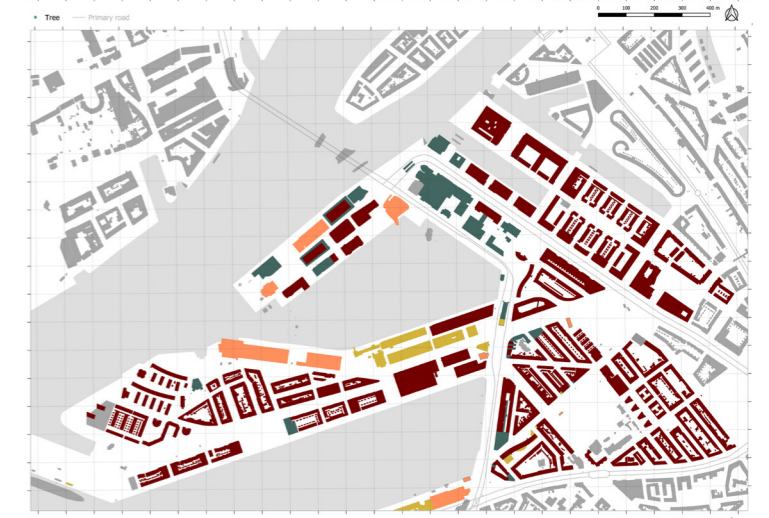
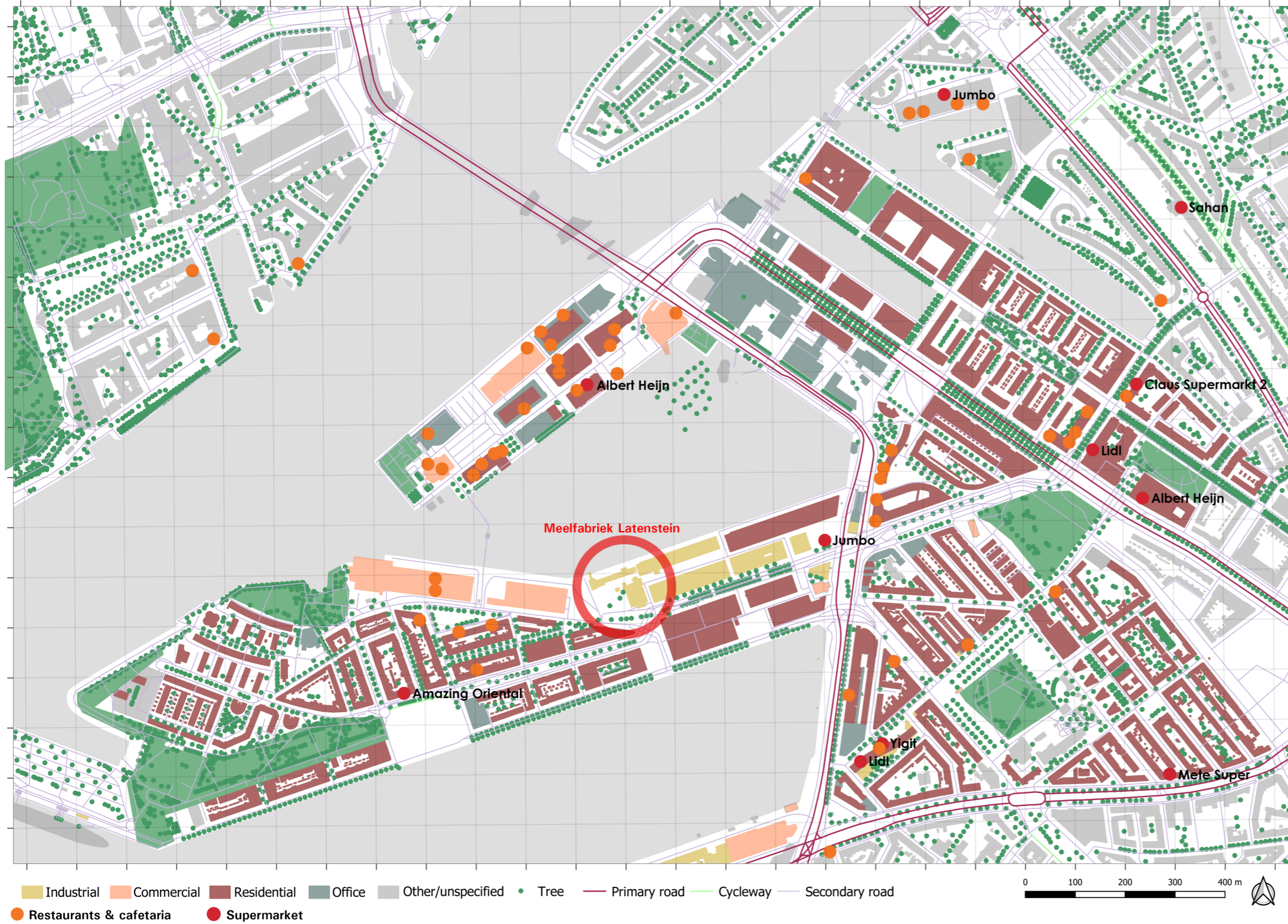


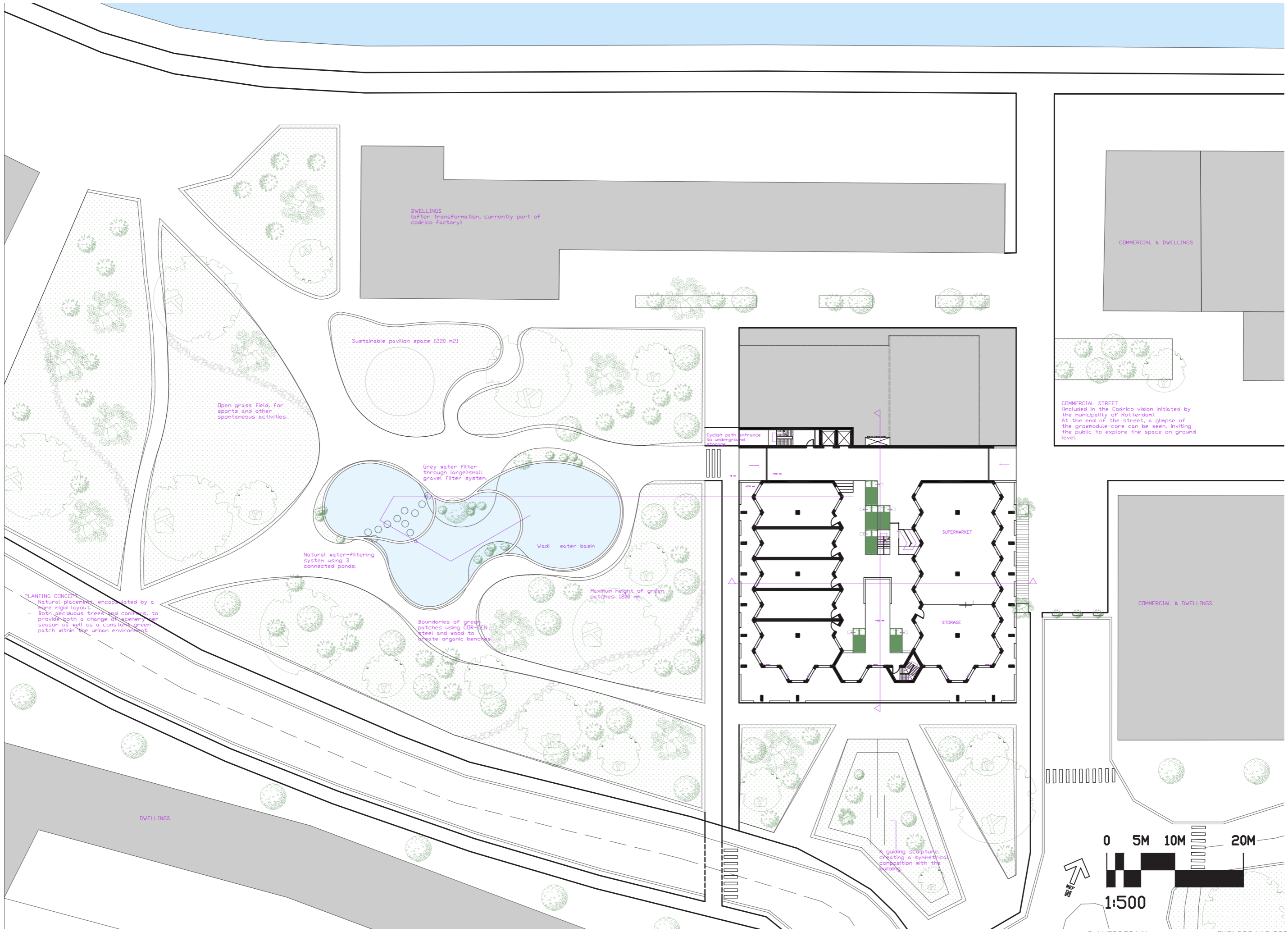
DRAWING SET

The Elegance of Vertical Farming

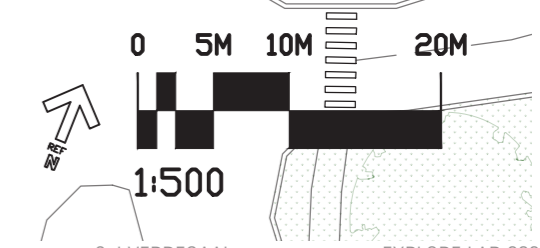
S.J.VERDEGAAL

Student nr. 4351673
EXPLORE LAB 2020/2021





PLANTING CONCEPT
 Natural placement, encapsulated by a more rigid layout.
 - Both deciduous trees and conifers, to provide both a change of scenery over season as well as a constant green patch within the urban environment.

