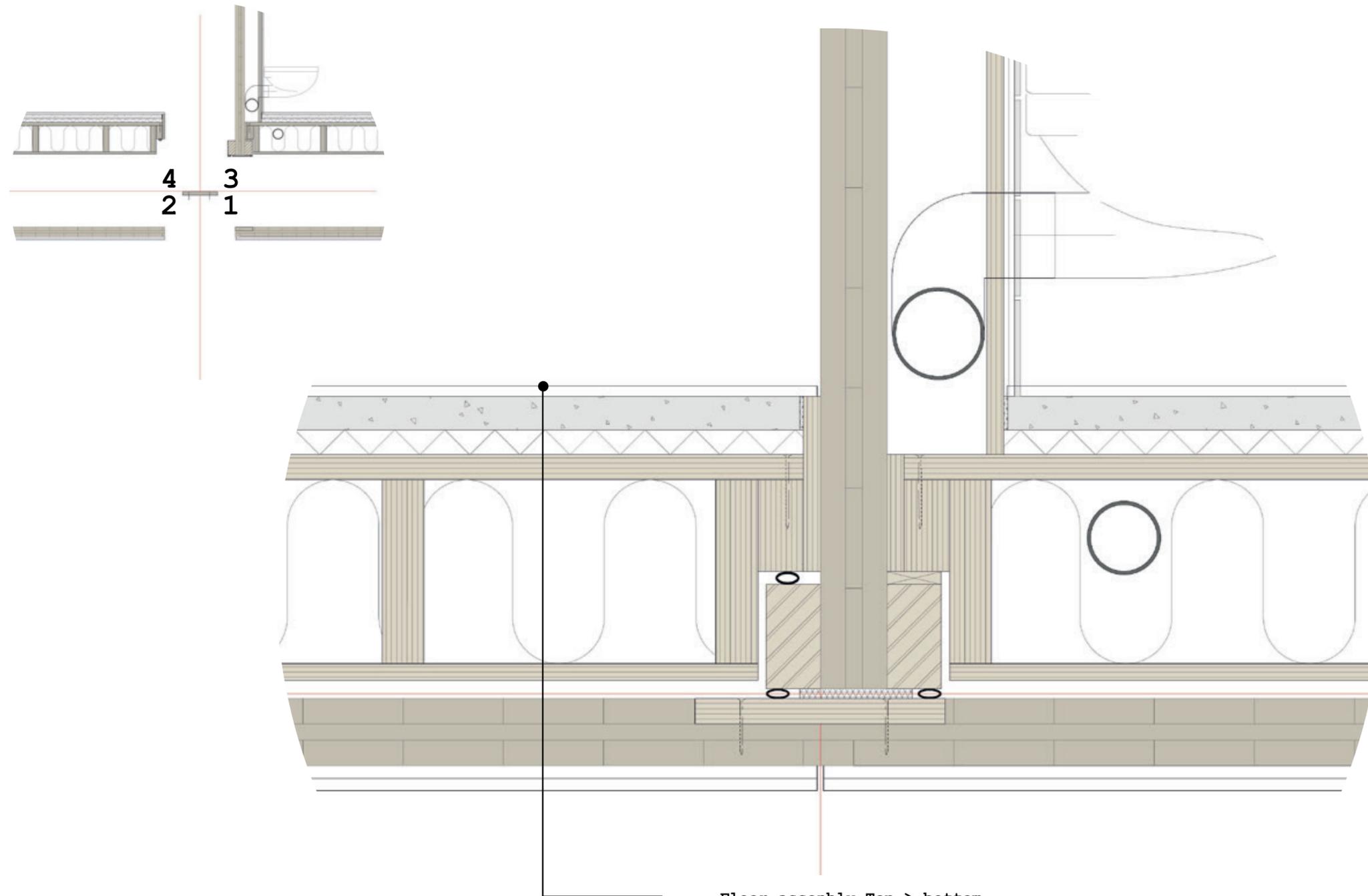
Forest area within Natura 2000: 225.000 ha



(Benutten bestand bos, 2019)

