

RETHINKING MINIMALISM

HIGH DENSITY LIVING IN MANHATTAN

EXPLORE LAB - DELFT UNIVERSITY OF TECHNOLOGY



1950 - 30% of the people lived in cities

in 2018 - 55%

2050 - **70%** is projected (UN, 2019)



horizontal expansion is limited due to Hudson River & East River



Midtown Manhattan, current level of highrise



scenario of vertical expansion



but how sustainable is this?

how can we create a **higher housing density**?

instead of expanding

outwards

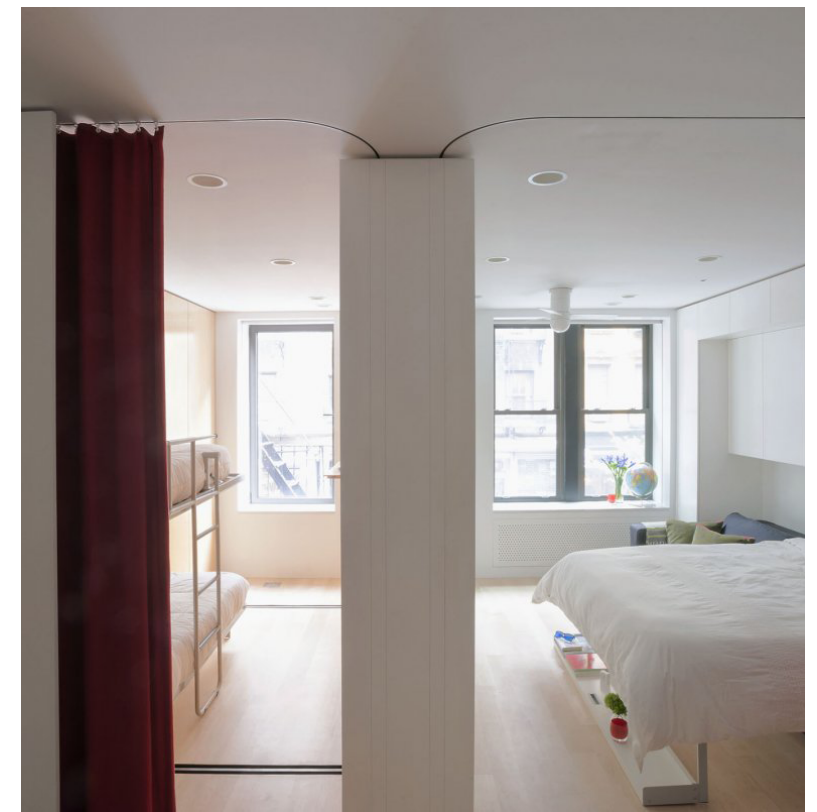
upwards

let's explore expanding

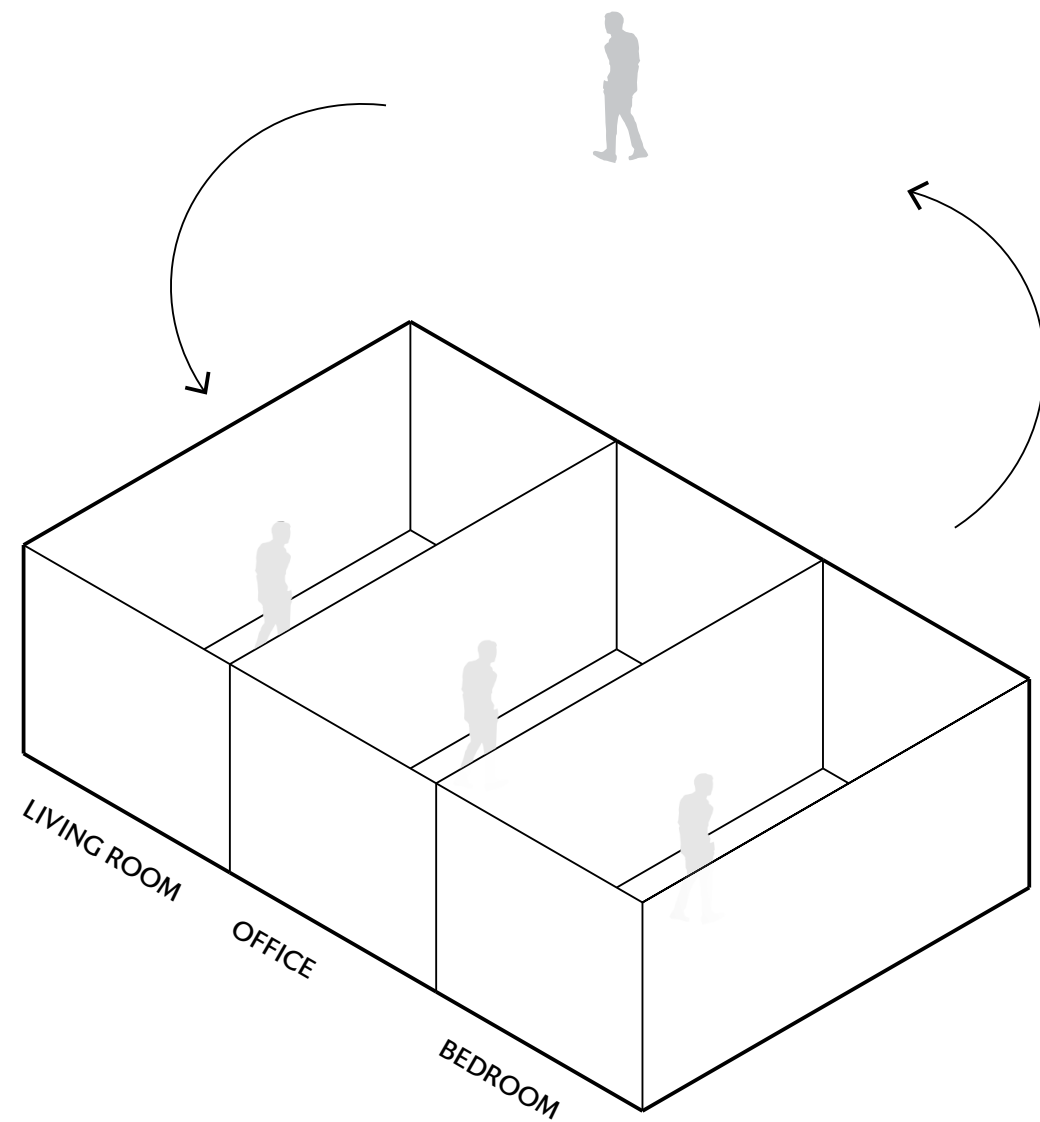
inwards

MINIMALISM

“ Architecture with a **flexible** and **transformable** floorplan, with sustainability, creating a higher urban density and reducing the ecological footprint of the design, as the main motive. ”

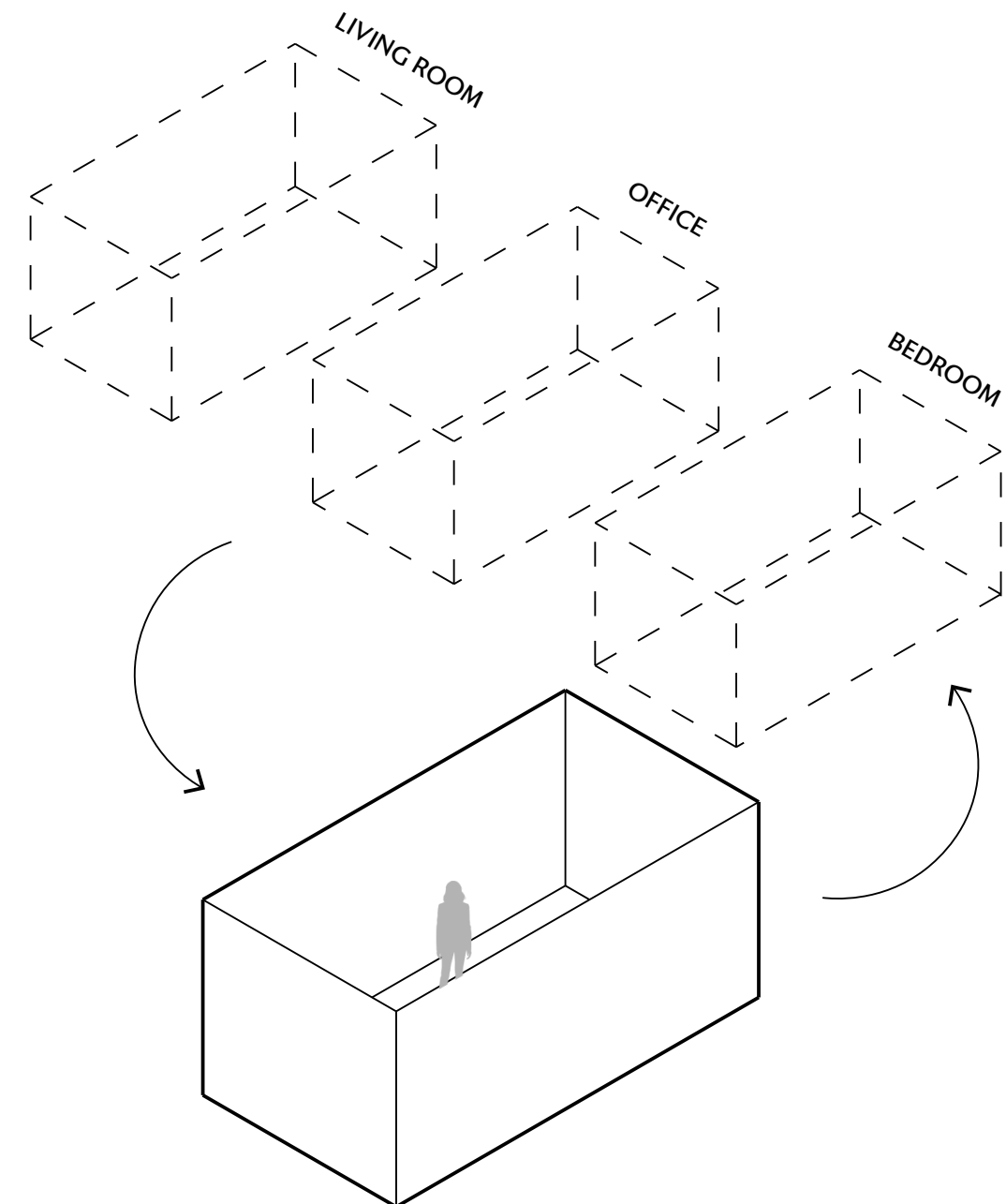


LivingSpaces (n.d.) *The Life Edited apartment in New York by Graham Hill.*



ARCHITECTURE **STATIC**

USER **DYNAMIC**



USER **STATIC**

ARCHITECTURE **DYNAMIC**

“ How can we optimize **minimal housing**

on both the architectural and urban scale
in the future scenario of high density living
due to mass-urbanization? ”

1

*Which spatial quantities and qualities
are desired and not present in
current minimal architecture?*

SOHO STUDIO BY GRAHAM HILL

- 8 transformations
- 2/4 walls are furnitecture
- high flexibility in terms of program
- low allowance for personal territory



LivingSpaces (n.d.) *The Life Edited apartment in New York by Graham Hill.*

ATTIC TRANSFORMER BY MKCA

- 3 transformations
- 1/4 walls are furnitecture
- low flexibility in terms of program
- high allowance for personal territory



MKCA (n.d.) *The Attic Transformer*.

n° of transformations \longleftrightarrow *balance* personal territory

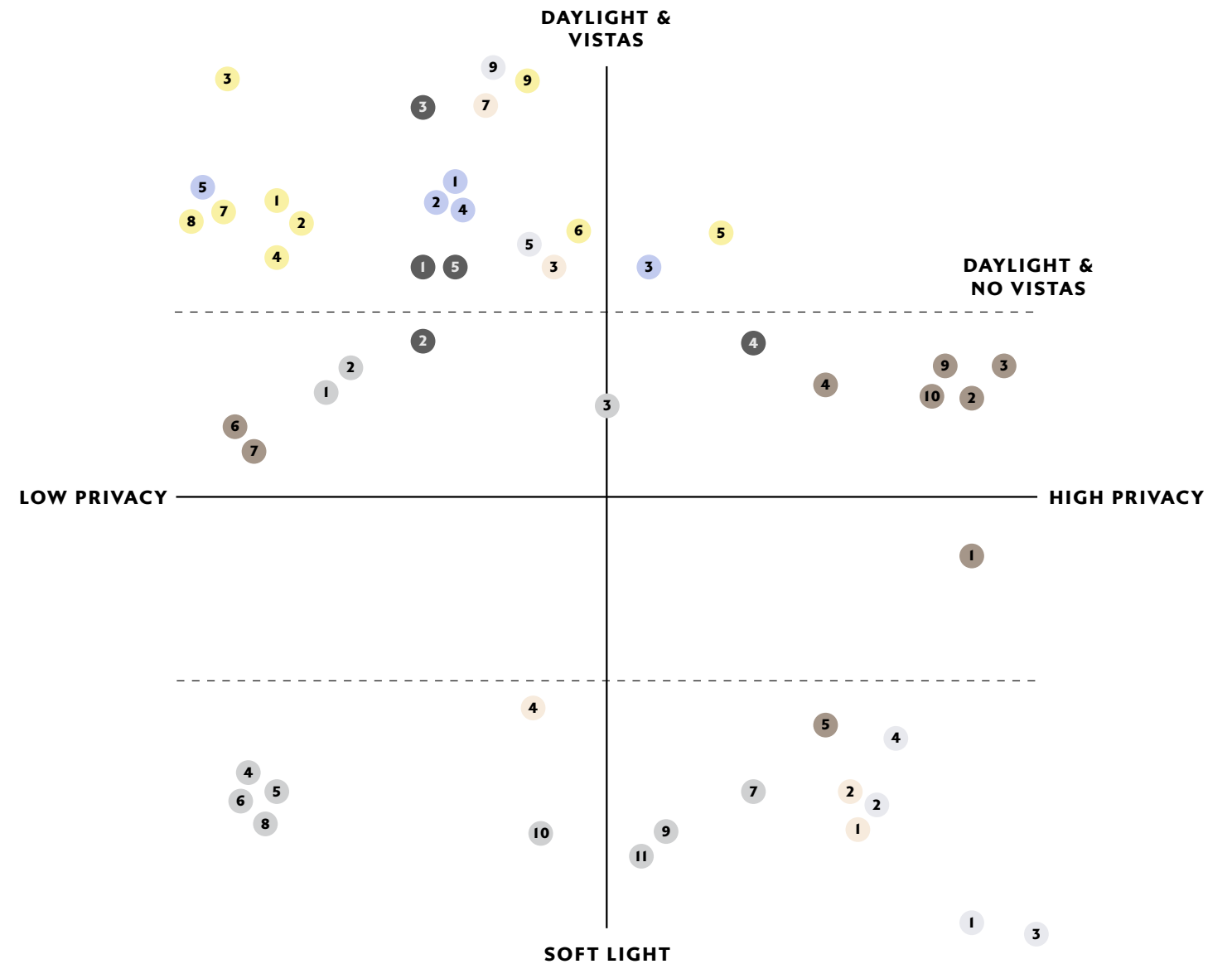
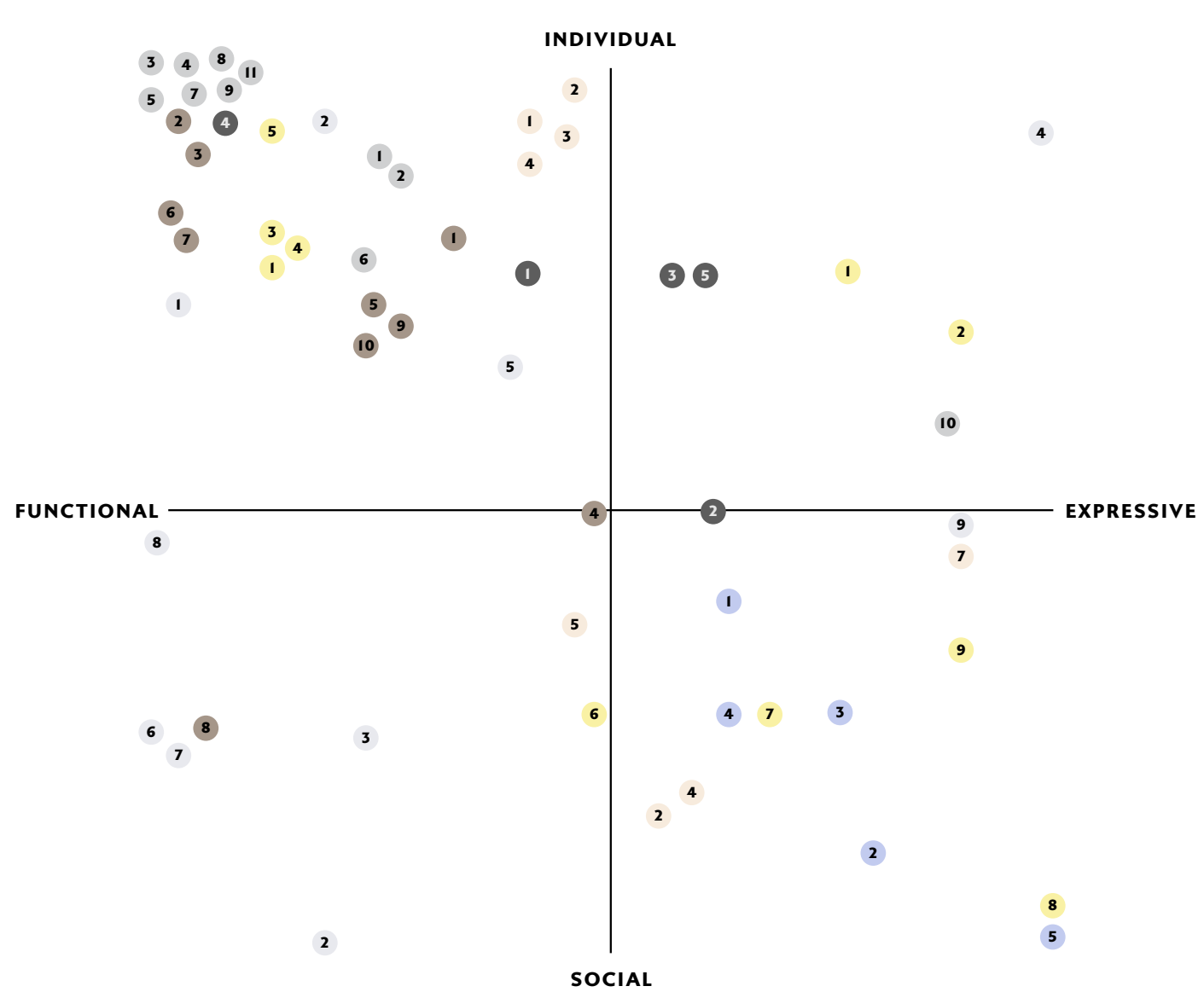
2

How can we rearrange the habits and habitats in a way that guarantees the flexibility of the space and allows for personal territory?