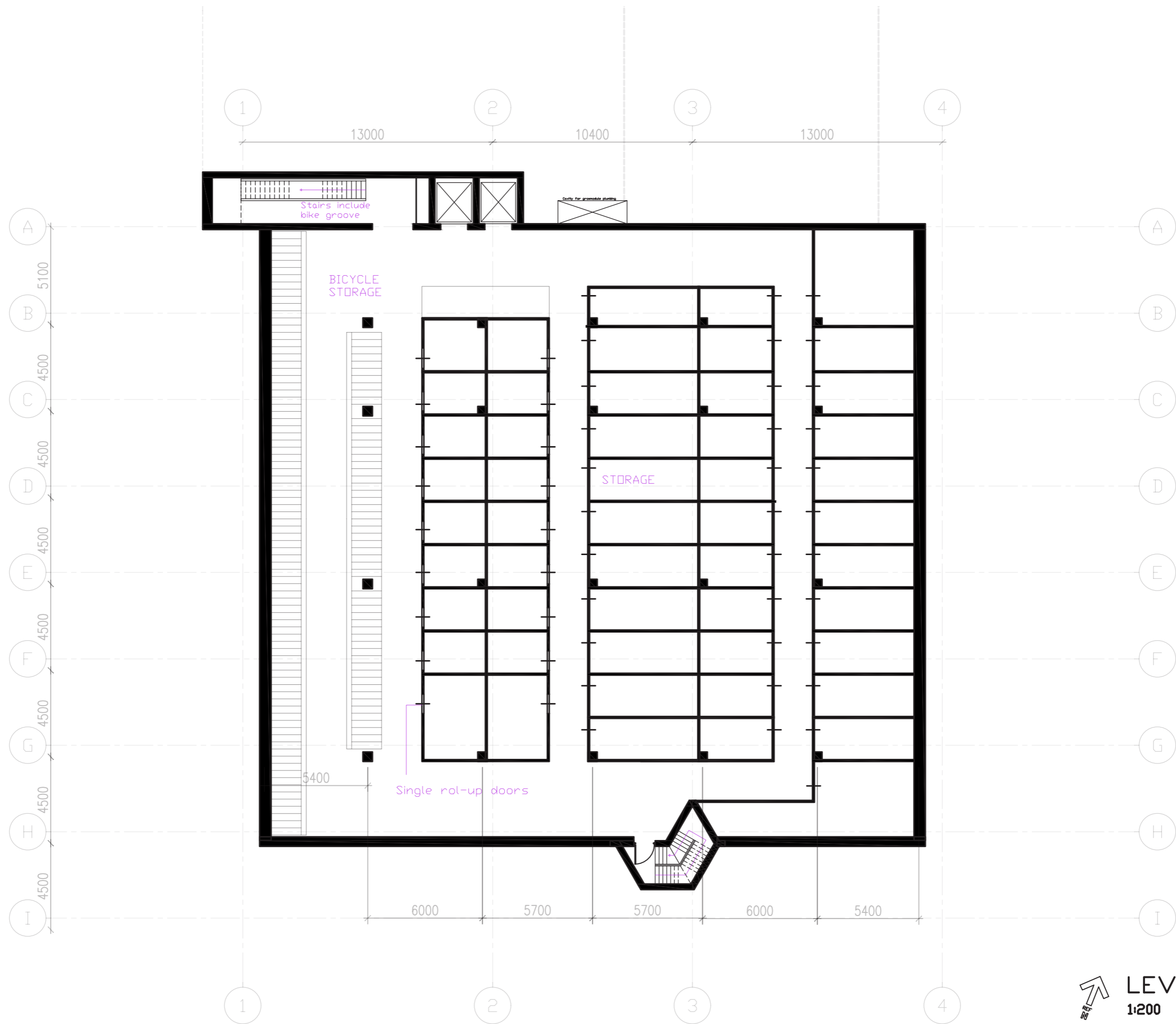


13000 10400 13000

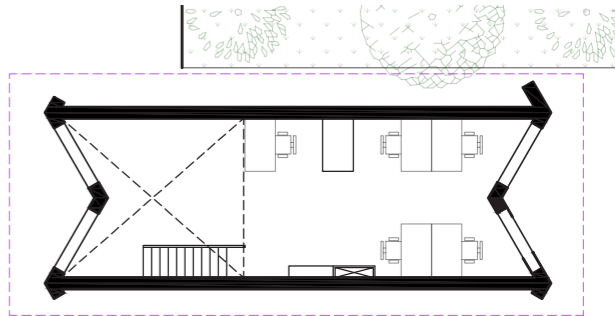


Lower elevation to emphasize the centre and slow down the pace at which you move through the space, allowing you to experience the amenity core as a church-like experience of enlightenment.
 Technically, the +1200 mm is required to accommodate the standardised height of the grommets.