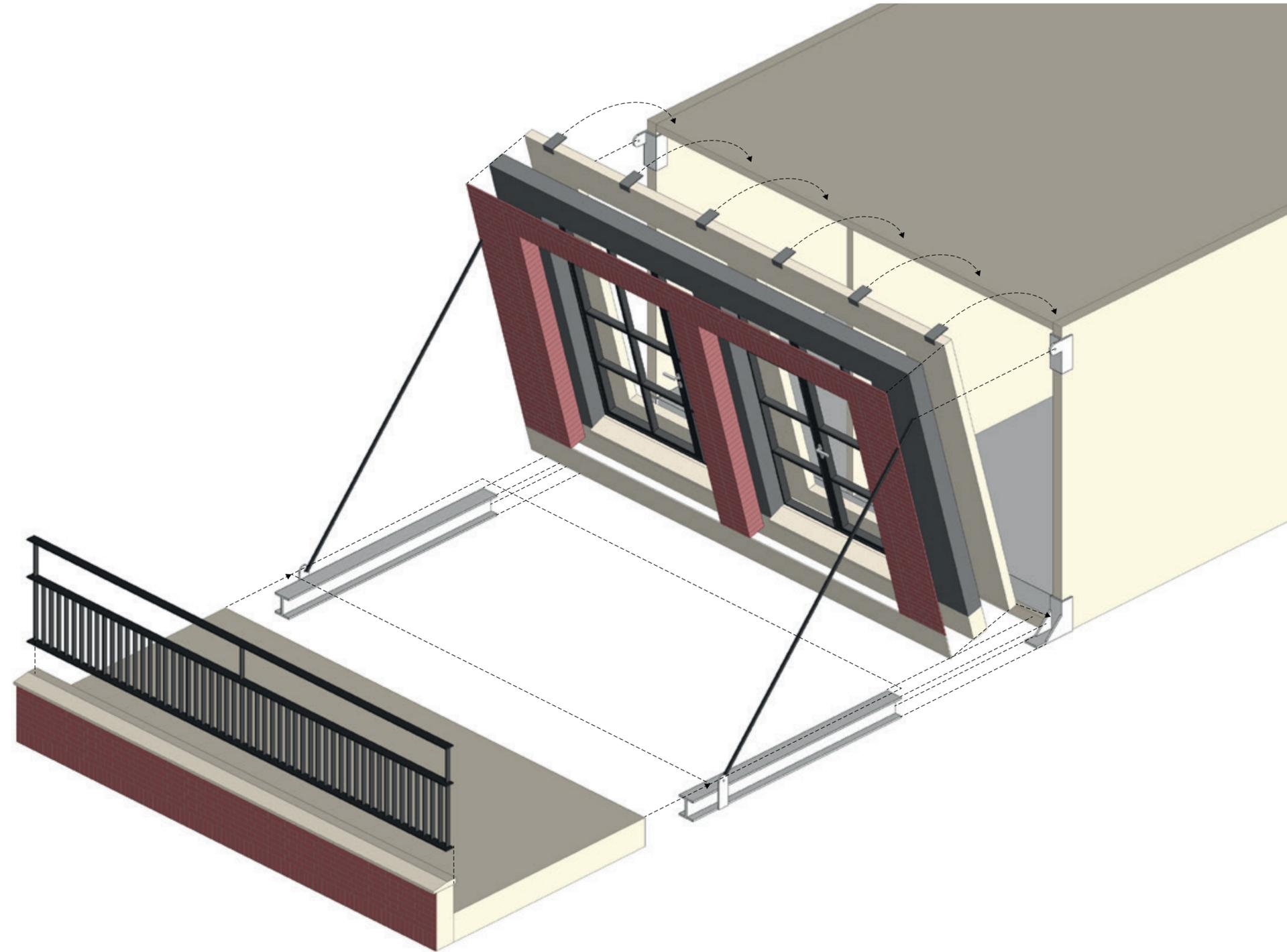


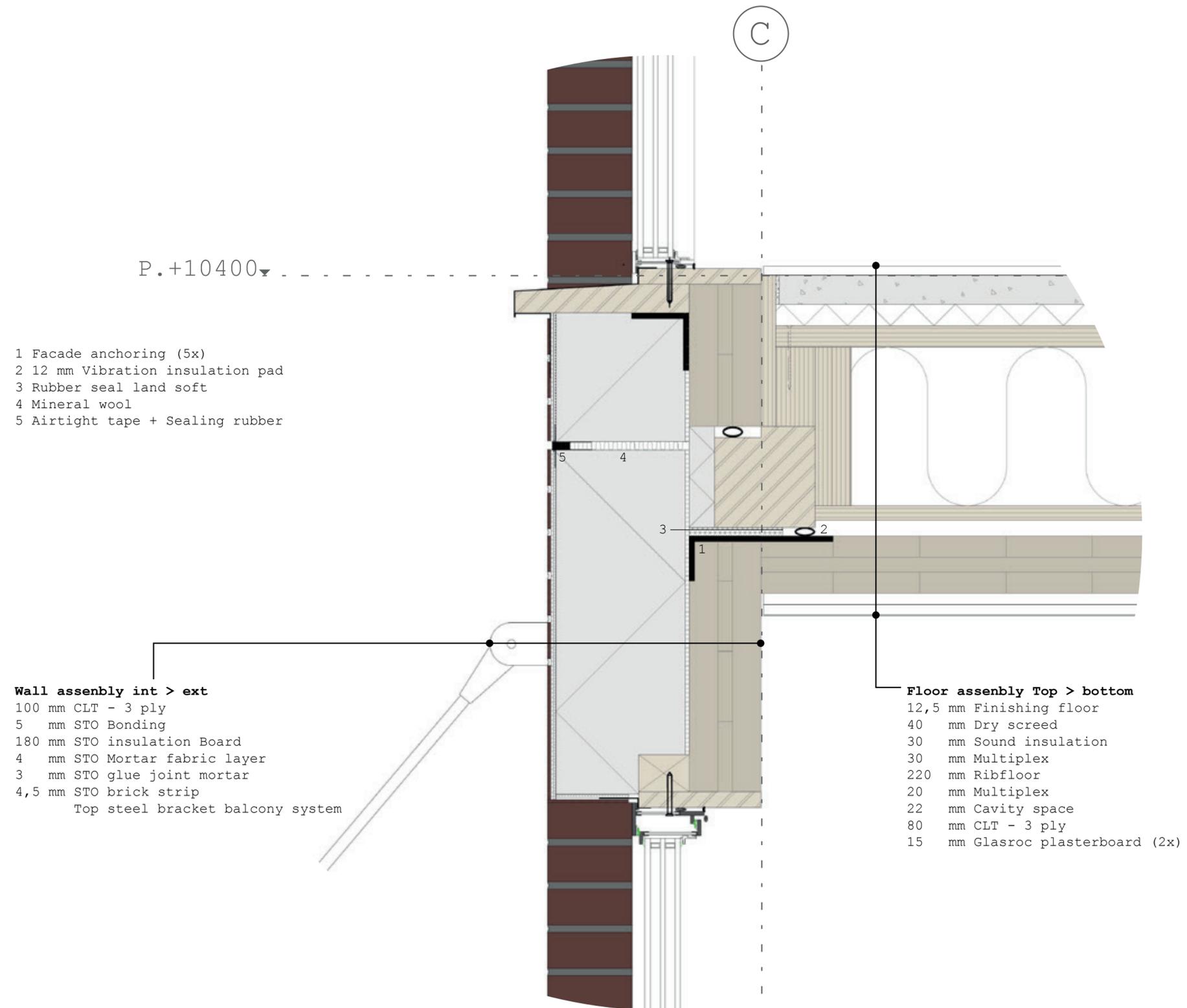




Floor assembly Top > bottom

- 12,5 mm Finishing floor
- 40 mm Dry screed
- 30 mm Sound insulation
- 30 mm Multiplex
- 220 mm Ribfloor
- 20 mm Multiplex
- 22 mm Cavity space
- 80 mm CLT - 3 ply
- 15 mm Glasroc plasterboard (2x)