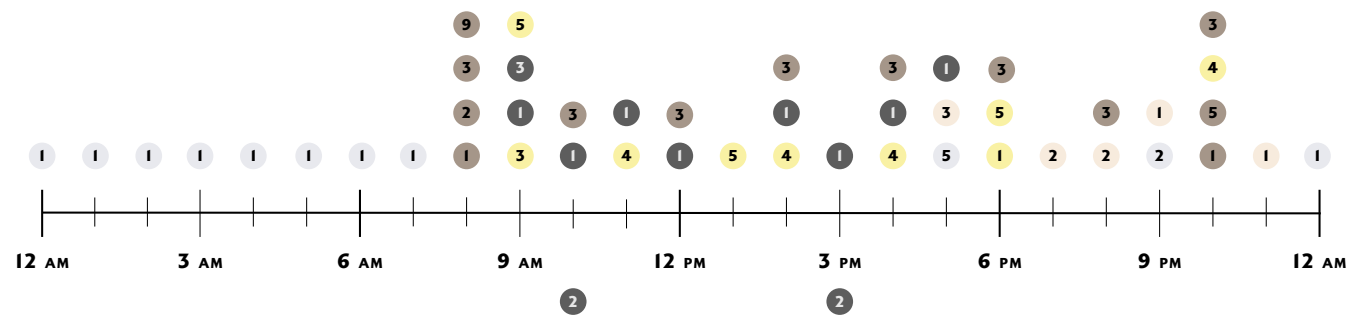
habitats = transformations vs. **scenarios** = transformations

ANALYSIS OF HABITS

HABITAT	HABIT	DESIRE	LIGHT	PRIVACY	FURNITURE	TERRITORIAL TYPOLOGY	USE
[4] Living room	5 relaxing	being relaxed	light throughout the day is desired	low privacy	couch or fauteuils	Functional	throughout the day
	3 leisure (reading a book or newspaper, drawing)	being comfortable	morning sun with a coffee and a newspaper	vistas or relation with the liveliness outside is desirable	low table	in individual setting	peak after work of during a day off
	4 watching a movie	being social in small gathering	evening sun with a glass of wine	possibility of creating a more intimate set-up for one on one conversations	screen or tv	Expressive	once a week in smaller setting
	3 having conversations	being social in larger gathering	artefcial lighting has to be flexible		bookshelves or space for decorations	in social setting	once every two weeks in large setting
	4 social gathering with food / drinks	being social in large gathering (special occasion)				multiplicity of the furniture	once every month for special occasion (christmas, birthday, thanksgiving)
	5 organizing a party or drinks with friends						
[5] Dining room	5 eating alone	being social	daylight needed, not per se time specific	low privacy	table	Expressive (all)	depends on occasion, 1 x per week
	6 eating in small gathering	being entertaining	artificial light has to be flexible (dimmed in the evening)	vistas or relation with the exterior is optional but not necessary	chairs		
	7 eating in large group	having a meal or a drink			decorations		
	8 eating for festive occasion (breakfast, brunch, lunch, aperitivo, dinner) any combination						
[6] Entrance	1 hanging a coat	having a 'moment of arrival'.	none needed, the door is an opening to the exterior and therefore generates indirect light	none required	door area	Functional when designed 'unframed', when it is simply functioning as an entrance to the space Expressive when it offers a moment of adjustment, creating a threshold effect	every time the user goes out, 1 min per time.
	2 store shoes or bag	a threshold between the exterior and interior	vista towards living space is desired (in terms of light)	entrance is an extension of the public / semi-public space	storage for shoes, bags, coats		
	6 getting ready to leave the house				table to put keys and mail		
	7 arriving at the house						



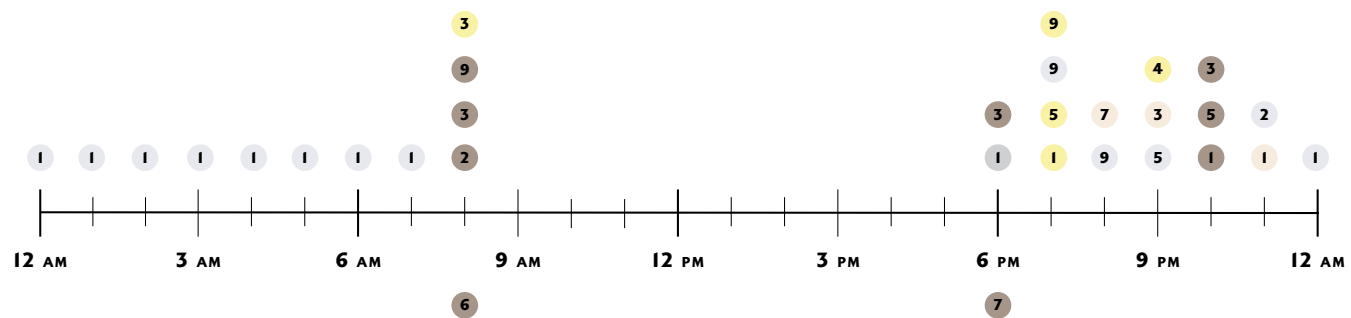
FUNCTIONAL



EXPRESSIVE

SCENARIO 1
working from home
and eating in

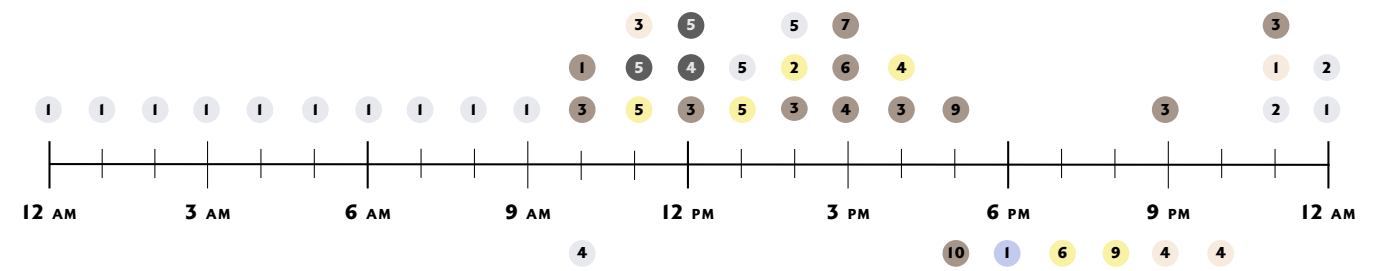
FUNCTIONAL



EXPRESSIVE

SCENARIO 2
going to work and
eating in

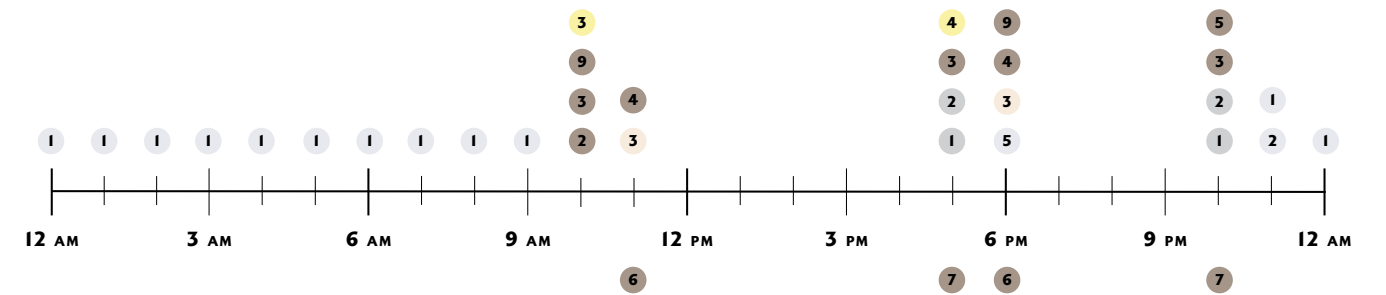
FUNCTIONAL



EXPRESSIVE

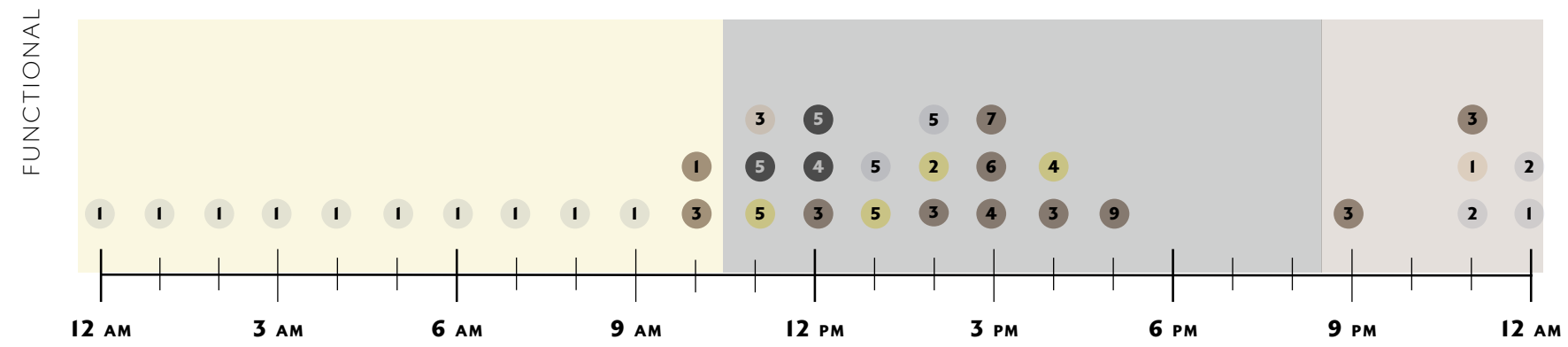
SCENARIO 3
day off
inviting a friend for
dinner

FUNCTIONAL



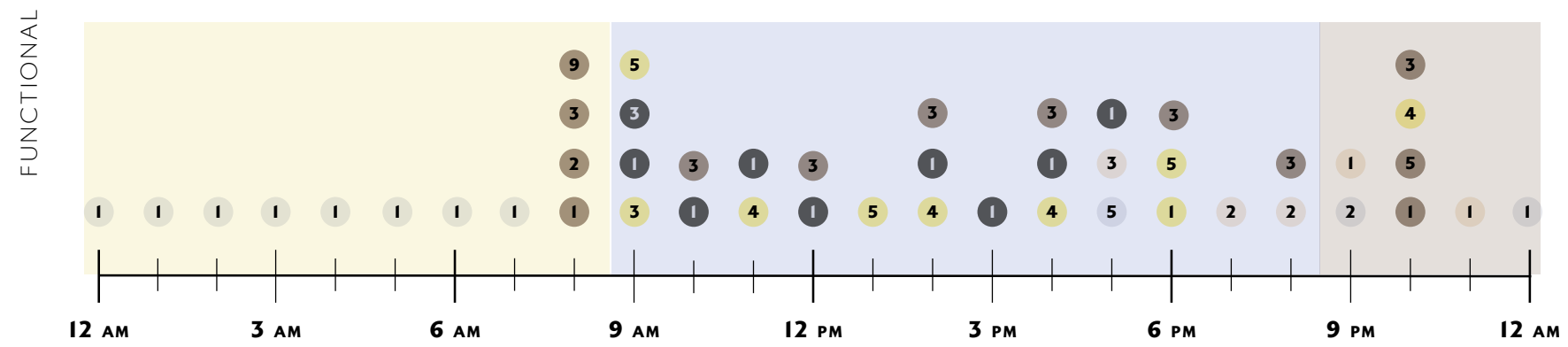
EXPRESSIVE

SCENARIO 4
day off, going out
and going out to a
restaurant



SCENARIO 3

day off
inviting a friend for
dinner



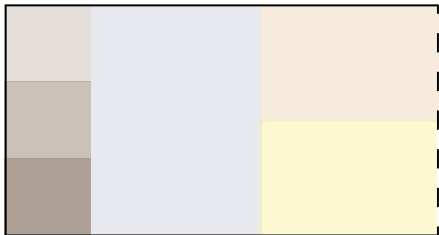
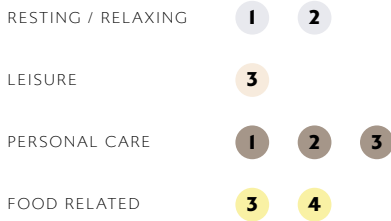
SCENARIO 1

working from home
and eating in

- NIGHT TIME AND MORNING ROUTINE
- WORK FROM HOME
- LEISURE FROM HOME
- DINNER AND NIGHT TIME ROUTINE

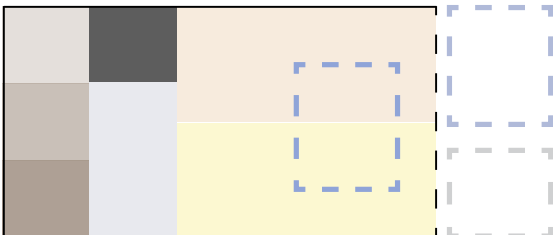
1

NIGHT-TIME & MORNING ROUTINE



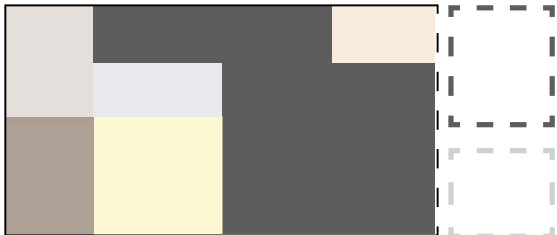
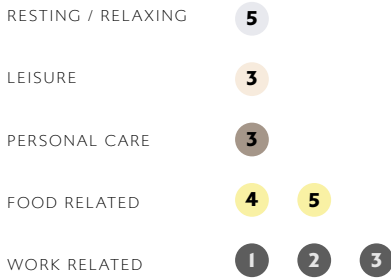
3

DAY-OFF AT HOME



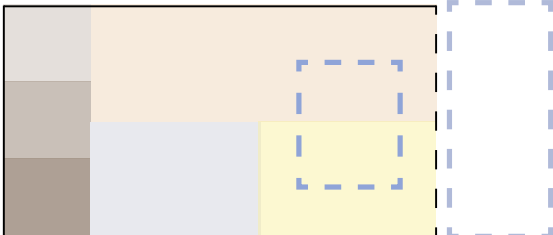
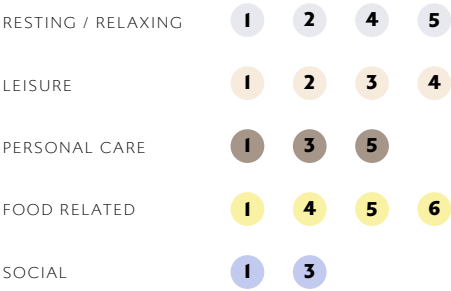
2

WORKING FROM HOME



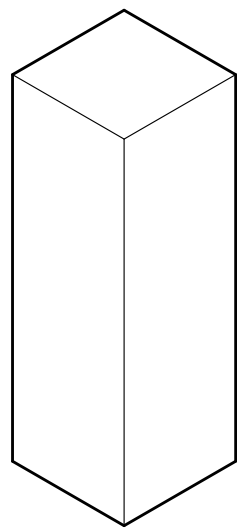
4

EVENING AND NIGHT-TIME ROUTINE



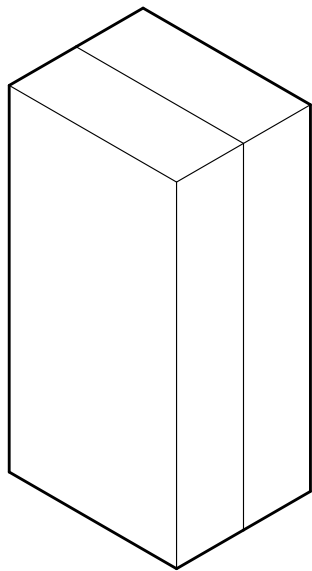
Nº I THE MINIMAL **APARTMENT**

ESSENCE PER DESIRE



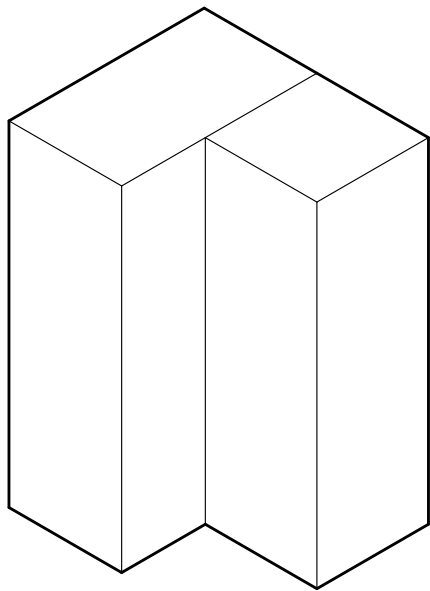
ENTRANCE

1000 x 1000 mm



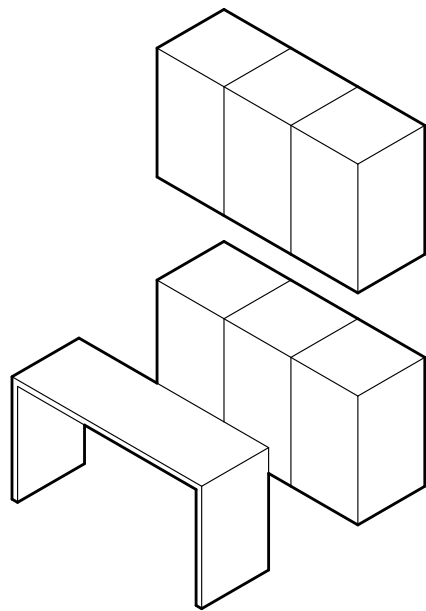
CLOSET

1500 x 600 mm (x2)