West - East
 1:200 on A2

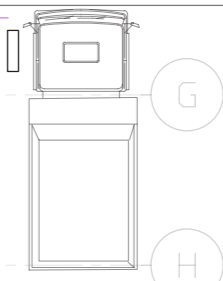



LEVEL -1
 1:200



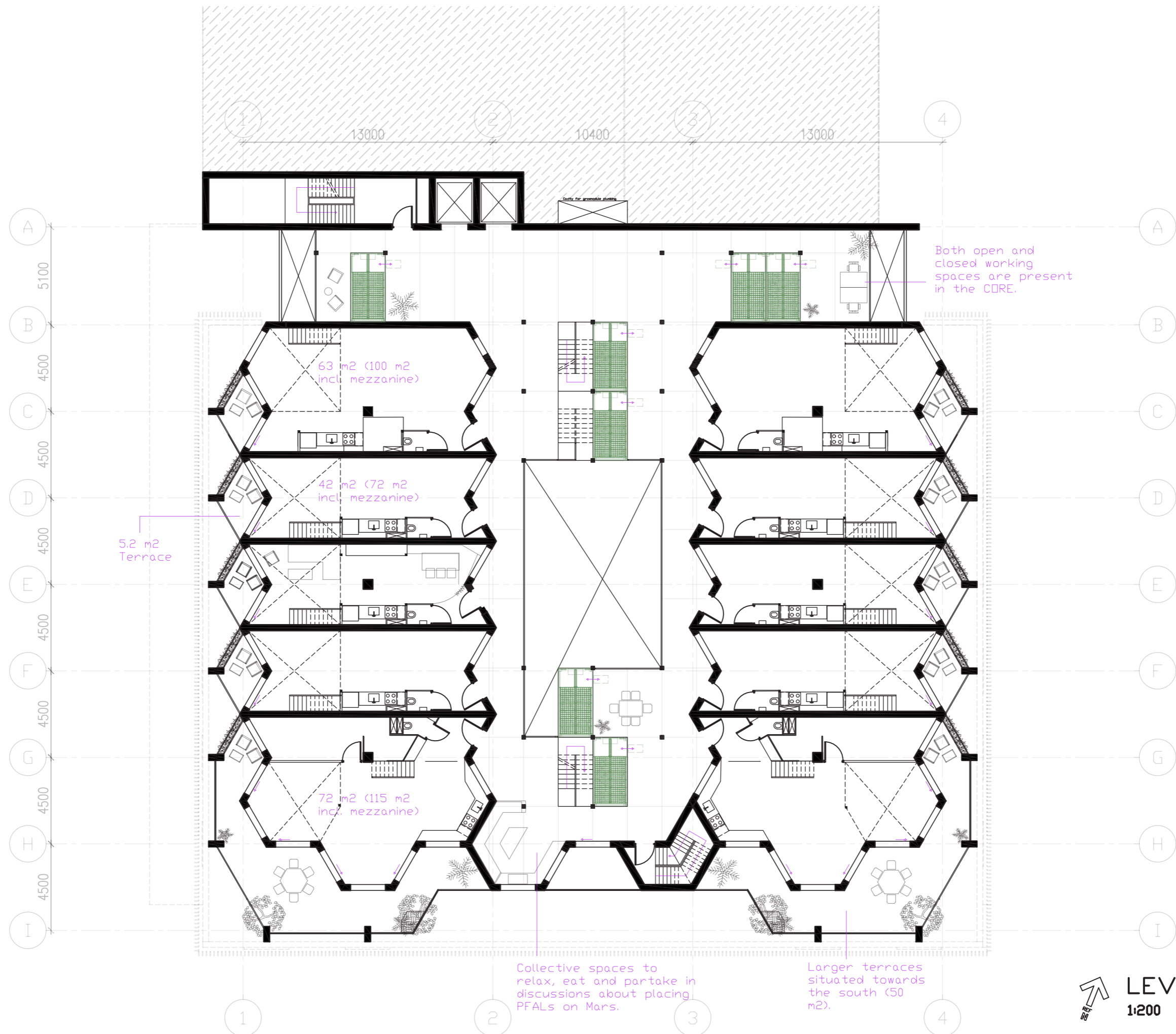
Office mezzanine
LEVEL 0.5

Electric charging station

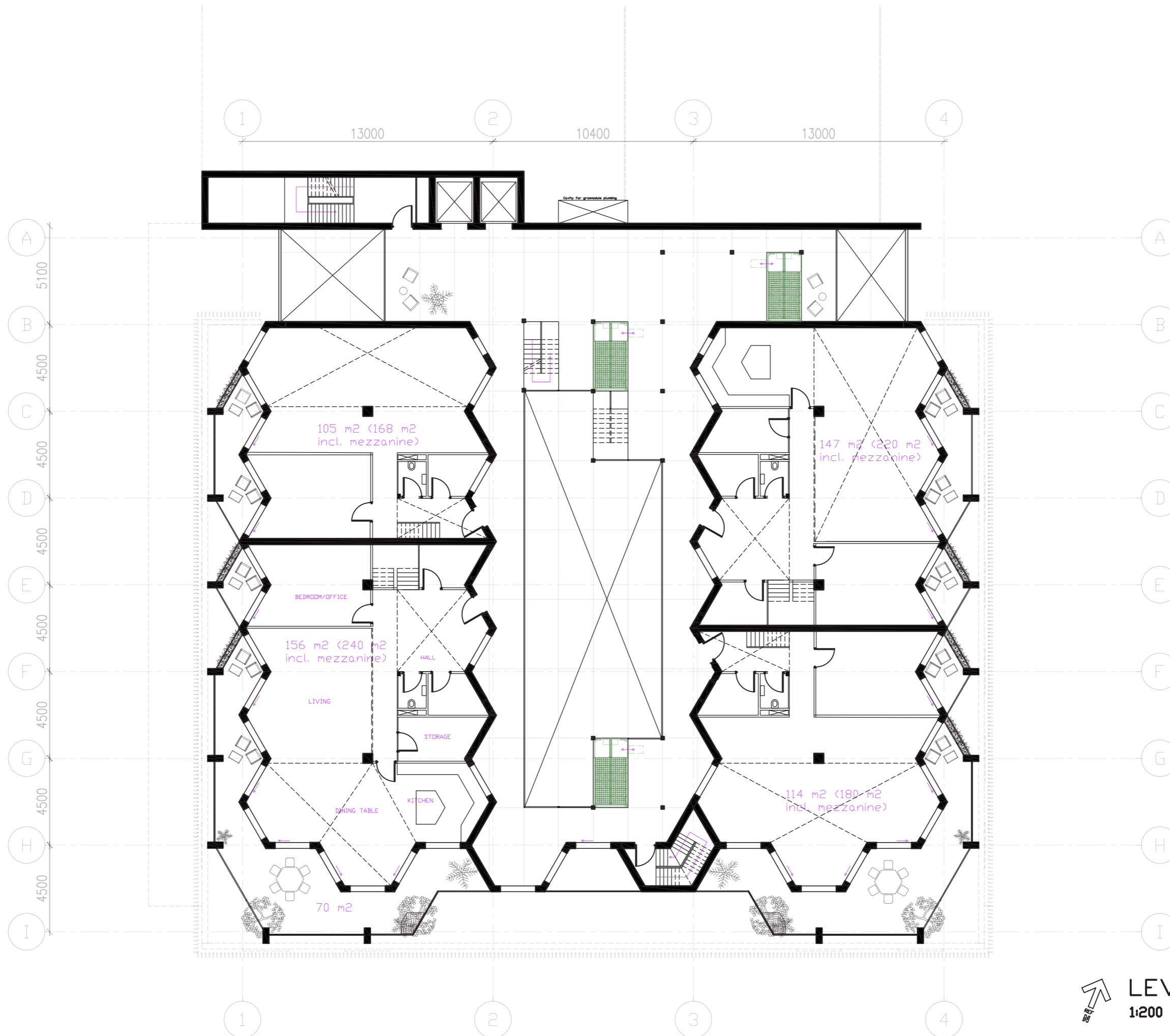


Electric delivery truck.
Small, local deliveries.