A B C D E F G H I J K L M N

1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 4350

P.+30200 ▼

P.+26900 ▼

P.+23600 ▼

P.+20300 ▼

P.+17500 ▼

P.+13700 ▼

P.+10400 ▼

P.+8400 ▼

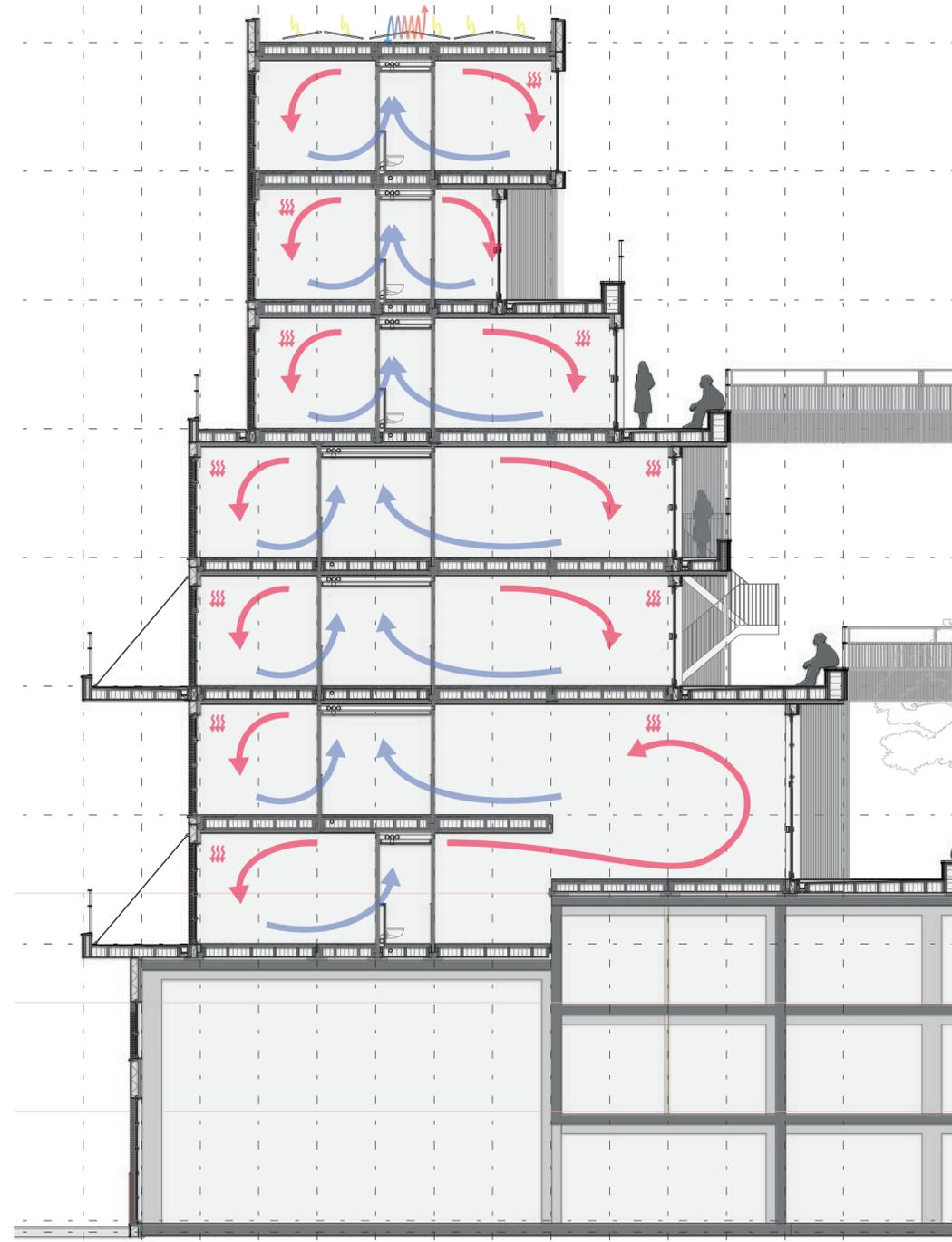
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P.+5600 ▼