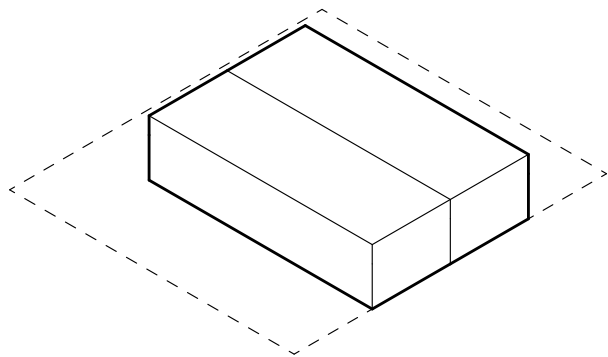
BATHROOM

1000 x 1750 mm
1000 x 1000 mm



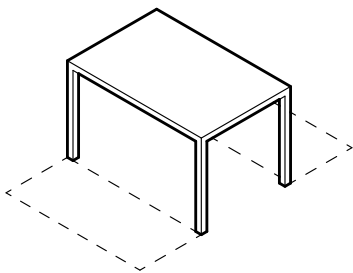
KITCHEN

600 x 600 mm (x3)
600 x 1700 mm



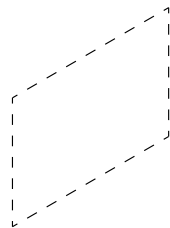
BED

2000 x 1400 mm



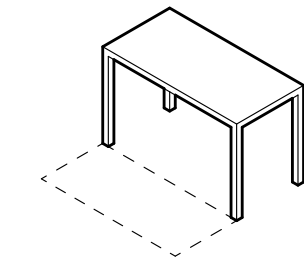
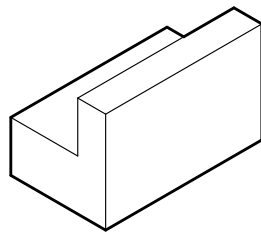
TABLE