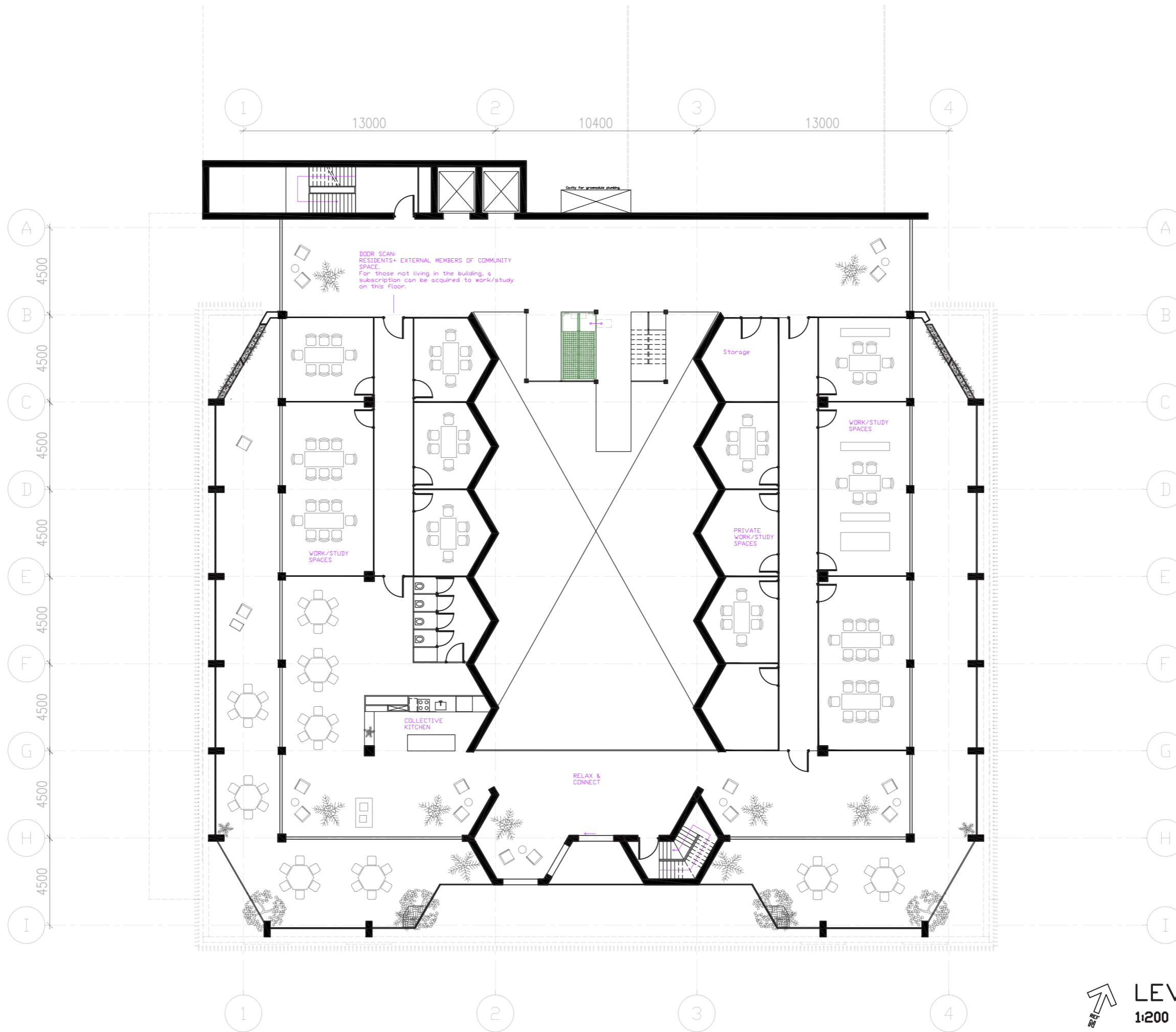
LEVEL 0
1:200



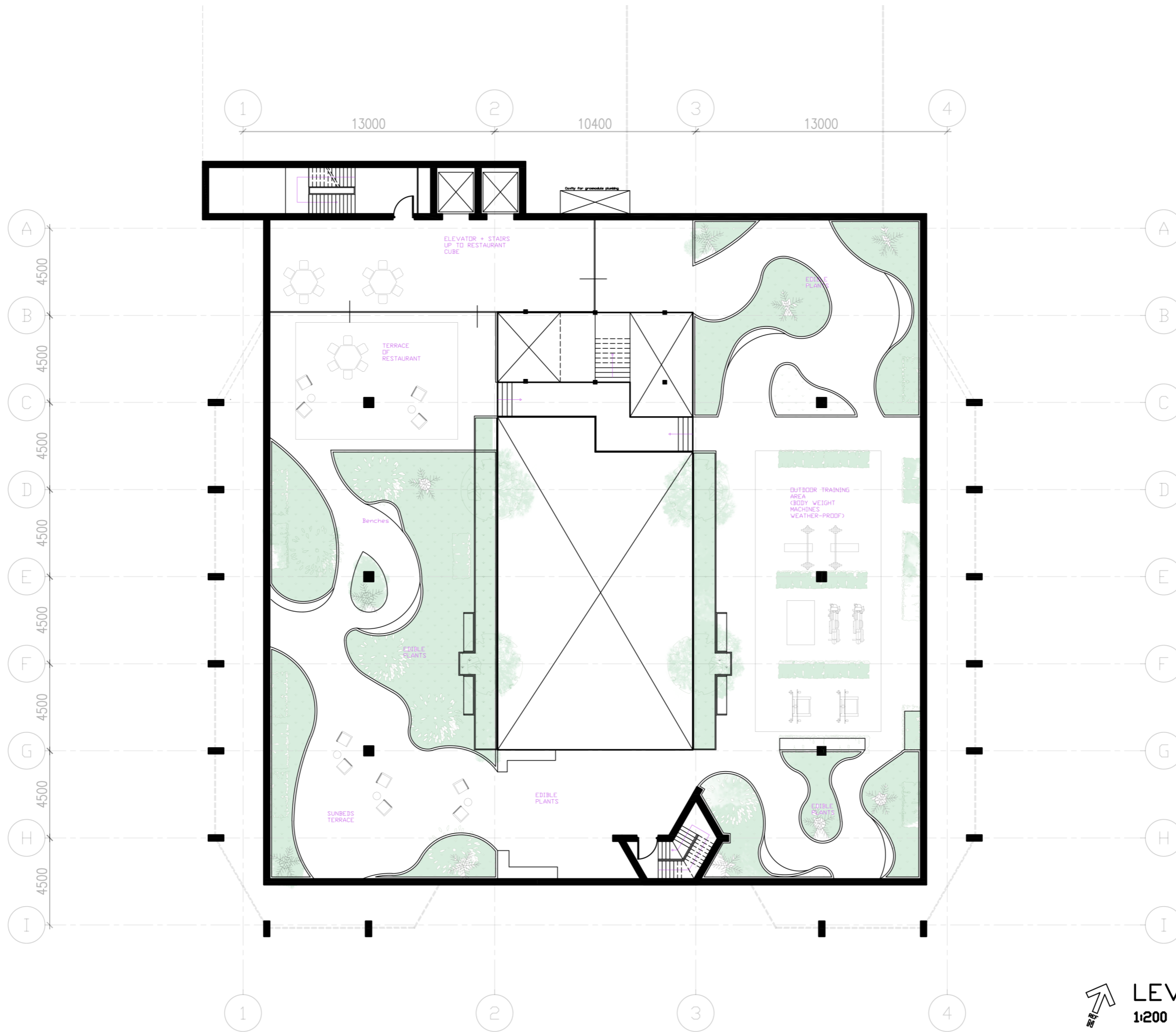

LEVEL +3
 1:200



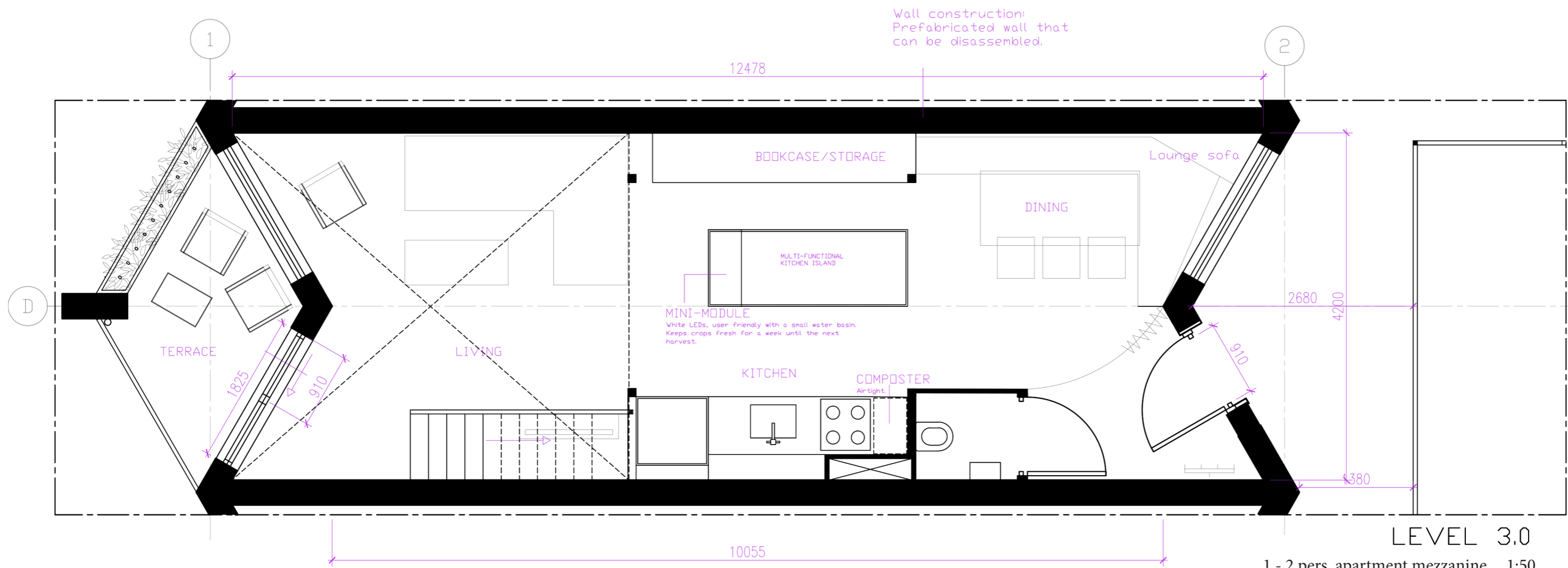
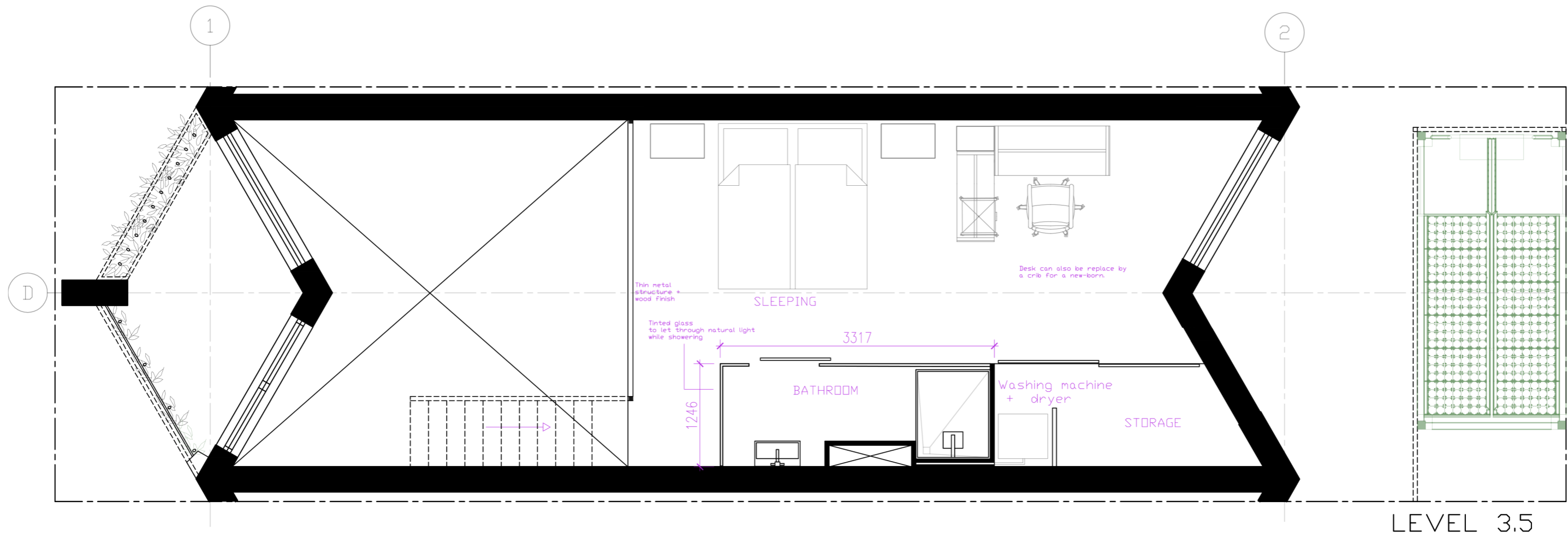