P.+2800 ▼

P.+0 ▼

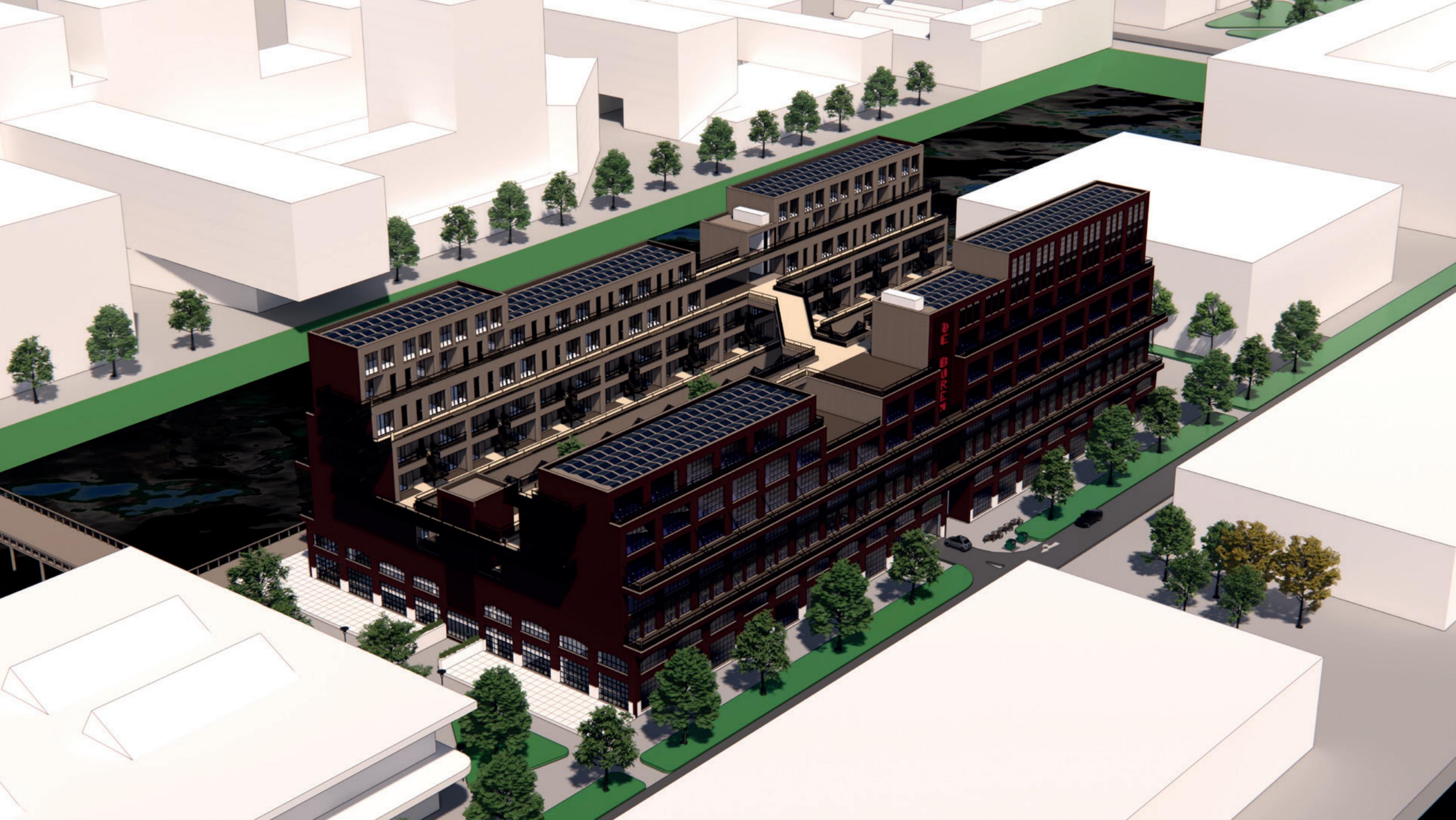
P.-290 ▲



- Assignment
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DEBUREN