1200 x 800 mm



COUCH

1400 x 850 mm



DESK

600 x 1200 mm

FURNITECTURE TYPOLOGIES

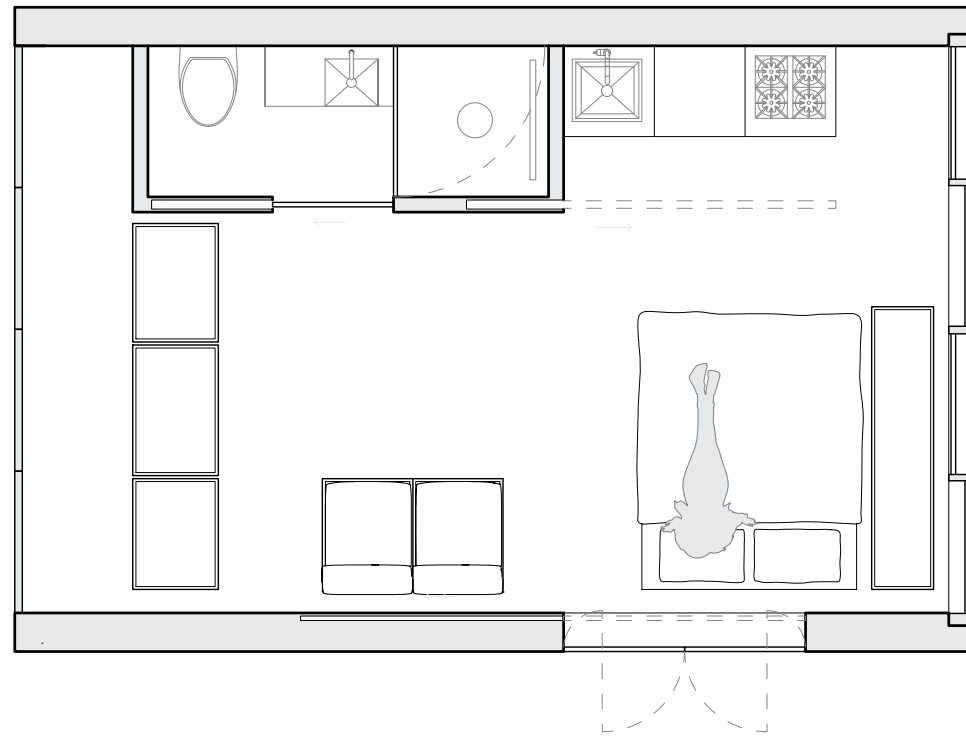


WALL

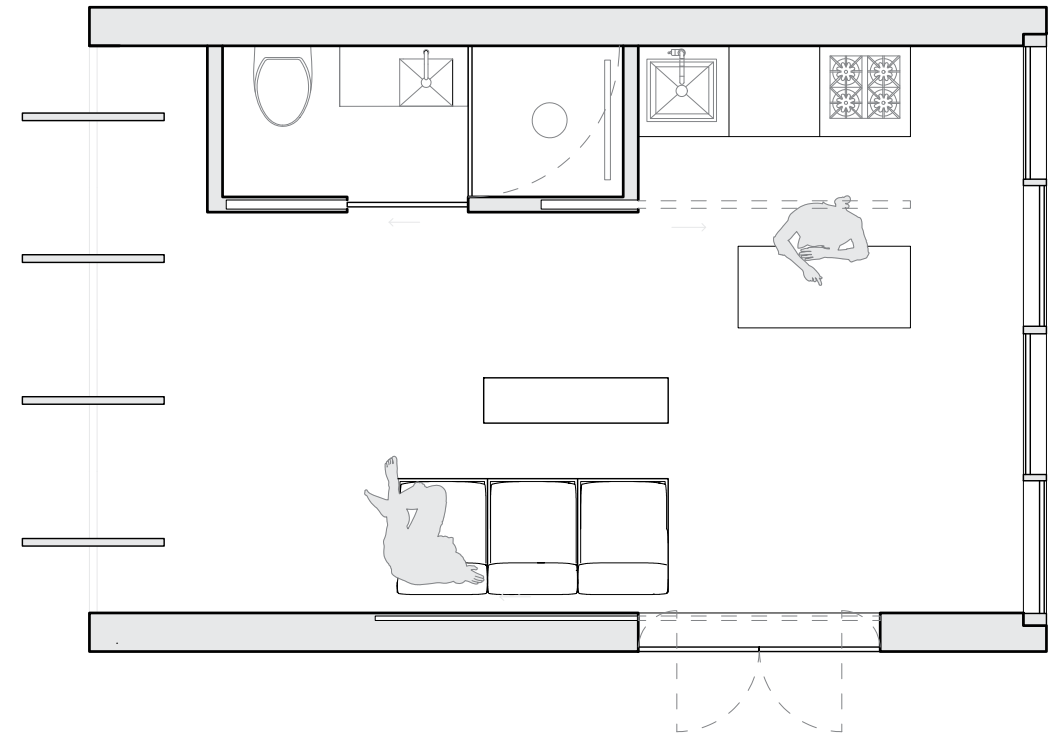


CEILING

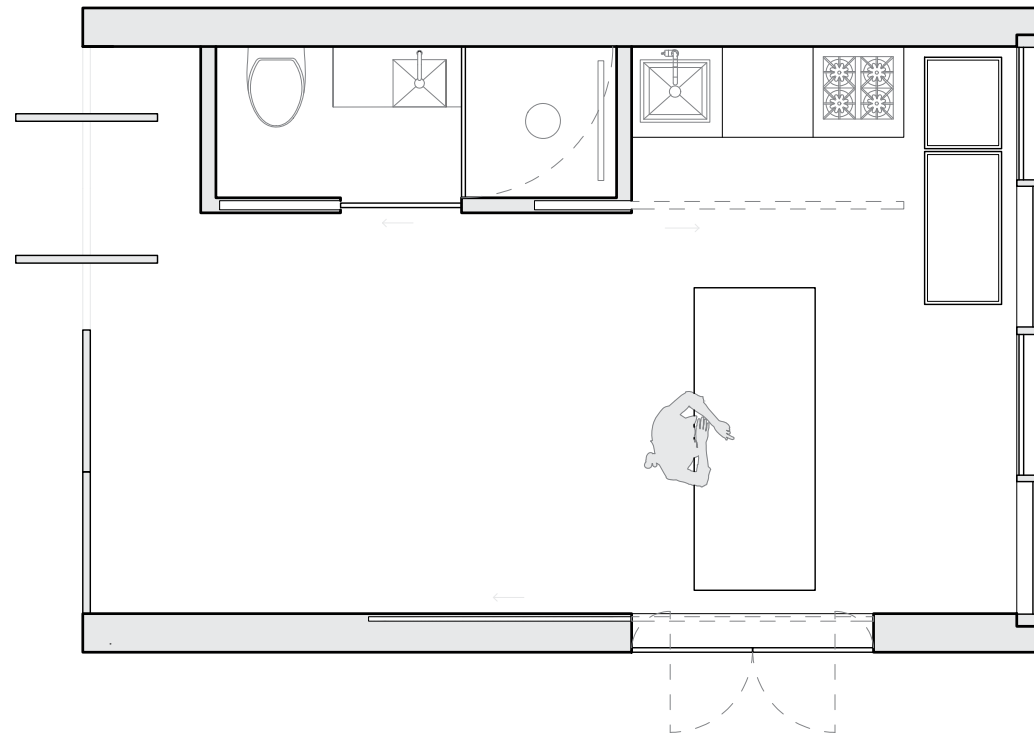
PLAN SCENARIOS



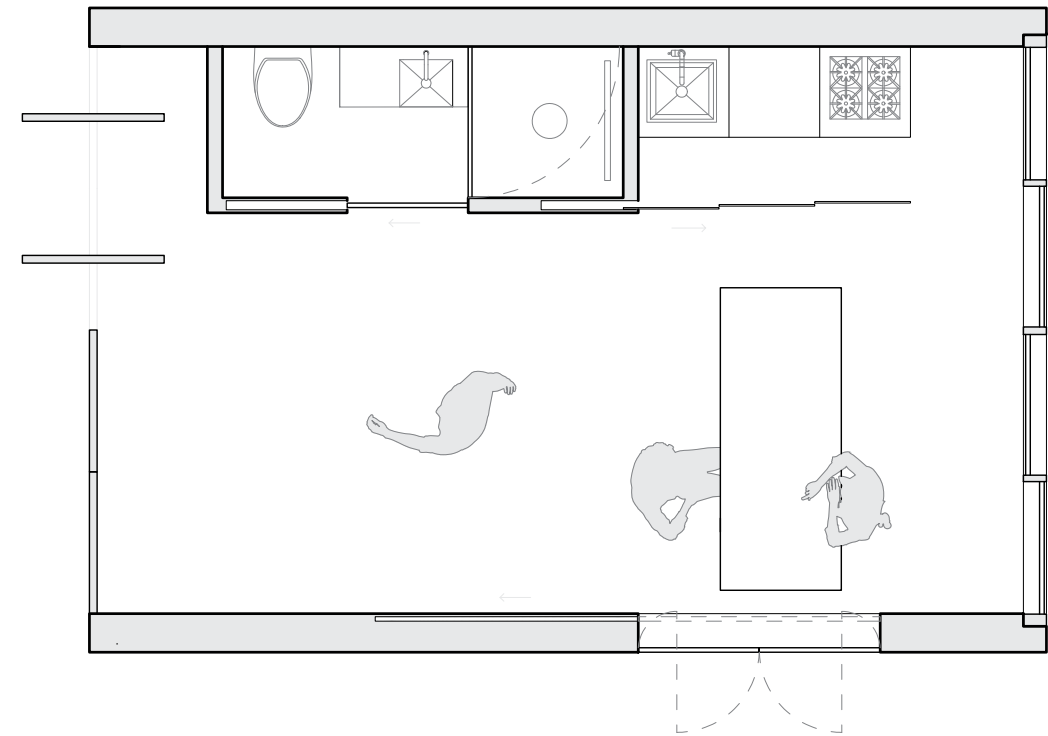
1. night-time / morning



3. leisure

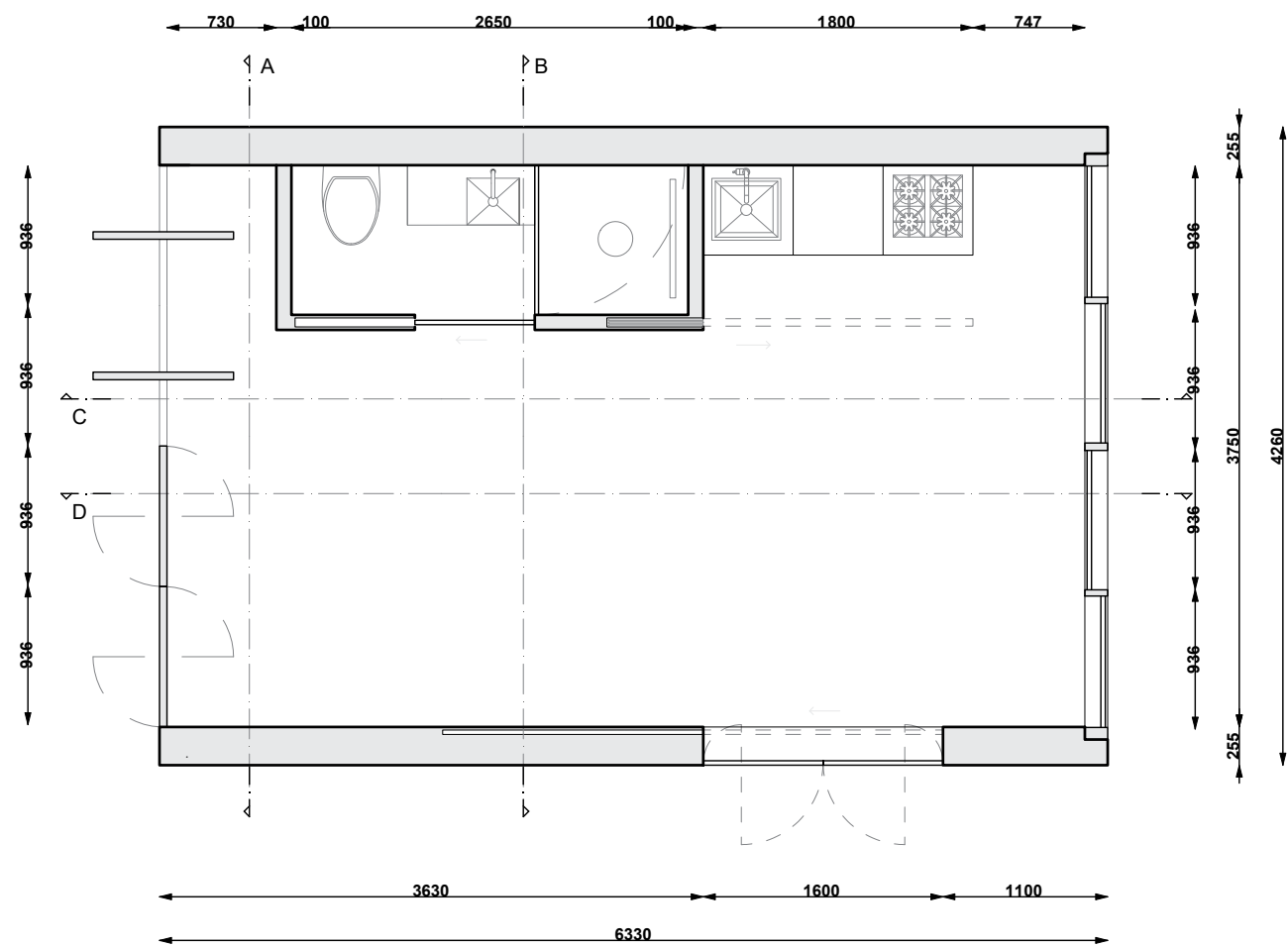


2. working from home



4. evening

PLAN AND CEILING DESIGN



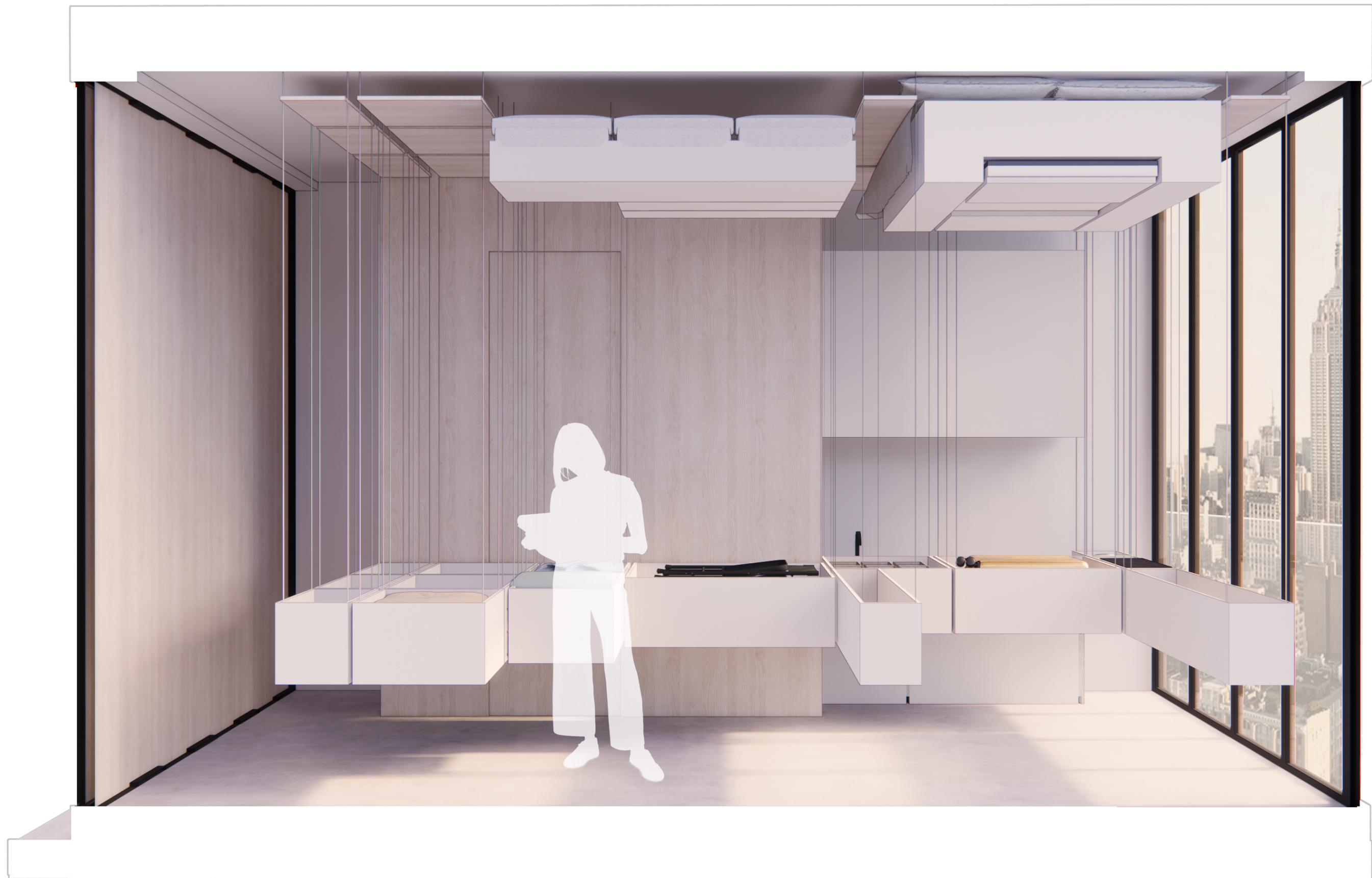


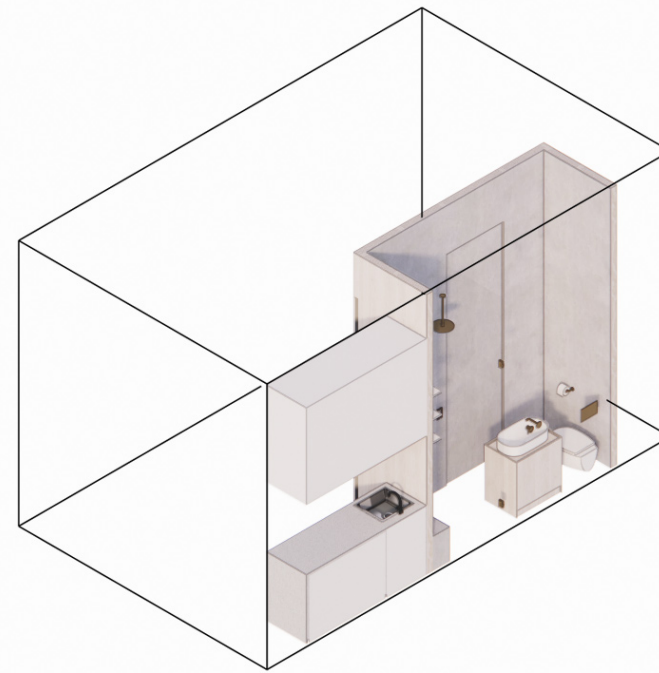