LEVEL +7
 1:200



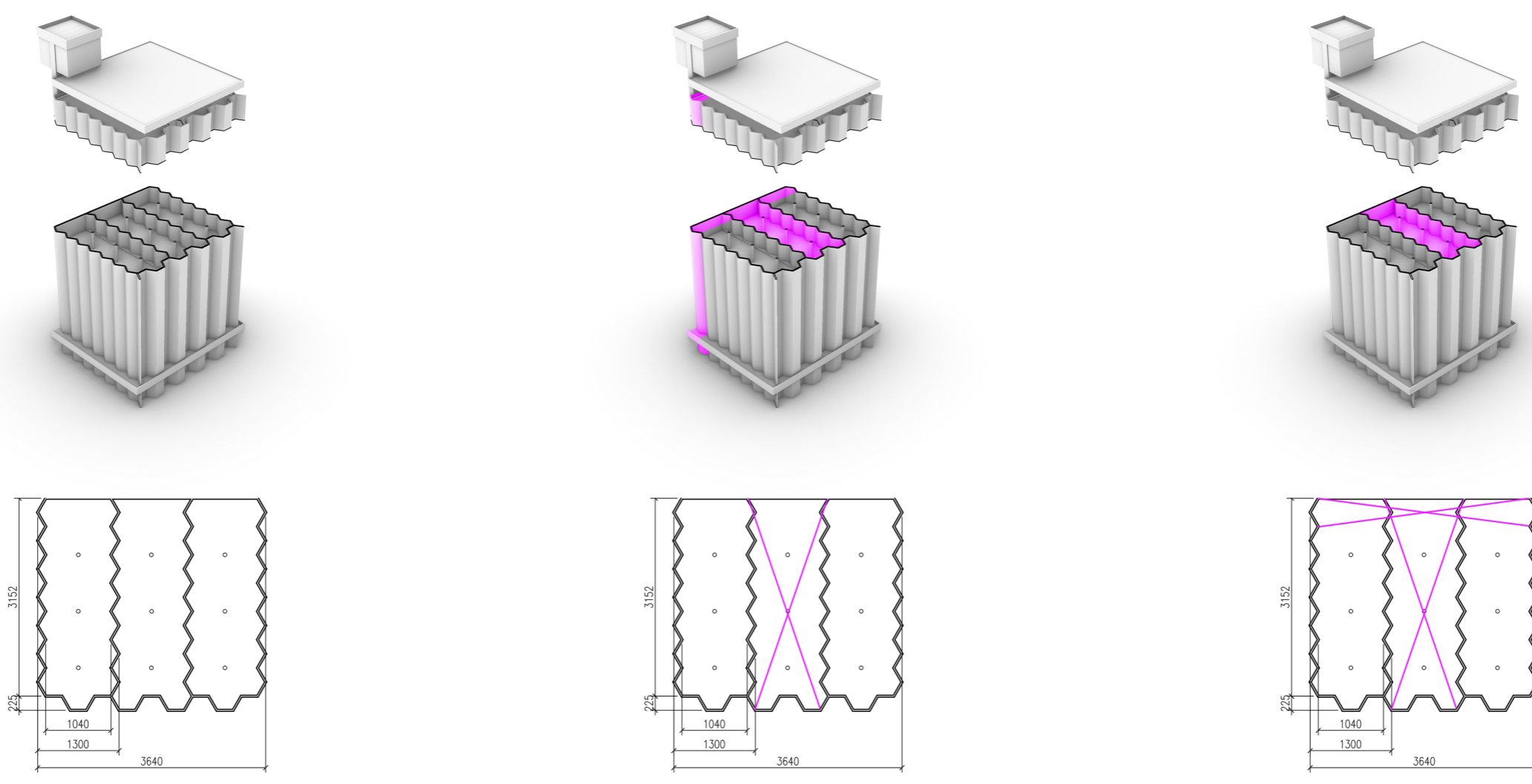

LEVEL +8
 1:200



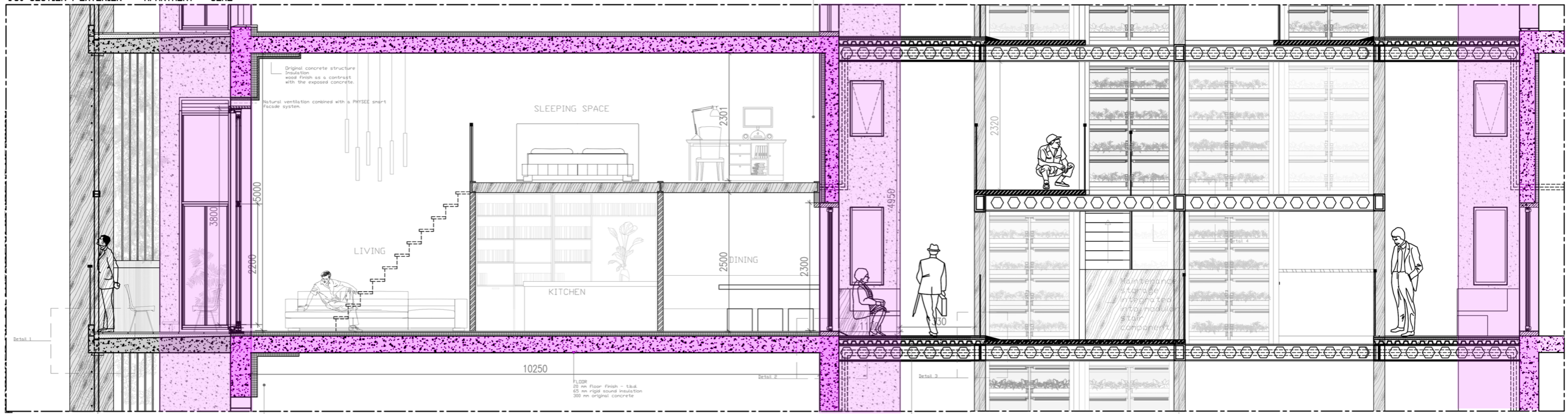

LEVEL +9
 1:200



1 - 2 pers. apartment mezzanine. 1:50



1:50 SECTION | EXTERIOR - APARTMENT - CORE



WATERING SYSTEM
 Check water input (source, board)
 And if insulation is required if
 water is circulated from within
 the building during winter times.

Rc waarde gravel nihhaal 4.7. Streef naar B0 W/nDK
 voor passieve warmten terug met rook, geen
 lostoende woning naar appartementscomplex.
 300 mm beton Lambda 1.4
 60 mm vacuum isolatie panelen Lambda 0.035
 20 mm hout sferisering Lambda 0.1
 80 = 0.41428 * x / 0.035
 x mm isolatie = (80-0.41428) * 0.035 = 0.114 m = 114 mm

FLOOR
 20 mm Floor Finish - 1.5d
 65 mm rigid sound insulation
 300 mm original concrete

FLOOR
 30 mm epoxy flooring white high shine finish
 35 mm sound insulation
 80 mm concrete + corrugated steel
 300 mm castelated beam incl. electrical wiring &
 piping

CORE STRUCTURE - Interplay between industrial, rough & clean, natural materials.
 200x200 mm local hardwood column
 HEA 200x 300m castelated beam incl. electrical wiring & piping grommets