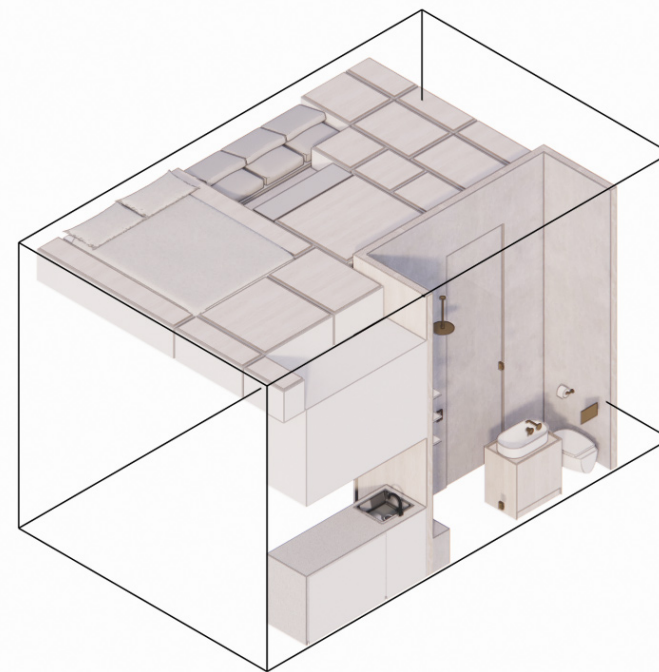




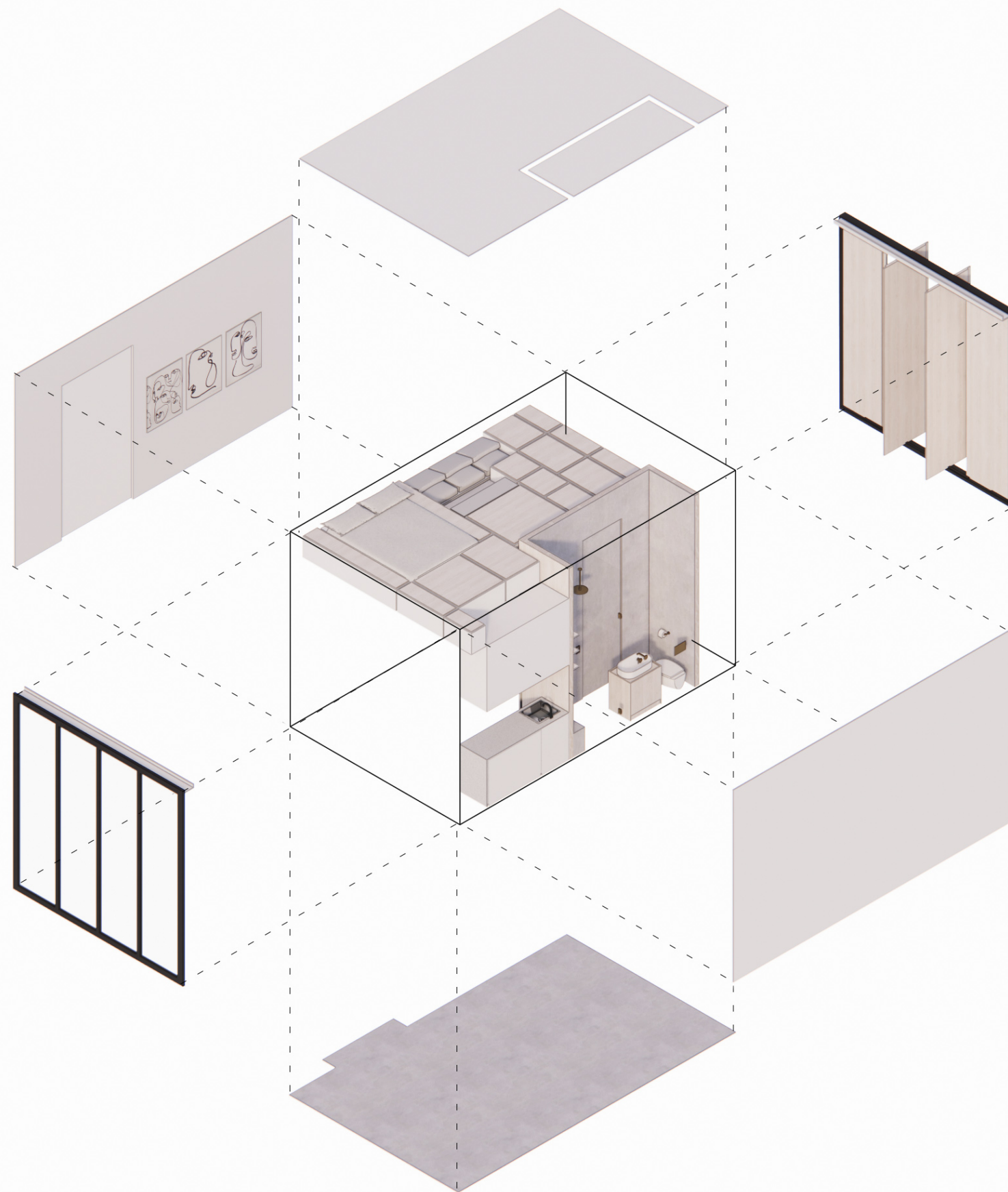




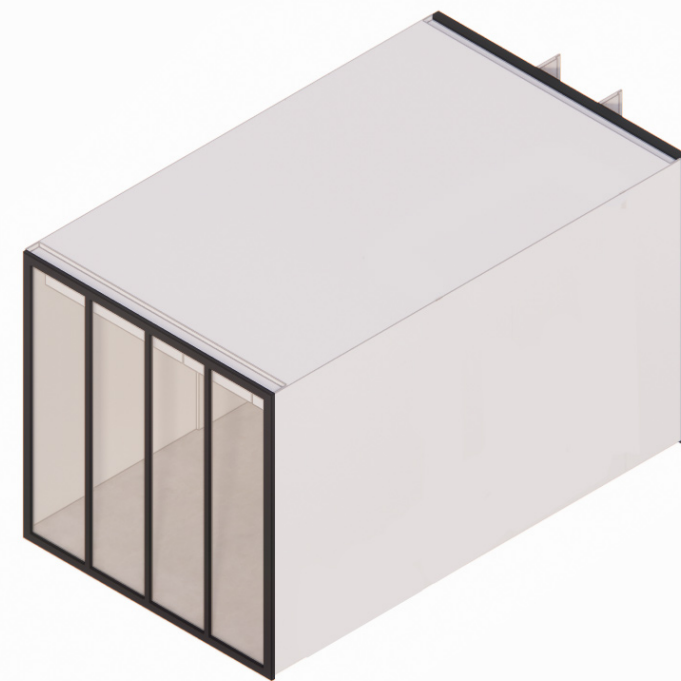
interior design



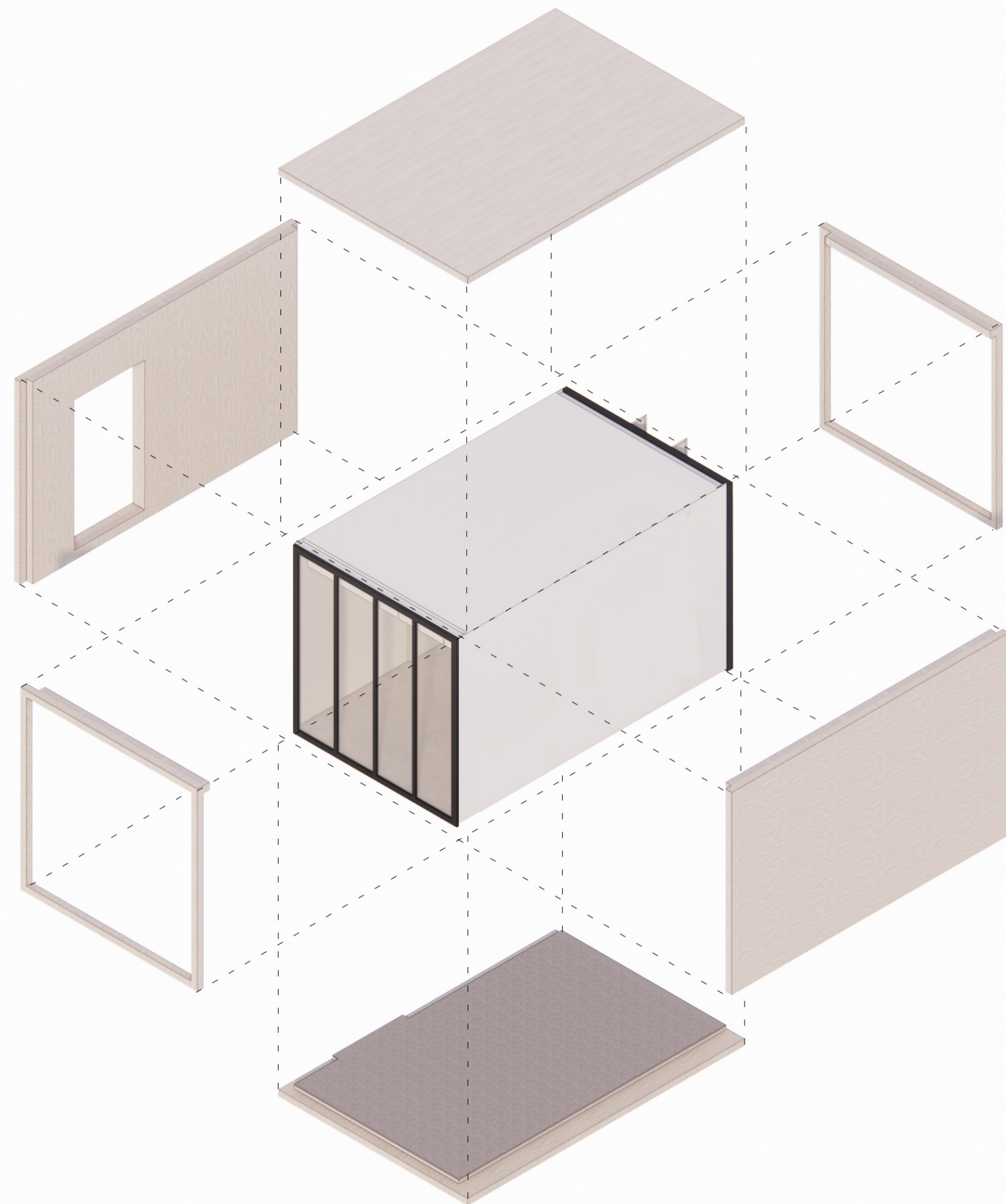
furnitecture design



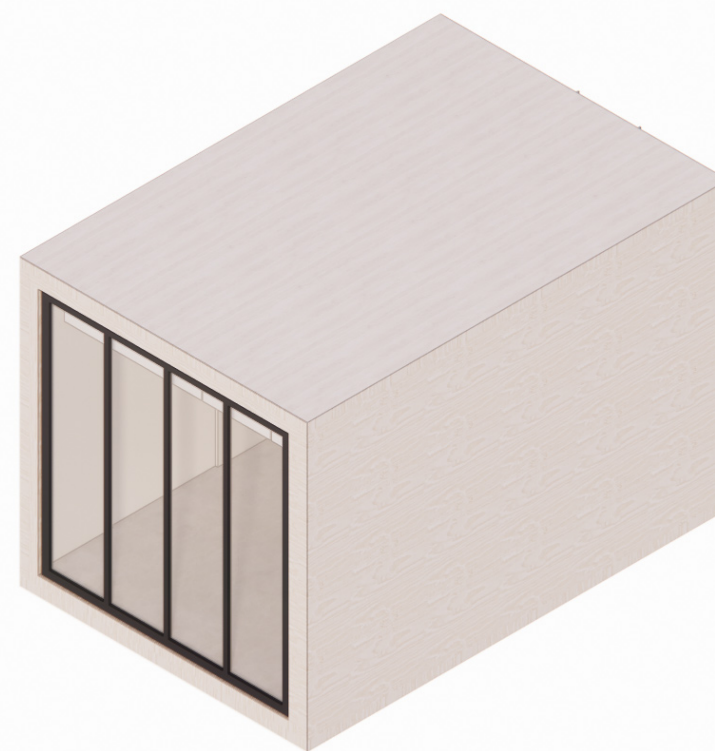
interior finishing



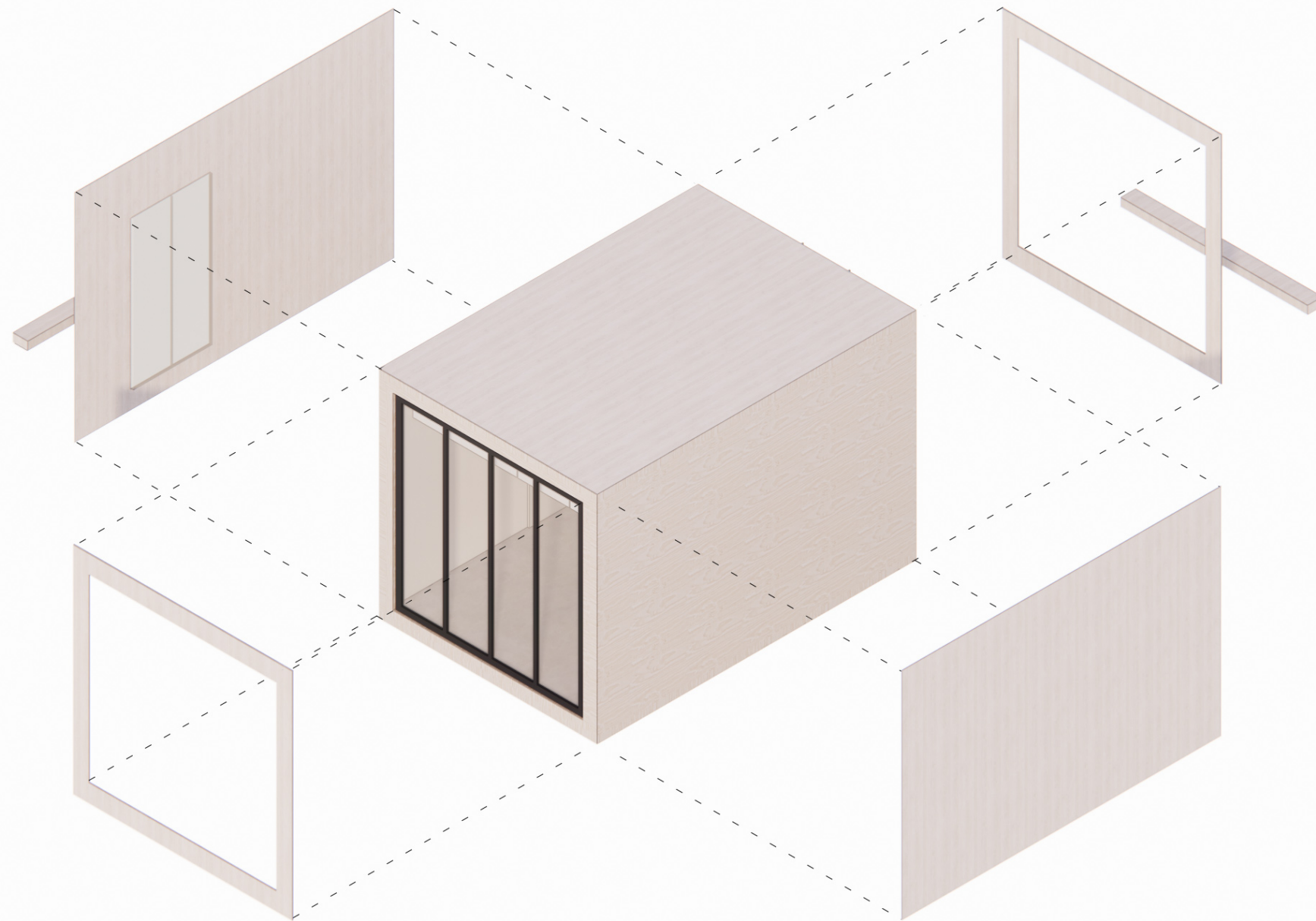
interior finishing



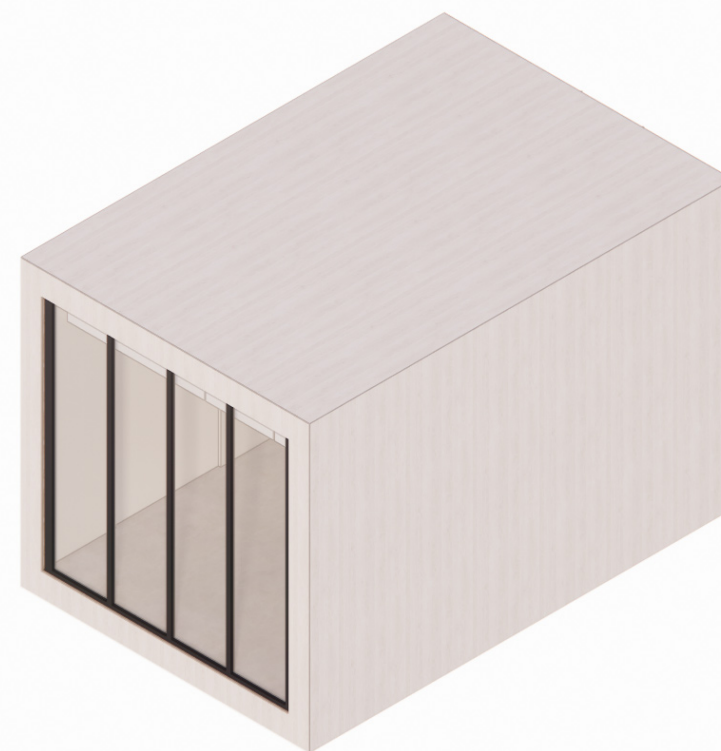
insulation and CLT structure



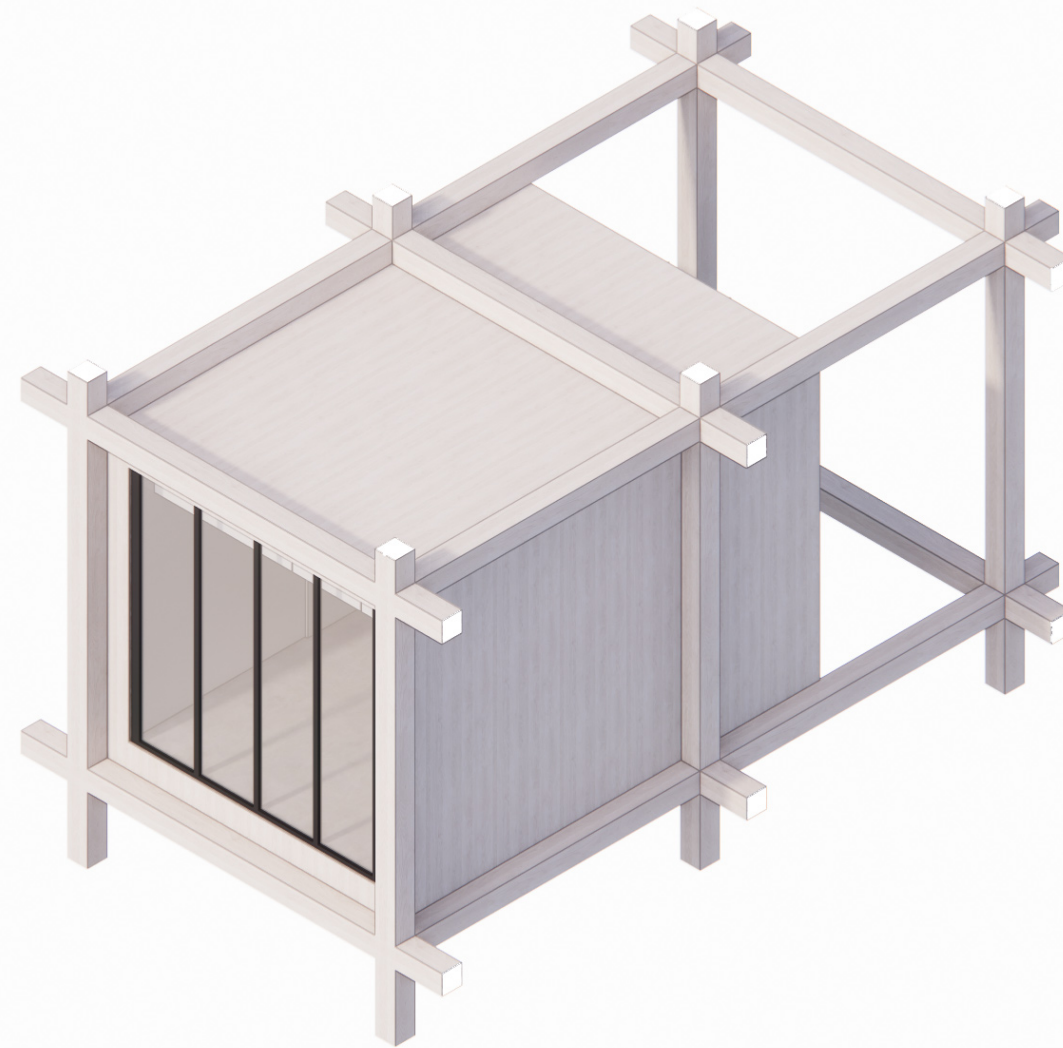
insulation and CLT structure



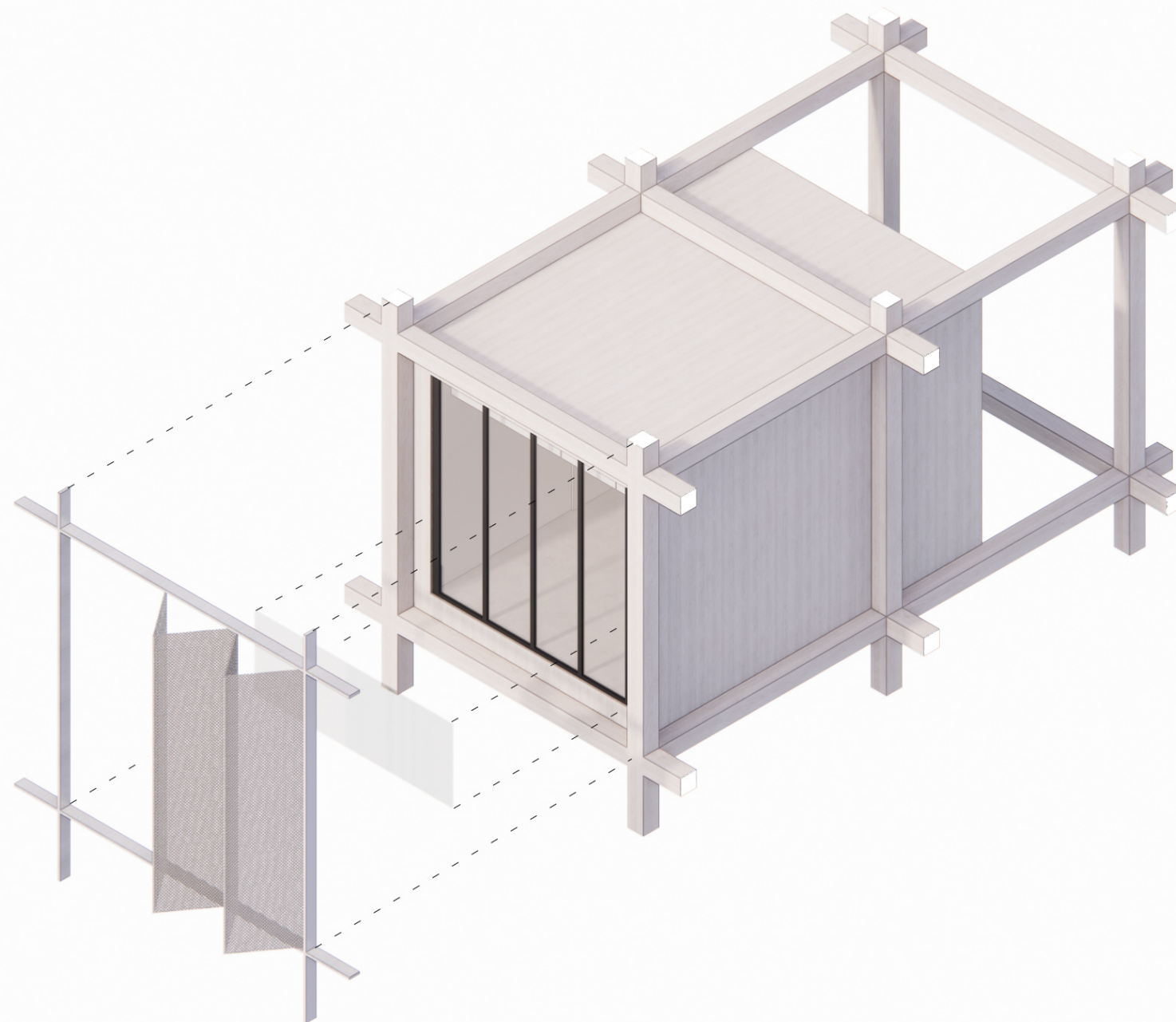
exterior finishing



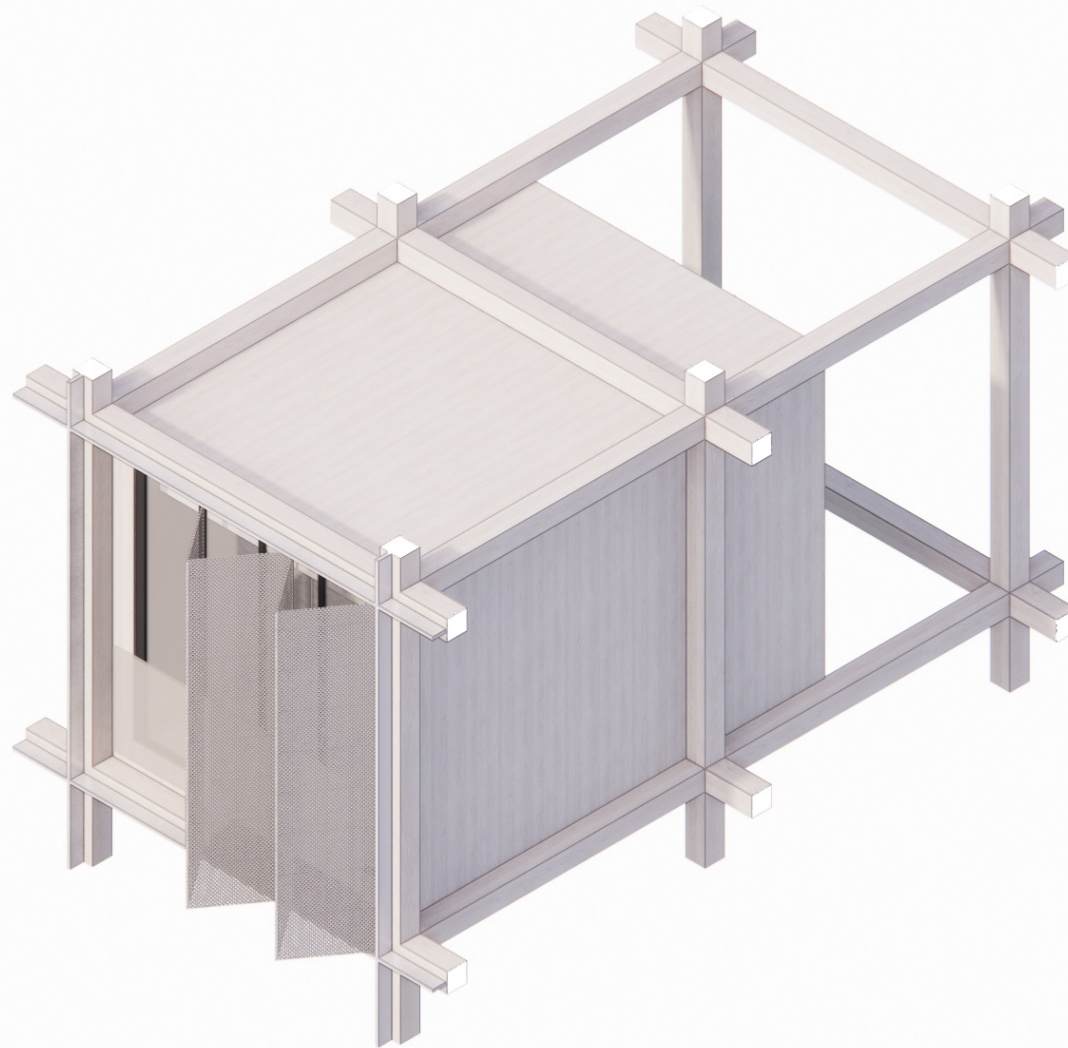
exterior finishing



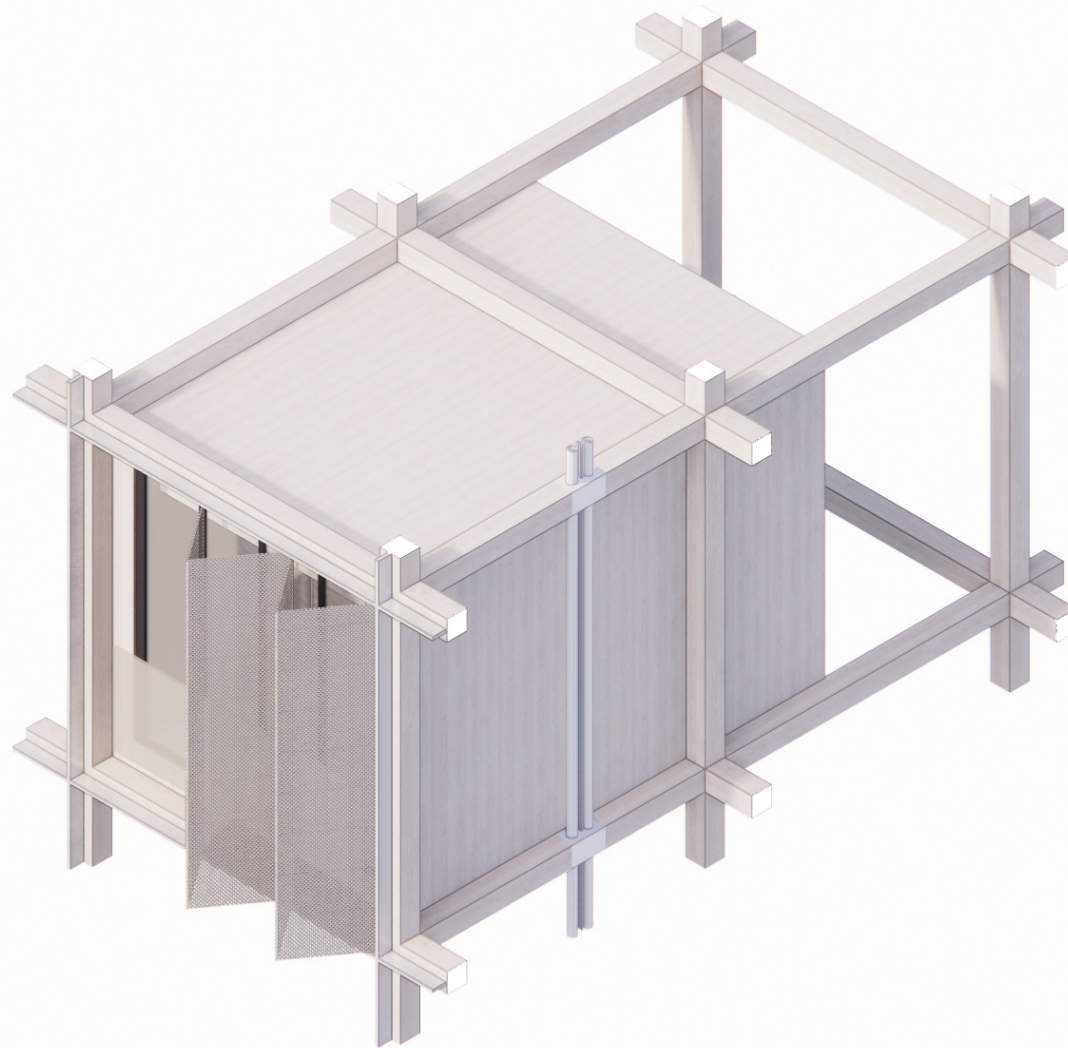
structural grid



curtain wall façade



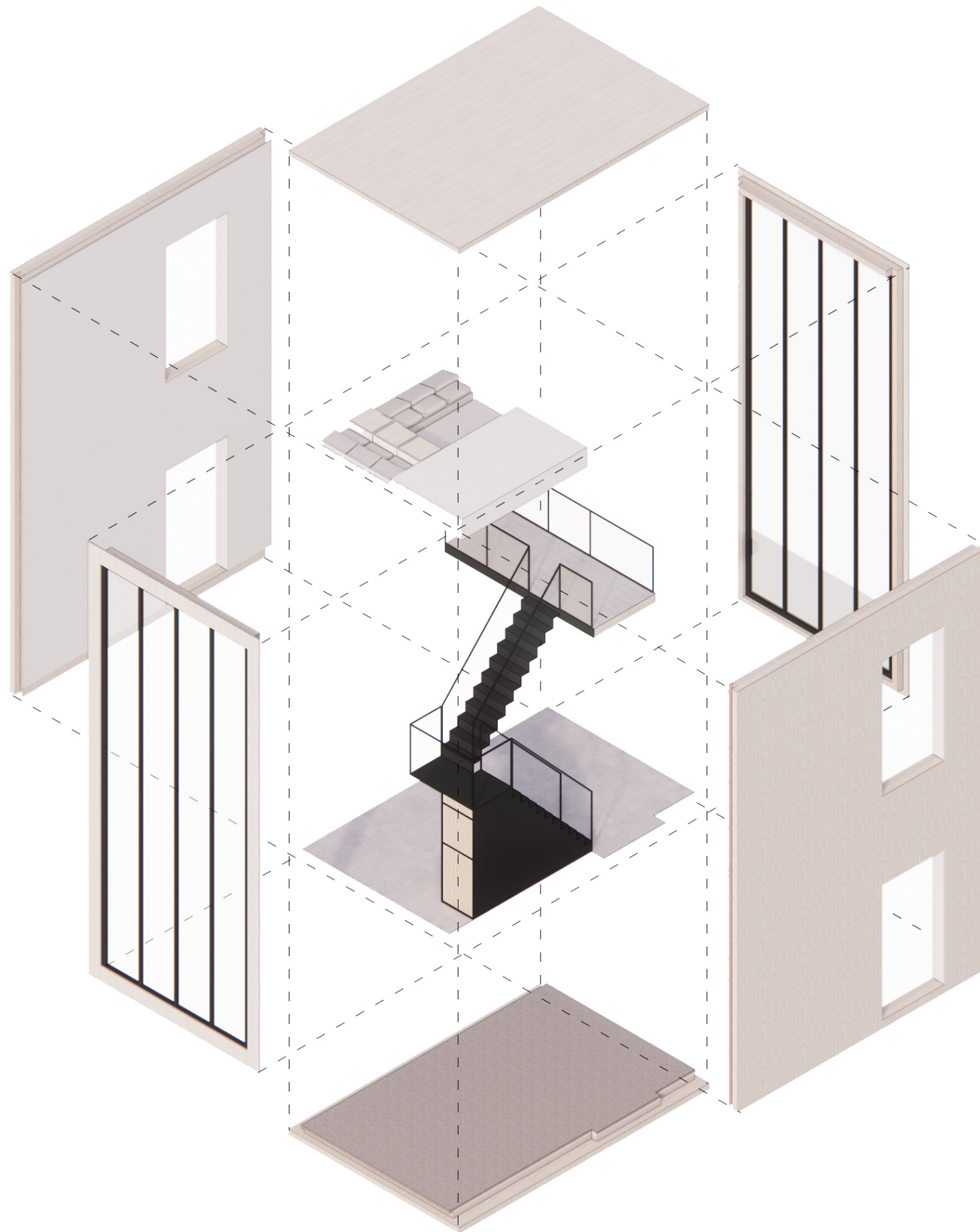
curtain wall façade

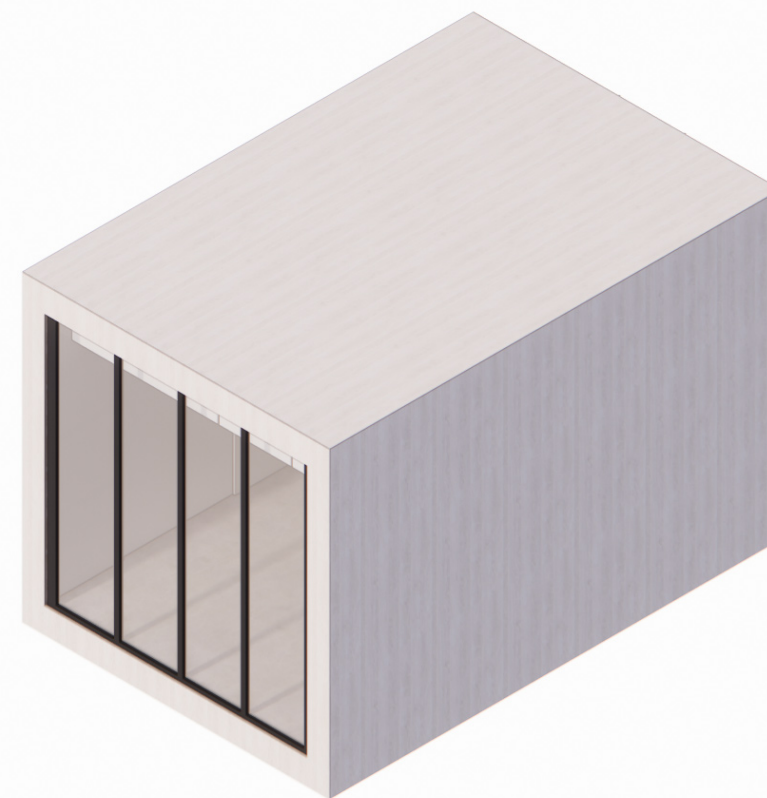


installations

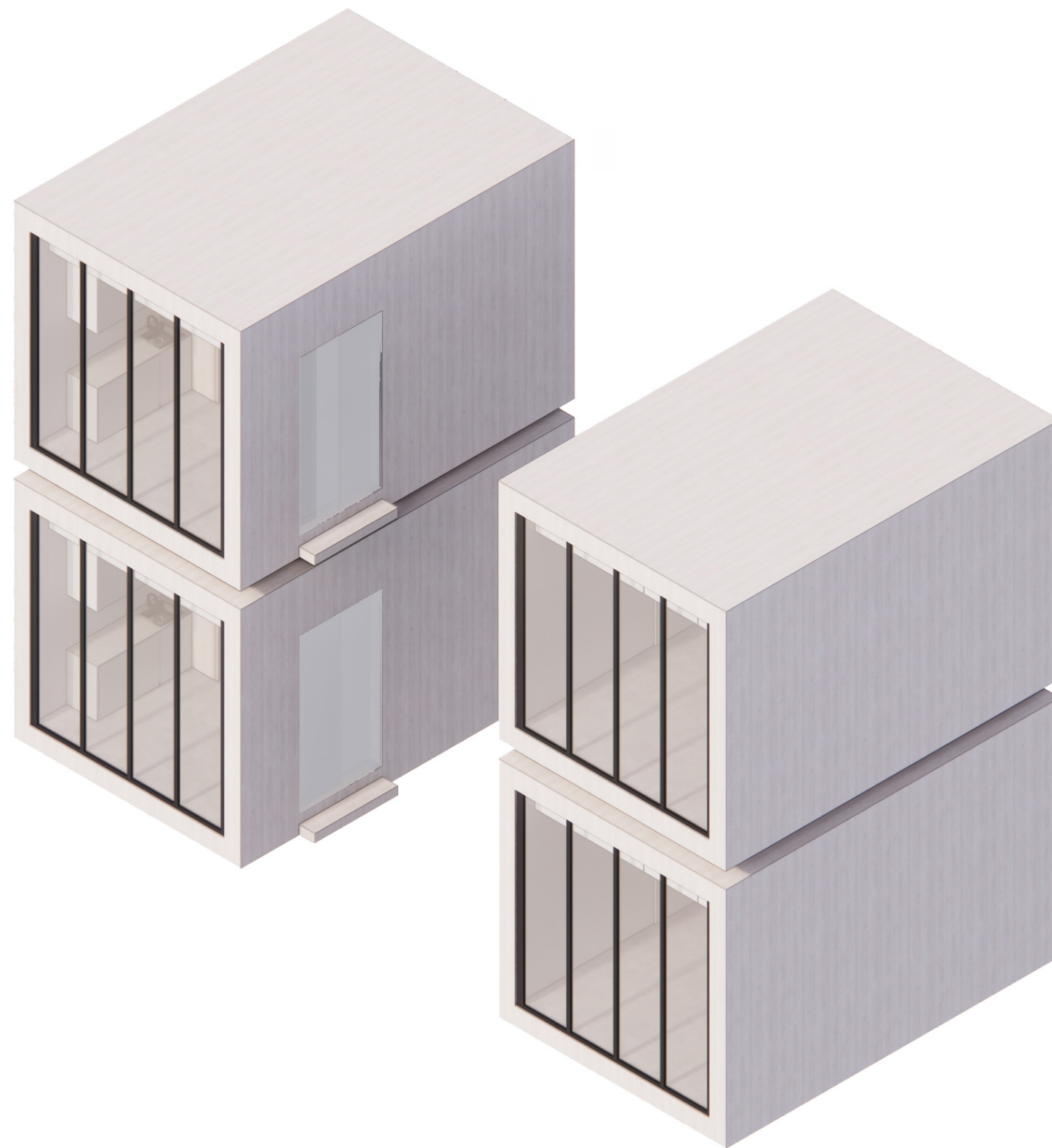
Nº 2 THE **EXPRESSIVE** SPACES



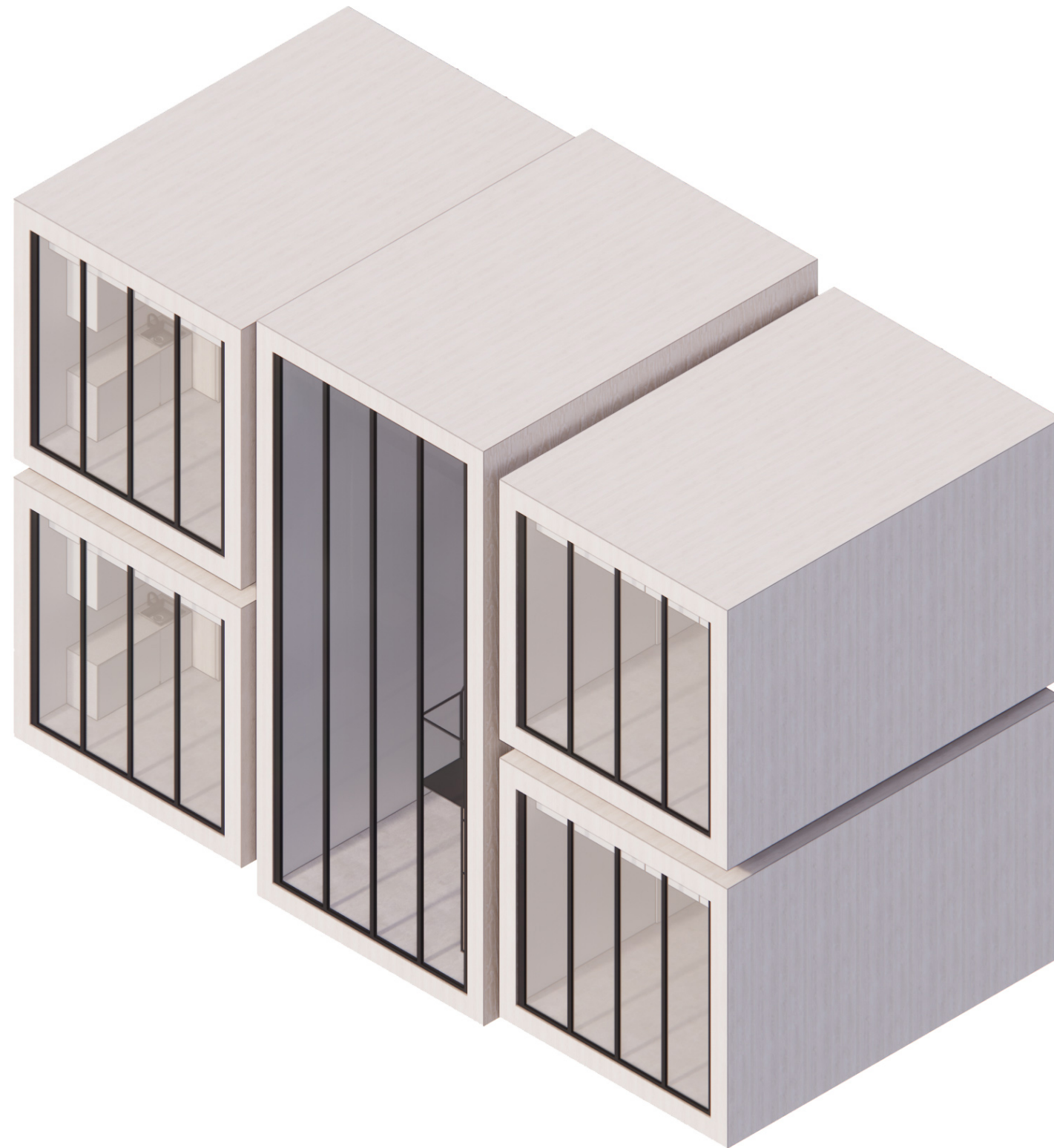




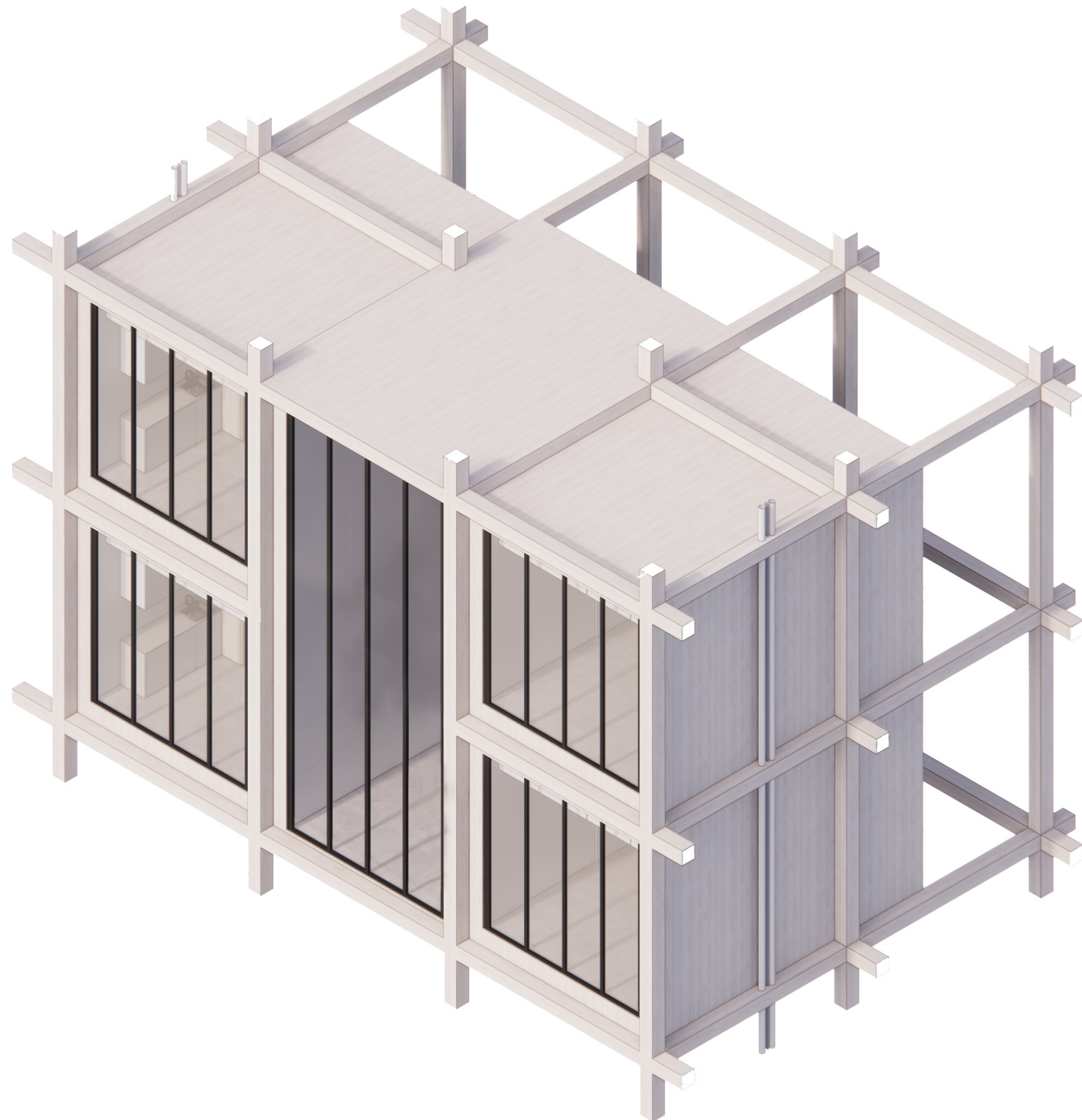
what is the relationship between the apartment and expressive space?