Existing concrete structure

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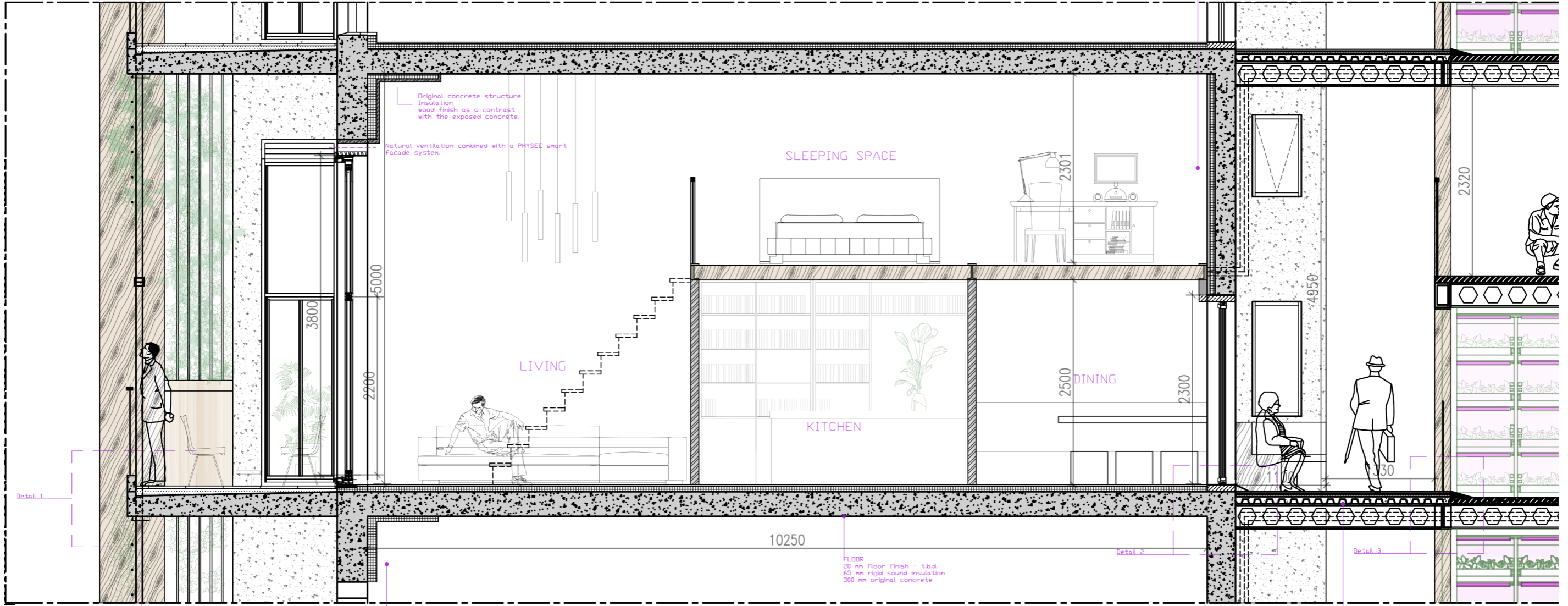
MATERIALIZATION

- Original concrete structure.
- Wooden components with metal structure when required.
- Moveable carpet on living/sleeping/calming residing spaces.

WIRING & PIPES

e.g. water & air flow
Whenever possible, clean but visible appearance. Emphasize the symbiosis between the apartments and growmodules.

1:50 SECTION | EXTERIOR - APARTMENT - CORE



Original concrete structure
Insulation
wood finish as a contrast
with the exposed concrete.

Natural ventilation combined with a PHYSEE smart
Facade system.

SLEEPING SPACE

LIVING

KITCHEN

DINING

10250

FLOOR
20 mm floor finish - t.b.d.
65 mm rigid sound insulation
300 mm original concrete

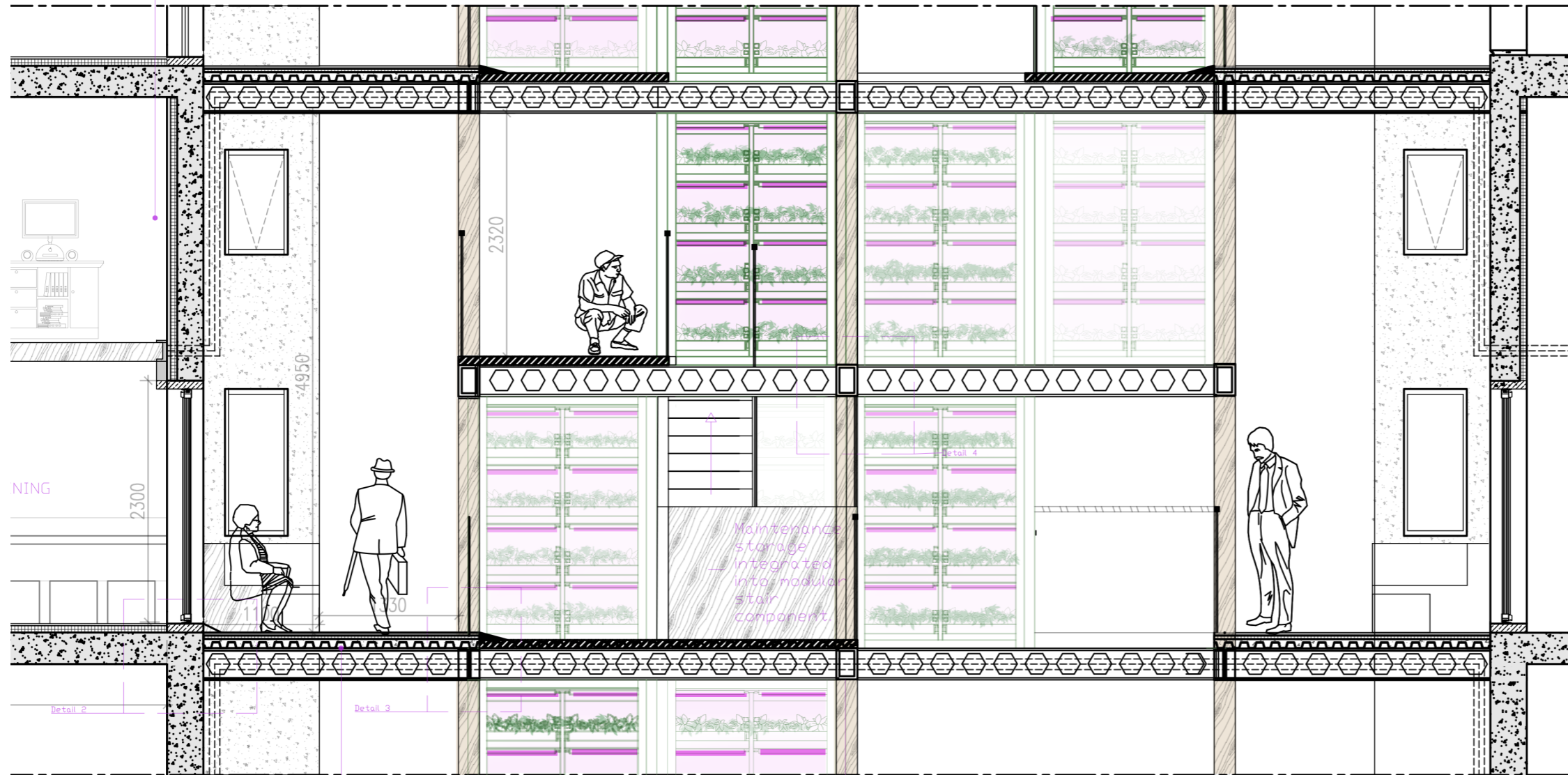
FLOOR
30 mm epoxy flooring white high shine finish
30 mm sound insulation
85 mm concrete + corrugated steel
300 mm castellated beam incl. electrical wiring & piping

Rc waarde gevel minimaal 4.7. Streef naar 8.0 W/m²K
voor passieve woningen (hoger niet nodig, geen
lostaande woning naar appartementencomplex.
300 mm beton Lambda 1.4
65 mm vacuüm isolatie panelen Lambda 0.015
20 mm hout afwerking Lambda 0.1
 $8.0 = 0.41428 + x / 0.015$
 $x \text{ mm isolatie} = (8.0 - 0.41428) \times 0.015 = 0.114 \text{ m} = 114 \text{ mm}$

WATERING SYSTEM
Check water input source (pans)
And IF insulation is required IF
water is circulated from within
the building during winter times.

WIRING & PIPES
eg. water & air flow

Whenever possible,
clean but visible
appearance.
Emphasize the
symbiosis between the
apartments and
growmodules.



NING

2300

4950

2320

30

Maintenance
storage
integrated
into modular
stair
component

Detail 4

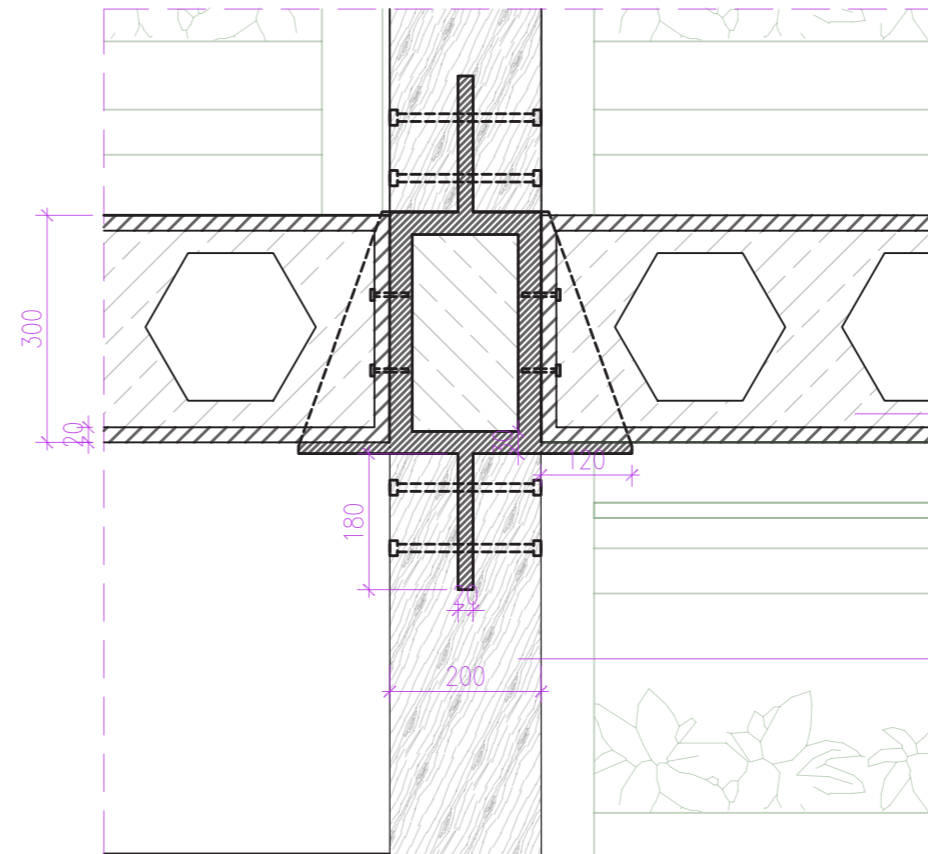
Detail 2

Detail 3

FLOOR
30 mm epoxy flooring white high shine finish
30 mm sound insulation
85 mm concrete + corrugated steel
300 mm castellated beam incl. electrical wiring &
piping