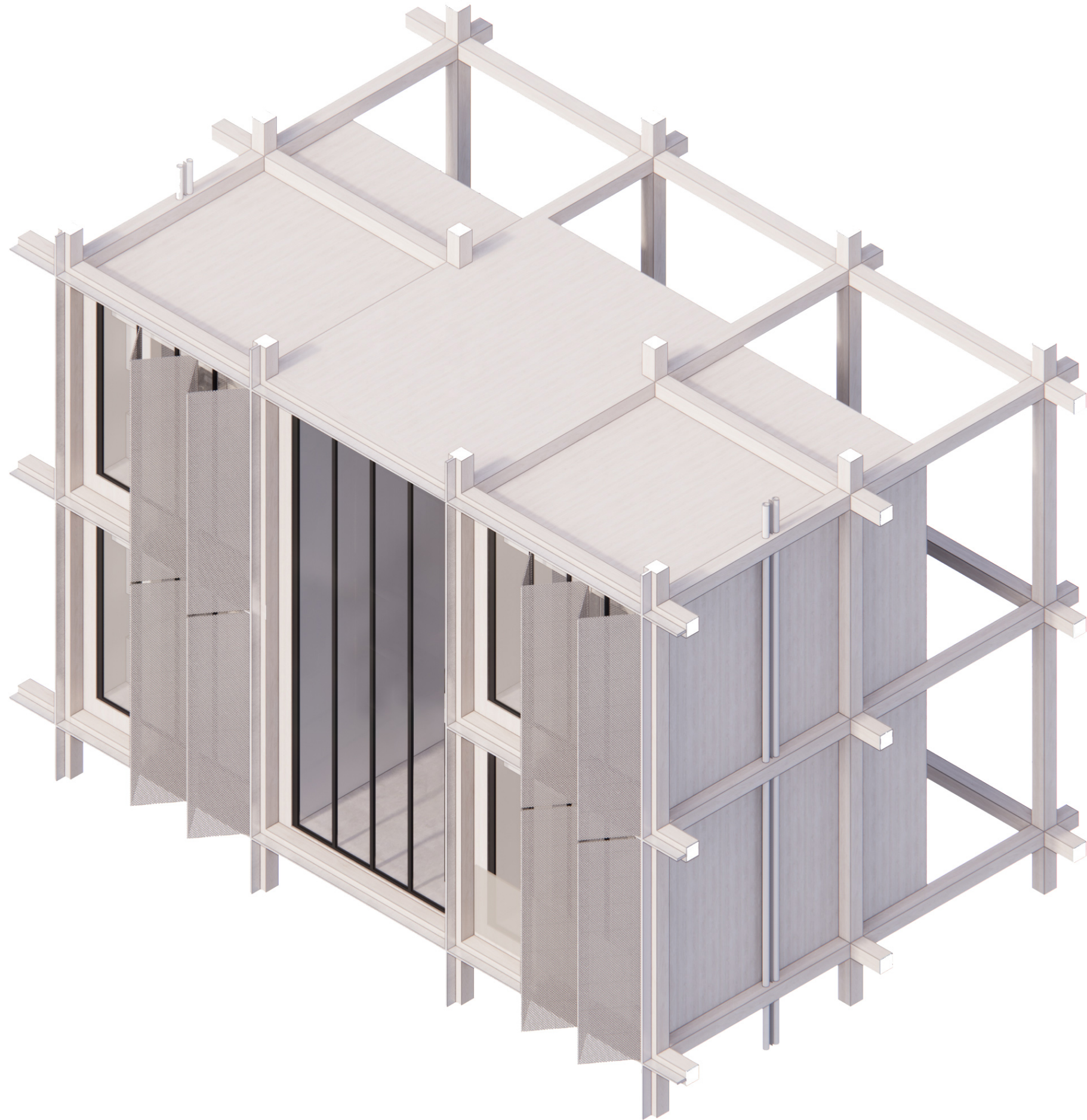
four minimal apartments



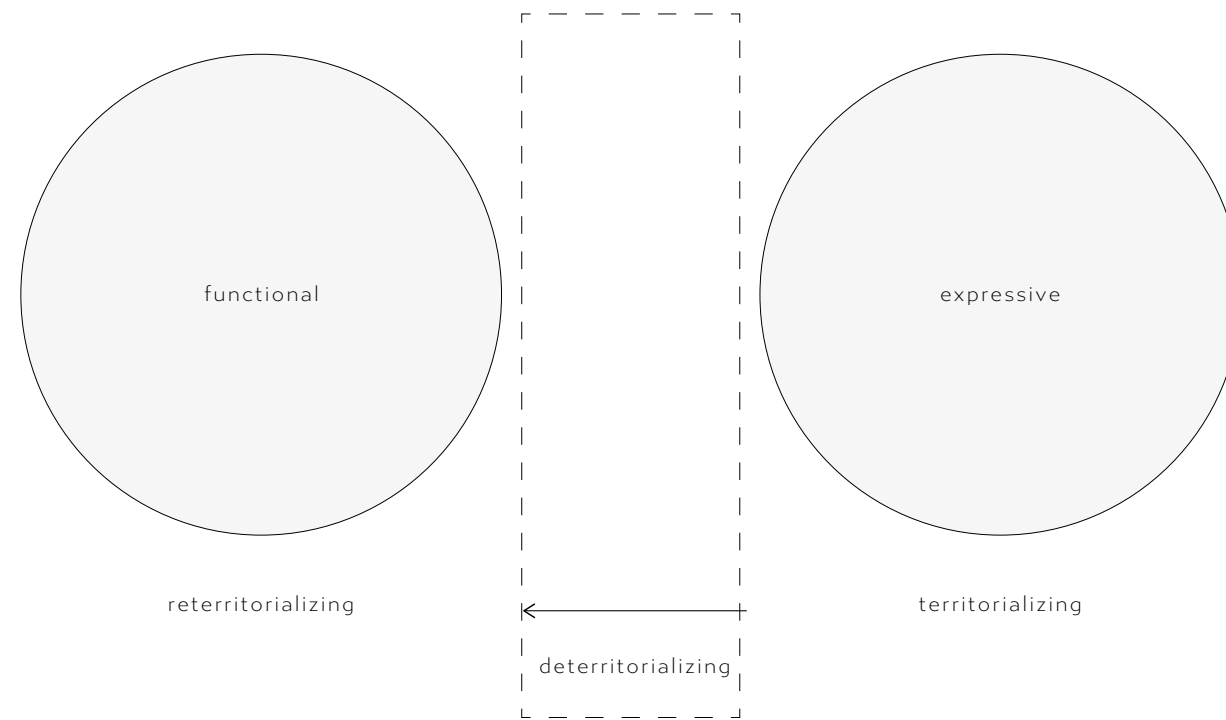
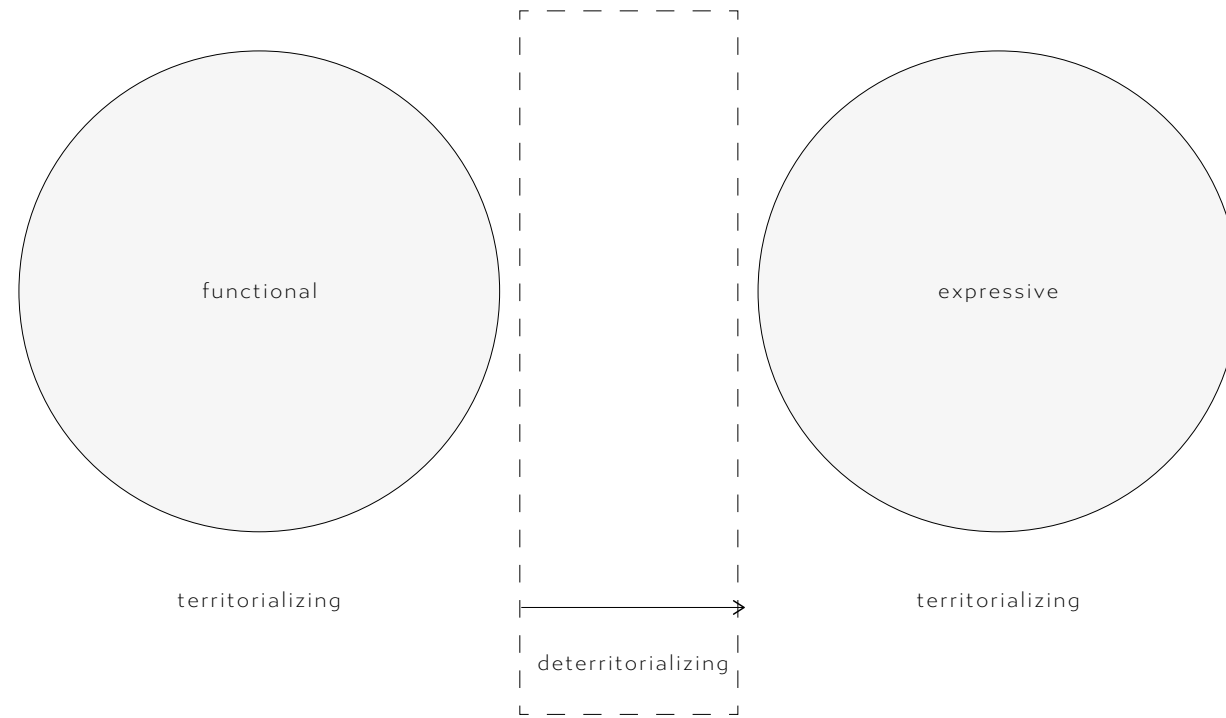
one expressive space