CORE STRUCTURE | Interplay between industrial, rough & clean, natural materials.
200x200 mm local hardwood column
HEA 200b 300h castellated beam incl. electrical wiring & piping growmodules

CORE modular structure: connection element



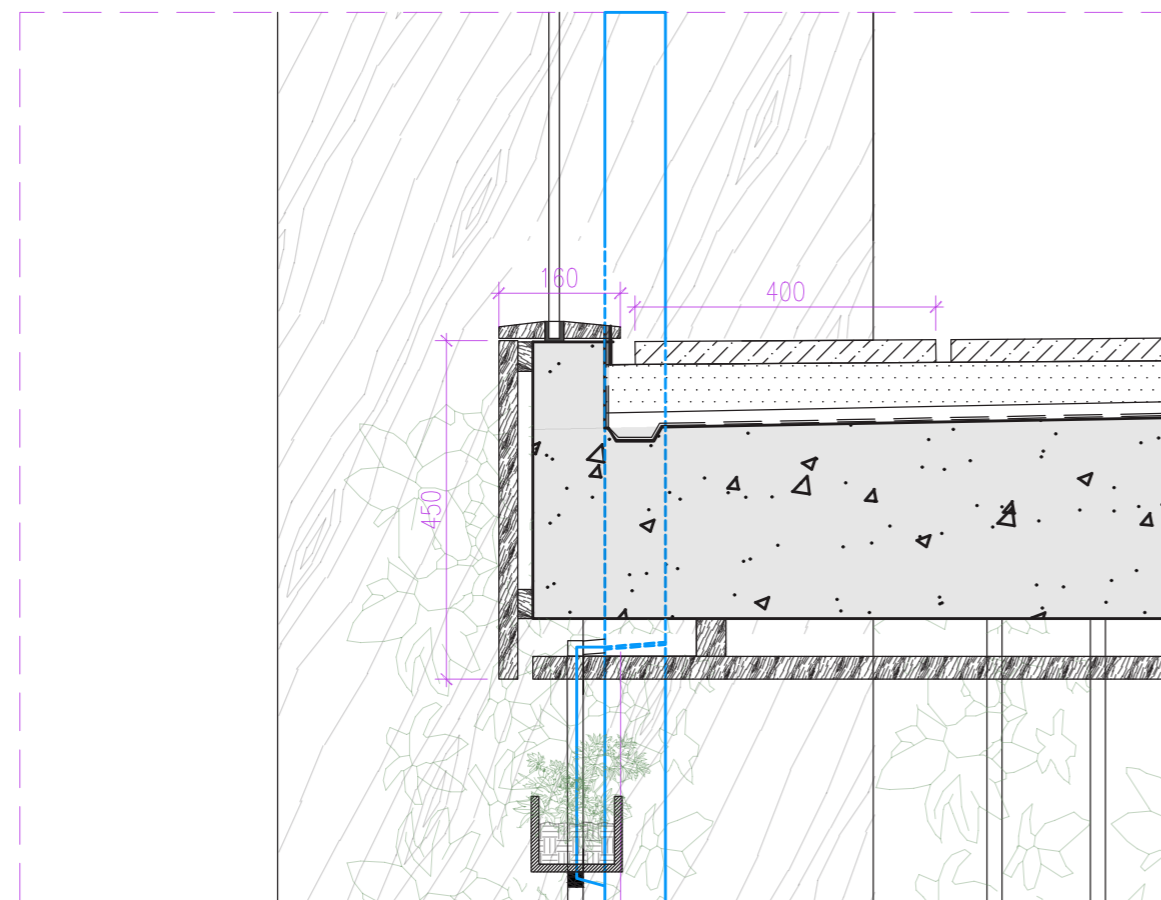
CORE STRUCTURE : Interplay between industrial, rough & clean, natural materials.

Connection element as single object. Compact to enable unobstructed placement of the growmodules.

HEA 200b300h castellated beam.

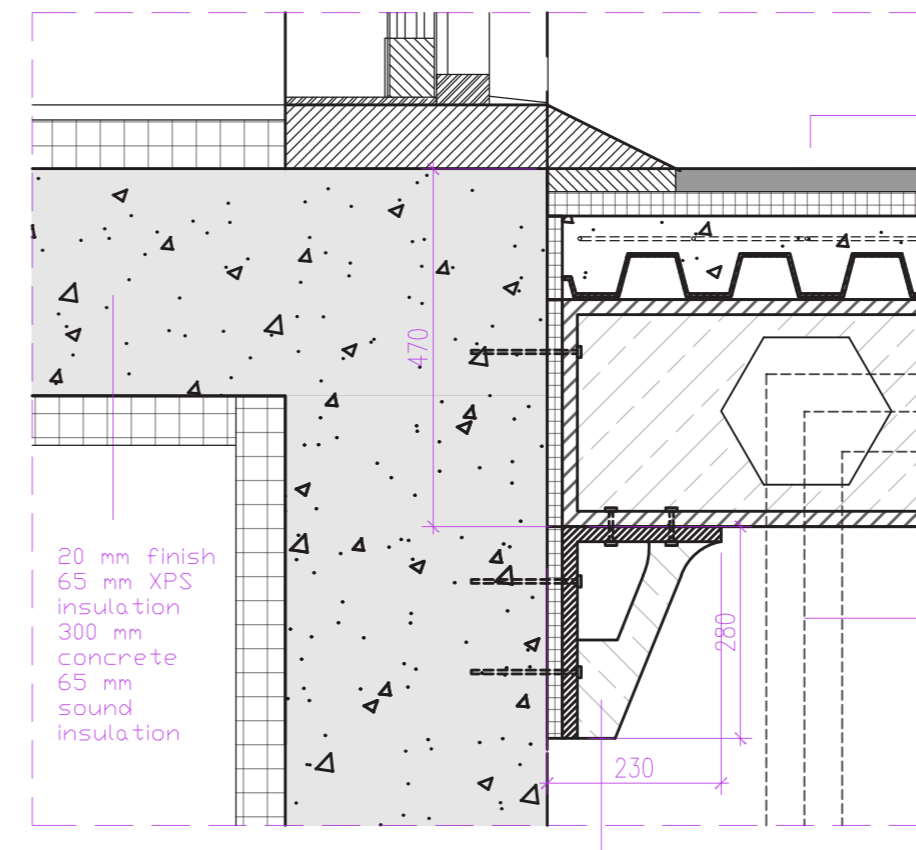
200*200 mm glulam local wood column

Terrace & rainwater drainage



Watering system for facade planting. Rainwater guided through downspouts, with a semi-permeable layer allowing water to flow into tubes that water the plants from an irrigation system.

CORE to existing concrete wall

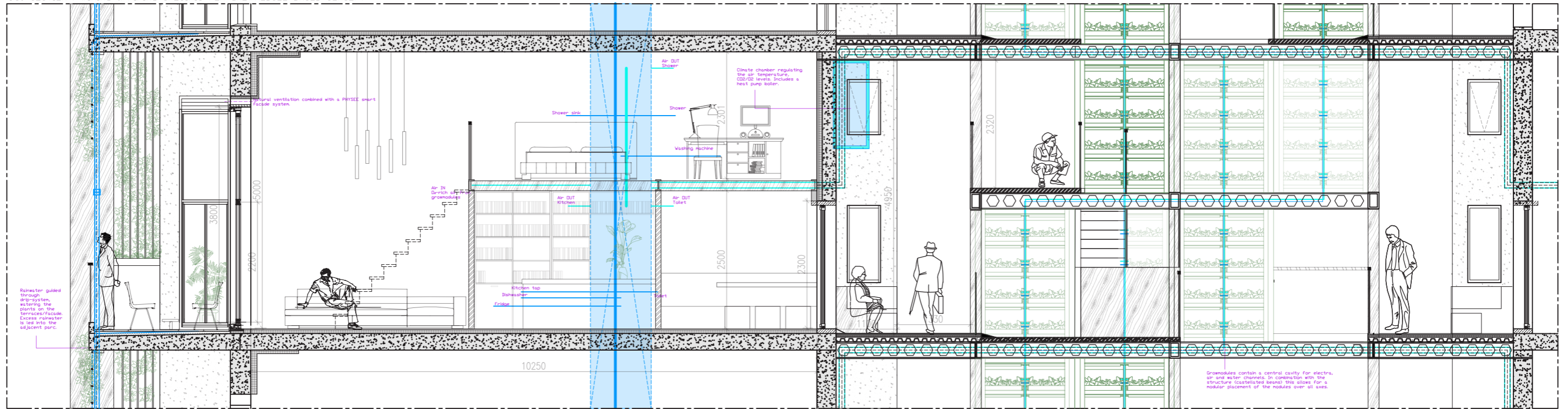


FLOOR
30 mm epoxy flooring white high shine finish
30 mm insulation for sound and vibrations from the steel beam to concrete.
110 mm concrete + corrugated steel
300 mm HEA 200b300h castellated beam

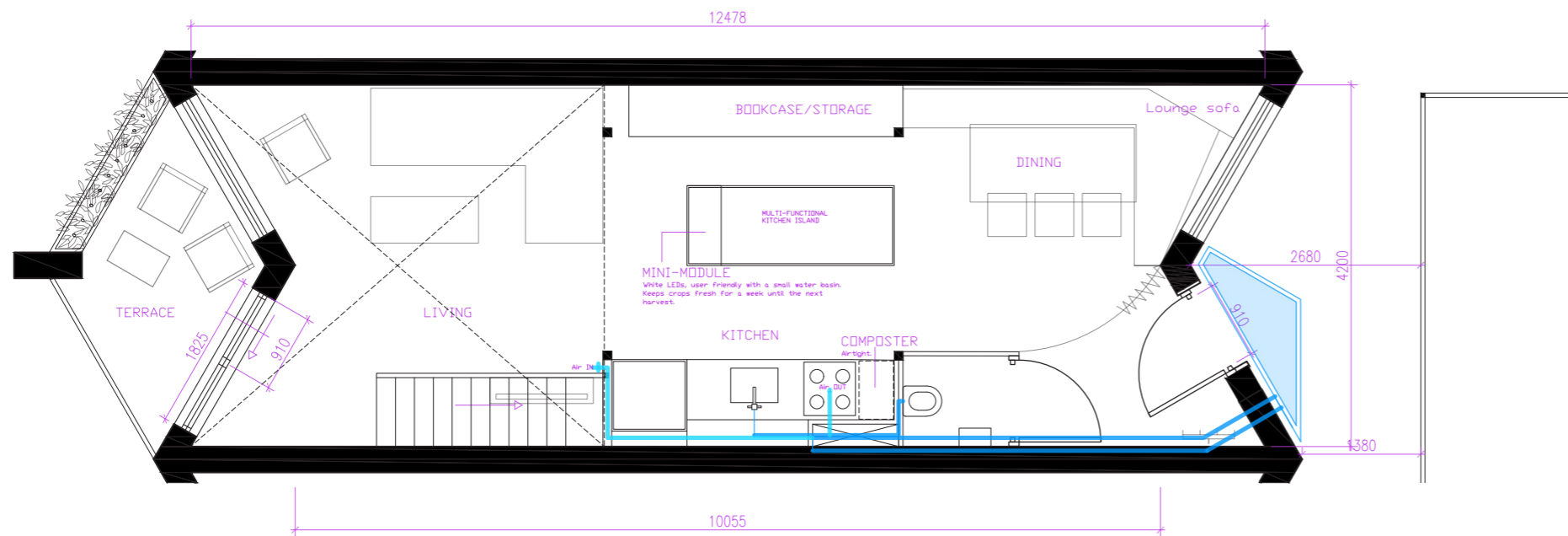
Electrical wiring, water pipes and air ducts from the growmodules.

Angle bracket supporting the castellated beam

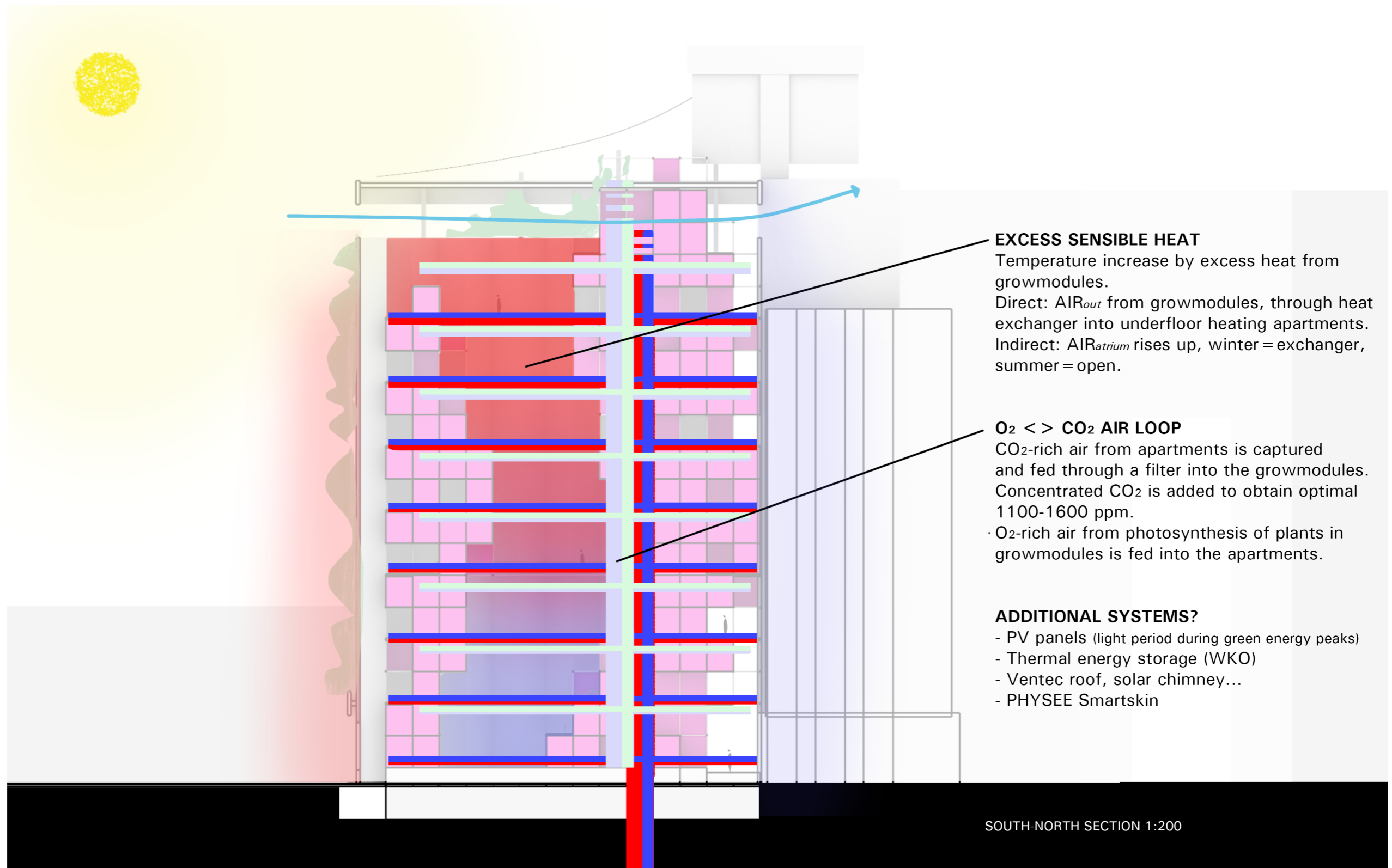
1:50 SECTION | WIRING & PIPING SPECIFIC FOR GROWMODULE-BASED CONCEPT



— Air duct (Dr/CDr)
— Water channels



Water pipes and air ducts
1:100



EXCESS SENSIBLE HEAT

Temperature increase by excess heat from growmodules.
 Direct: AIR_{out} from growmodules, through heat exchanger into underfloor heating apartments.
 Indirect: AIR_{atrium} rises up, winter = exchanger, summer = open.

O₂ < > CO₂ AIR LOOP

CO₂-rich air from apartments is captured and fed through a filter into the growmodules. Concentrated CO₂ is added to obtain optimal 1100-1600 ppm.
 · O₂-rich air from photosynthesis of plants in growmodules is fed into the apartments.

ADDITIONAL SYSTEMS?

- PV panels (light period during green energy peaks)
- Thermal energy storage (WKO)
- Ventec roof, solar chimney...
- PHYSEE Smartskin

SOUTH-NORTH SECTION 1:200