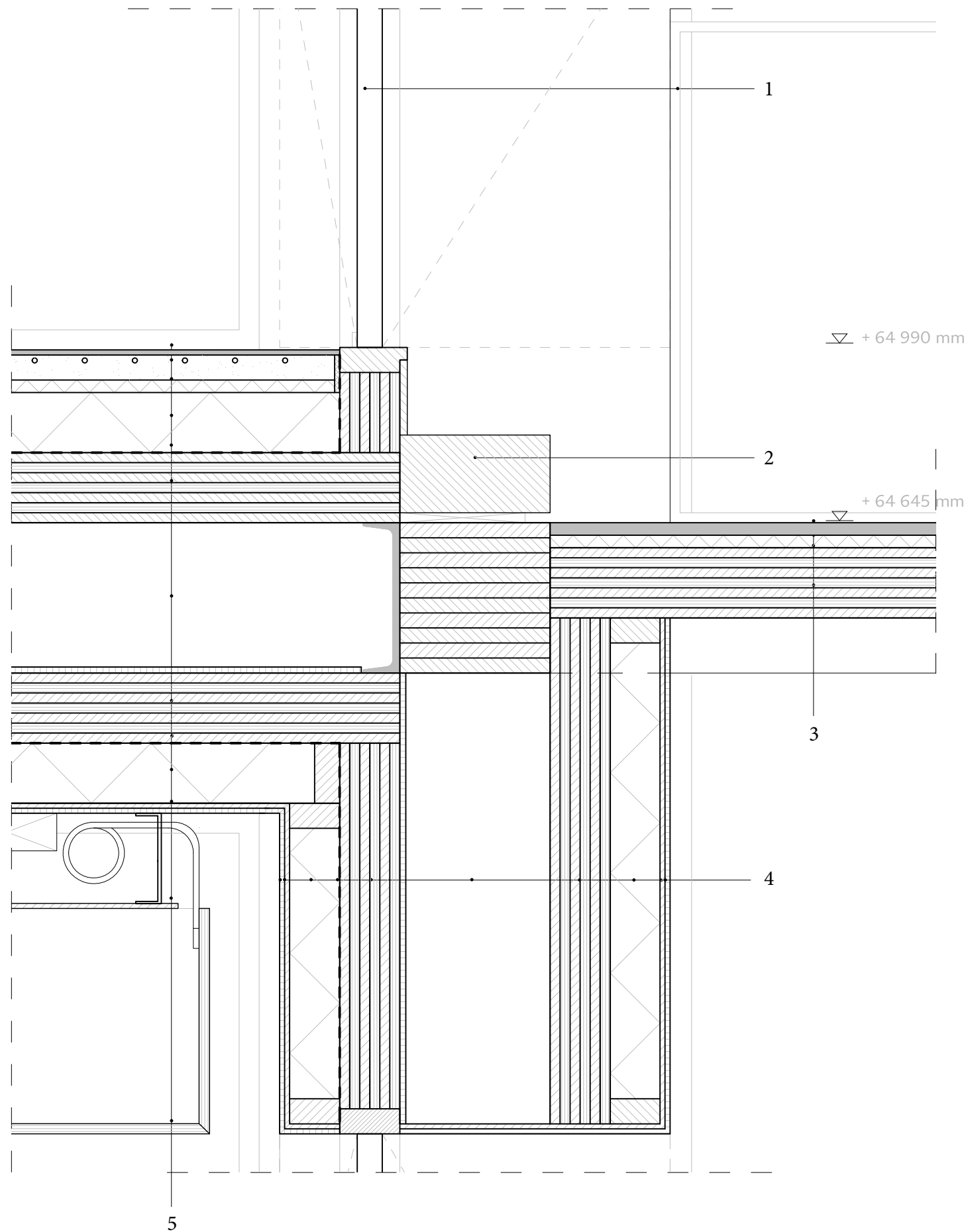
timber grid around it



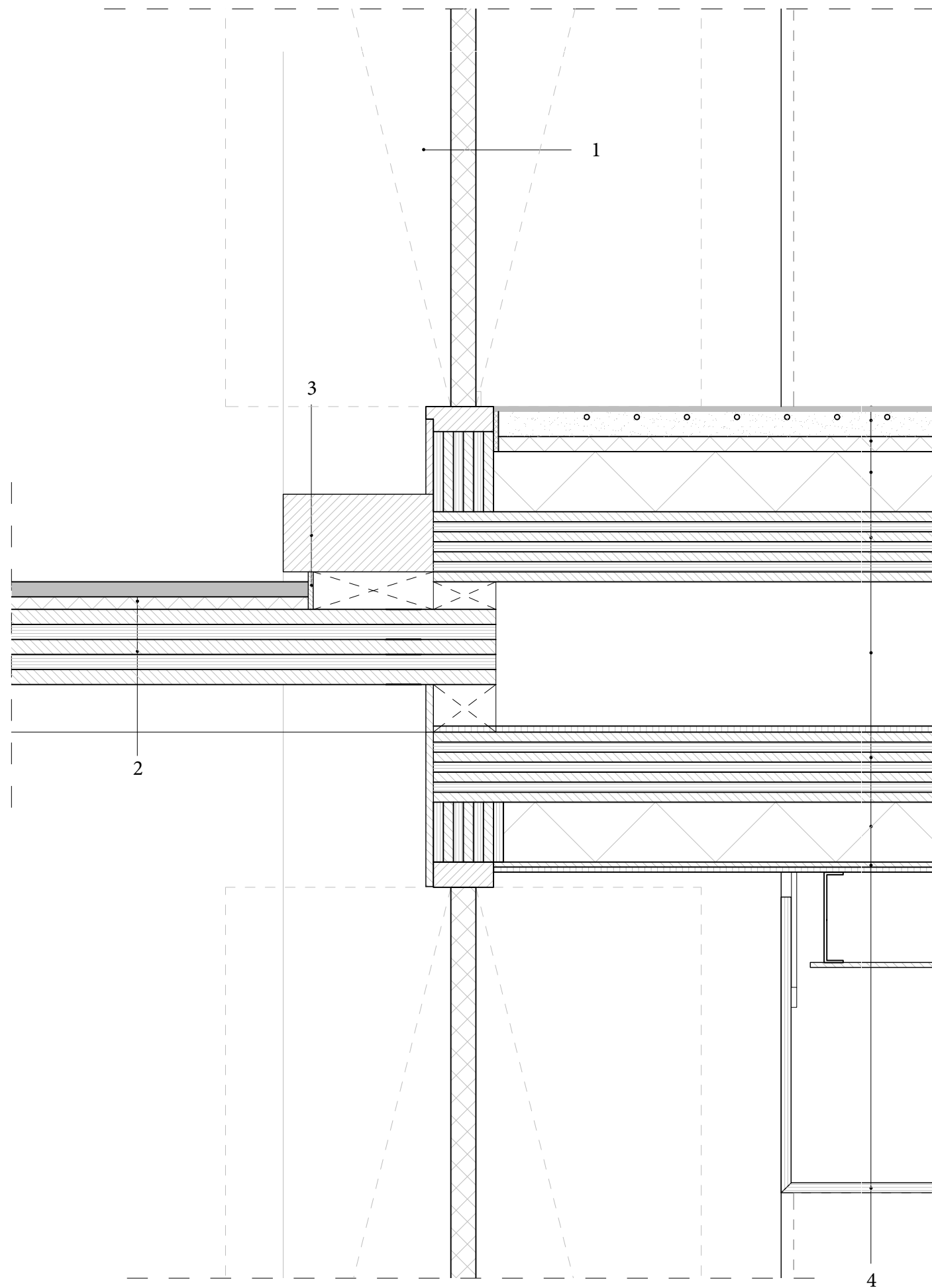
façade in curtain wall system





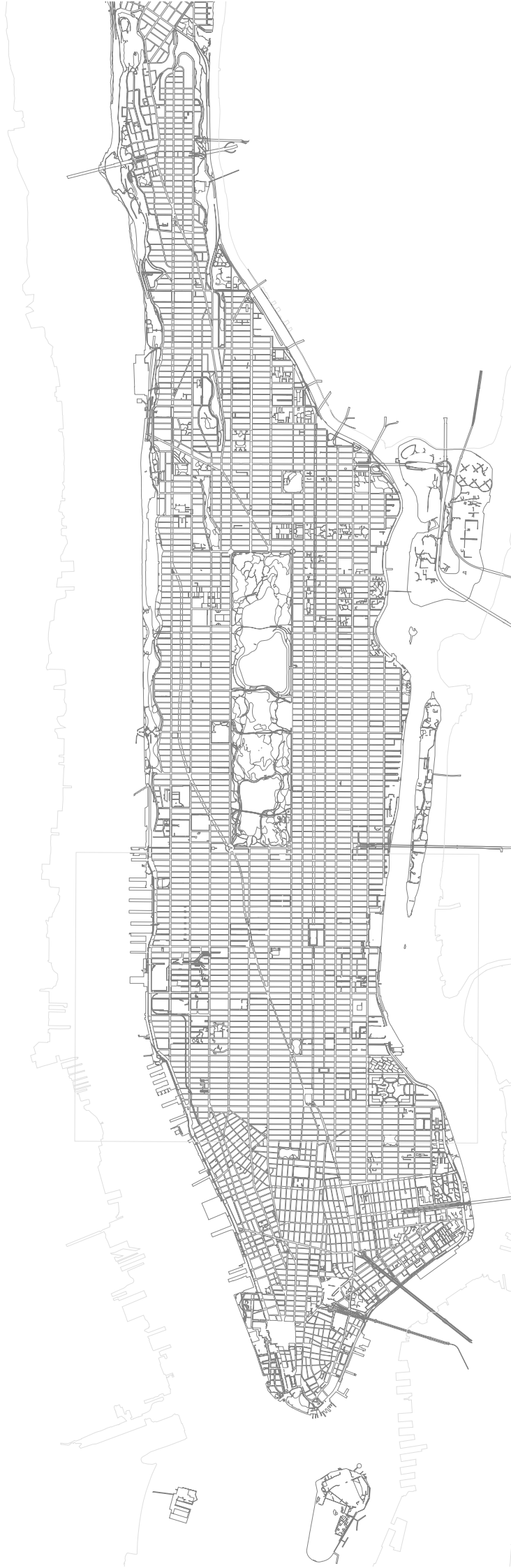


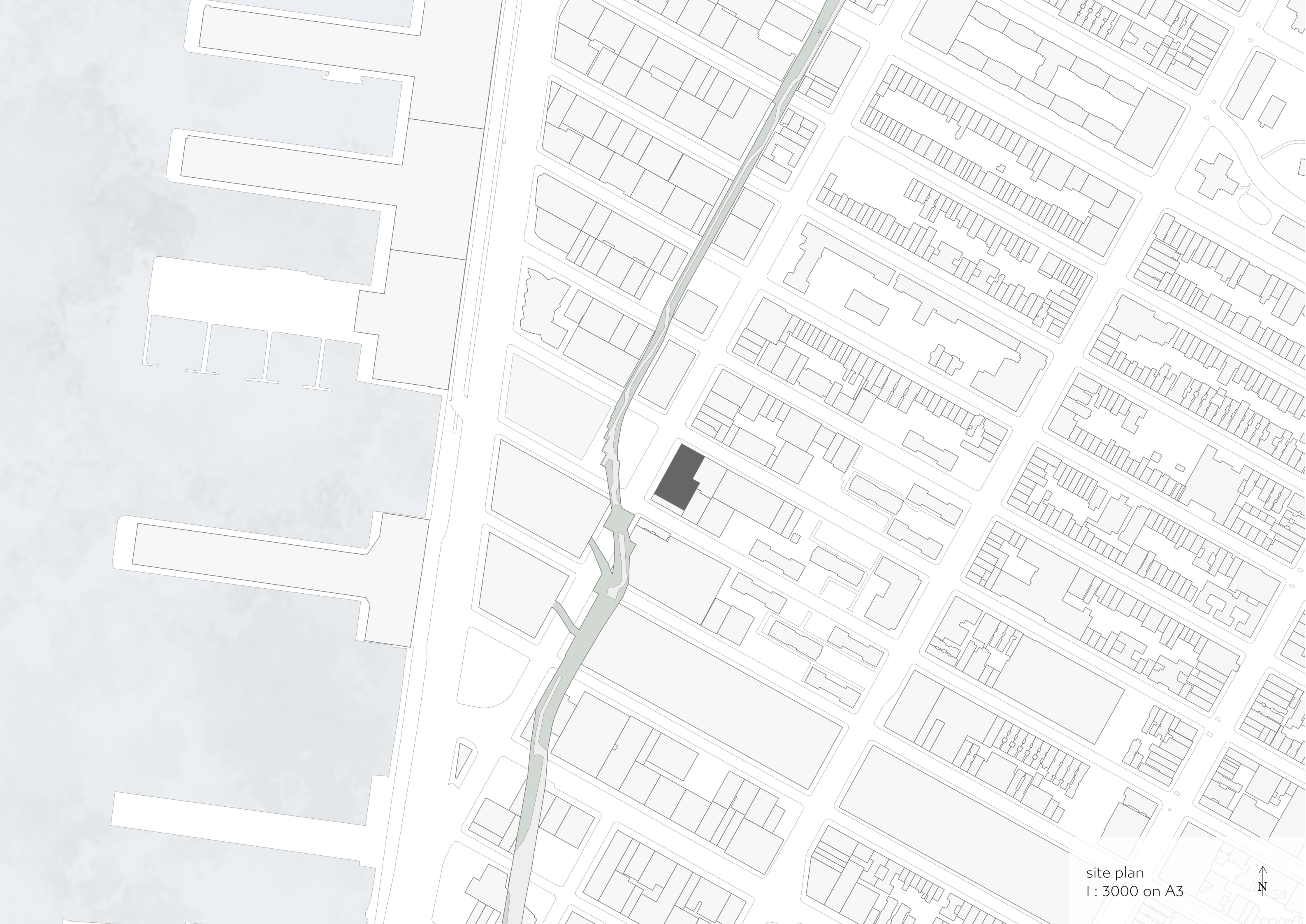
1	glass pivot door	50
	steel frame railing h=1000	20 x 20
2	american chestnut (massive)	300 x 150
	timber attachment (black finishing)	250 x 20
3	grey epoxy finishing	30
	accoustic insulation	30
	CLT floor (7 layers x 20 mm)	140
4	plasterboard	12,5
	MDF panel	20
	insulation in timber frame	120
	vapour barrier (<i>polyethylene membrane</i>)	-
	CLT wall (7 layers x 20 mm)	140
	beech glulam column	300 x 300
	gypsum fireproofing	12,5
	CLT wall (7 layers x 20 mm)	140
	insulation in timber frame	120
	MDF panel	20
	plasterboard	12,5
5	concrete floor finishing	10
	underfloor heating / cooling	50
	accoustic insulation	30
	insulation	120
	vapour barrier (<i>polyethylene membrane</i>)	-
	CLT floor (7 layers x 20 mm)	140
	beech glulam beam	300 x 300
	gypsum fireproofing	12,5
	CLT floor (7 layers x 20 mm)	140
	vapour barrier (<i>polyethylene membrane</i>)	-
	insulation	120
	MDF panel	20
	plasterboard	12,5
	automated pulley system (ref. Bumblebee type S)	
	<i>specifics are yet to be determined.</i>	
	american chestnut finishing	10
	<i>attached with steel C anchors</i>	
	american chestnut containers h=450	20



1	timber pivot door <i>eclisse accoustic panel (or similar)</i> <i>american chestnut veneer finishing</i> <i>steel frame, black finishing</i>	50
2	epoxy flooring white high shine finish	30
	accoustic insulation	30
	CLT floor (7 layers x 20 mm)	140
3	american chestnut (massive) timber attachment (black finishing)	300 x 150 250 x 20
4	concrete floor finishing	10
	underfloor heating	50
	accoustic insulation	30
	insulation	120
	vapour barrier (<i>polyethylene membrane</i>)	-
	CLT floor (7 layers x 20 mm)	140
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	american chestnut finishing	10
	<i>attached with steel C ankers</i>	
	american chestnut containers h=450	20

N° 3 THE **COLLECTIVE** ATRIUM

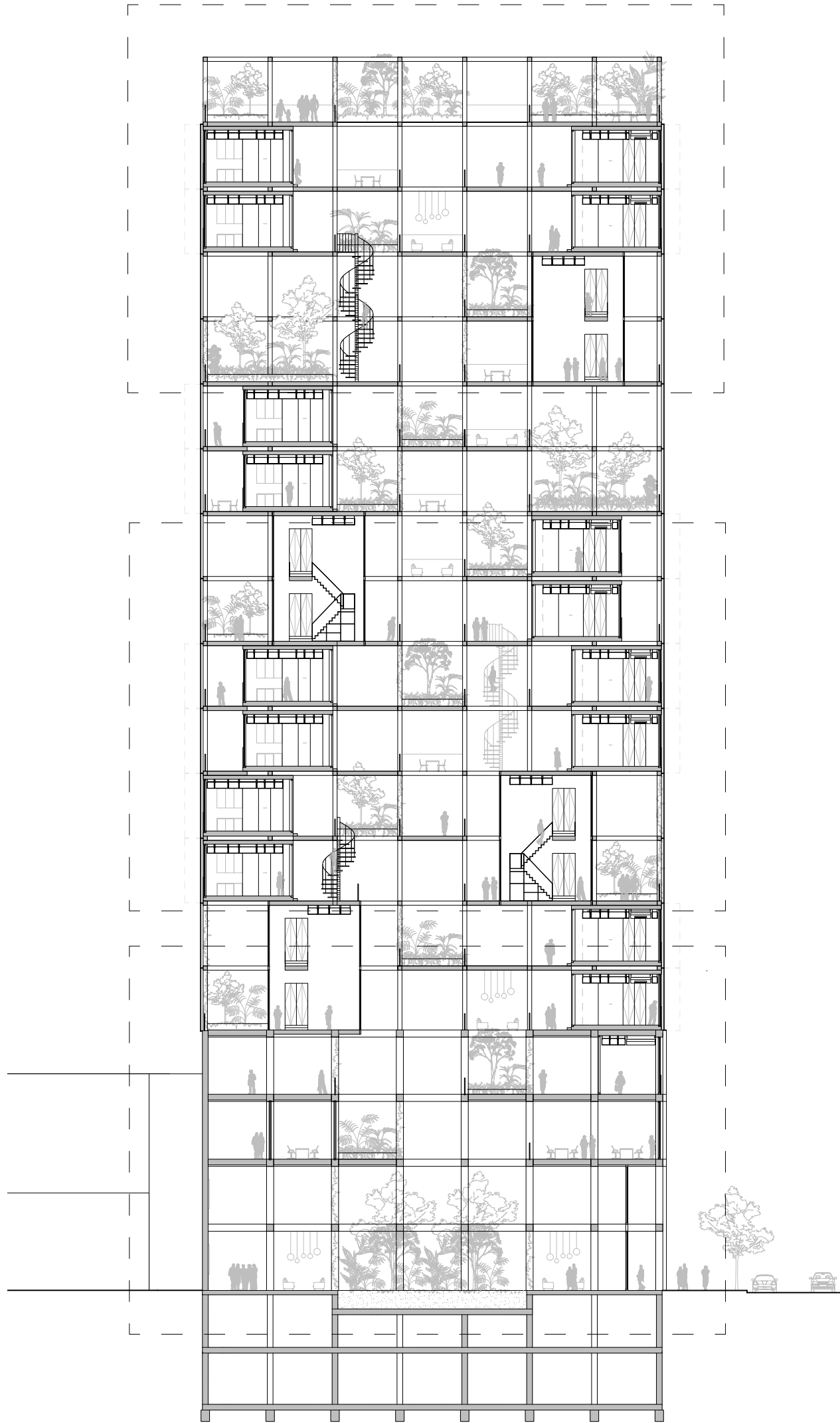


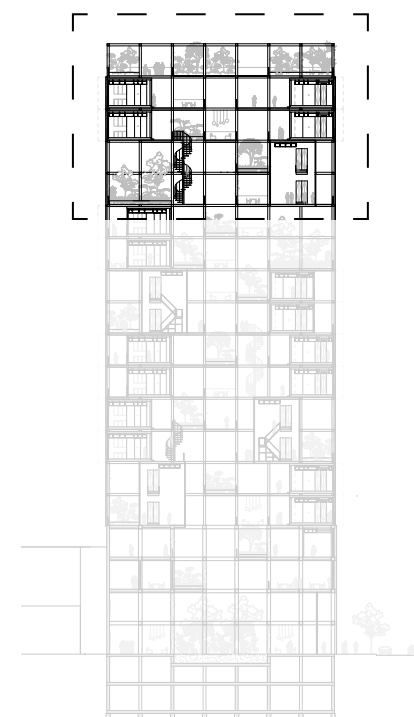
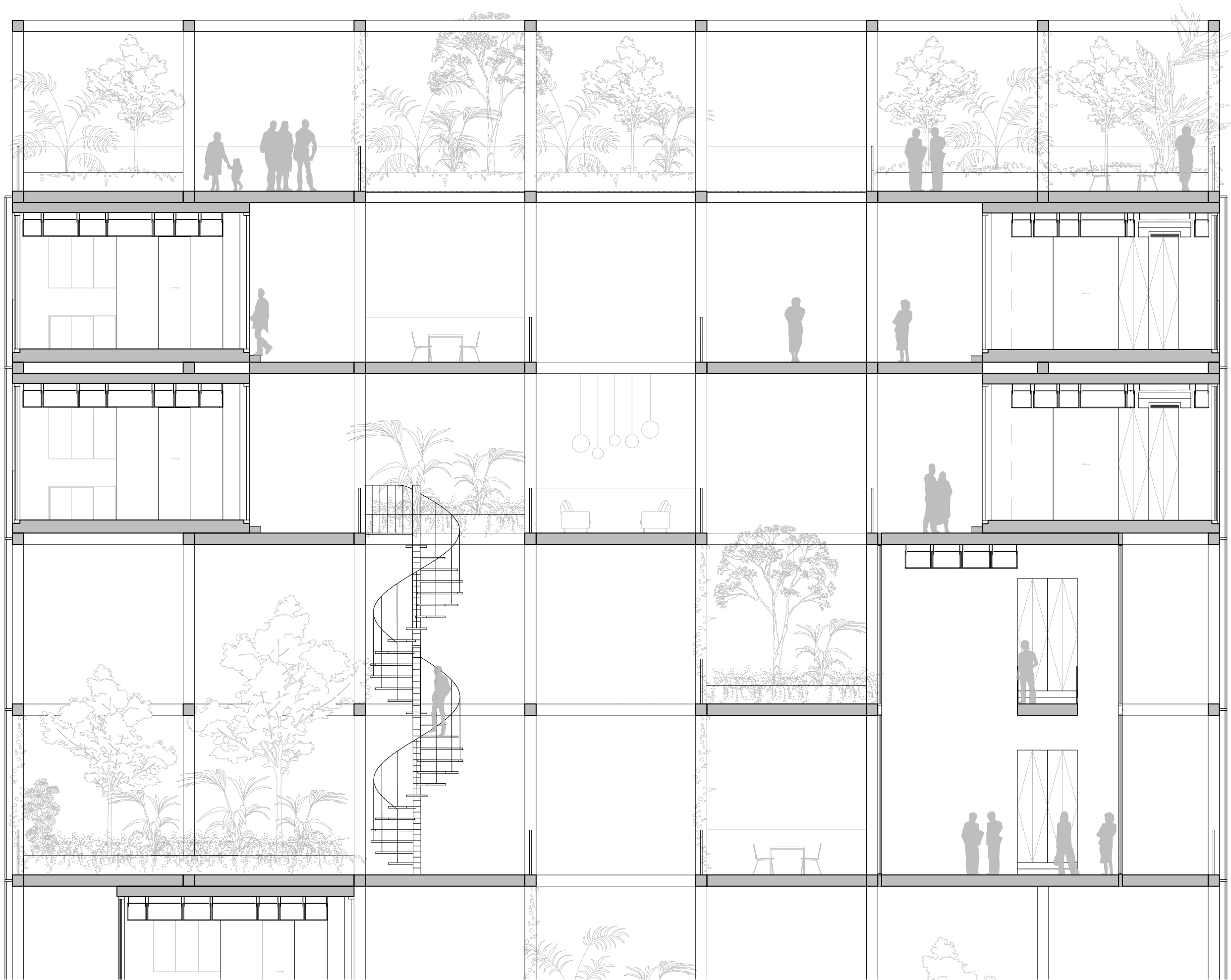


site plan
1 : 3000 on A3

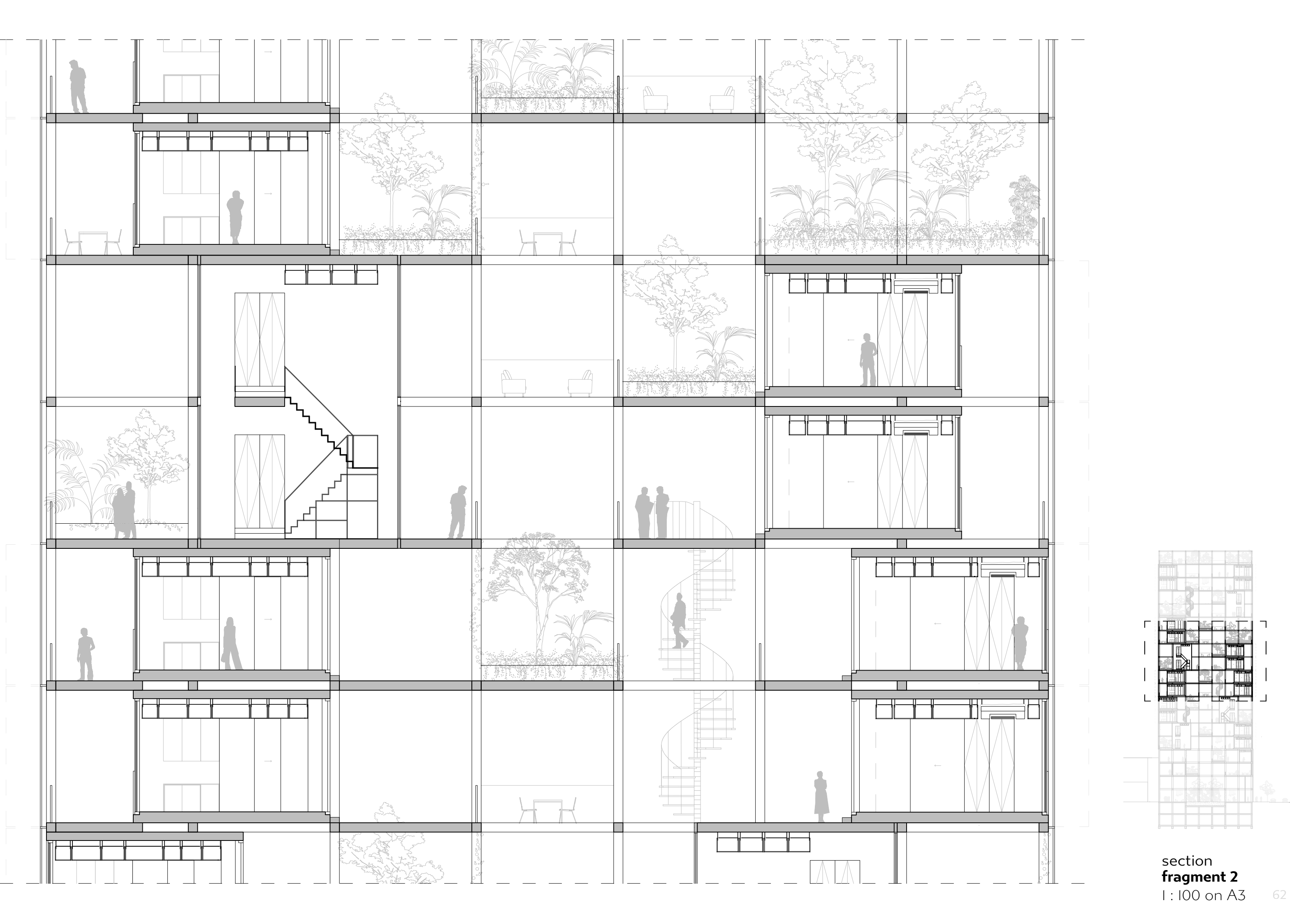


section
scaled to fit A3





section
fragment I
1 : 100 on A3



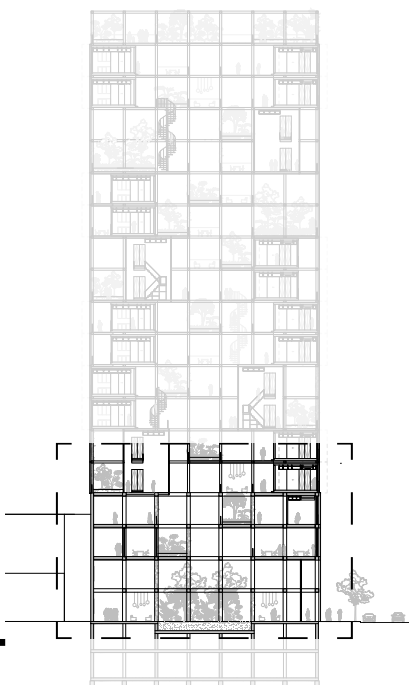
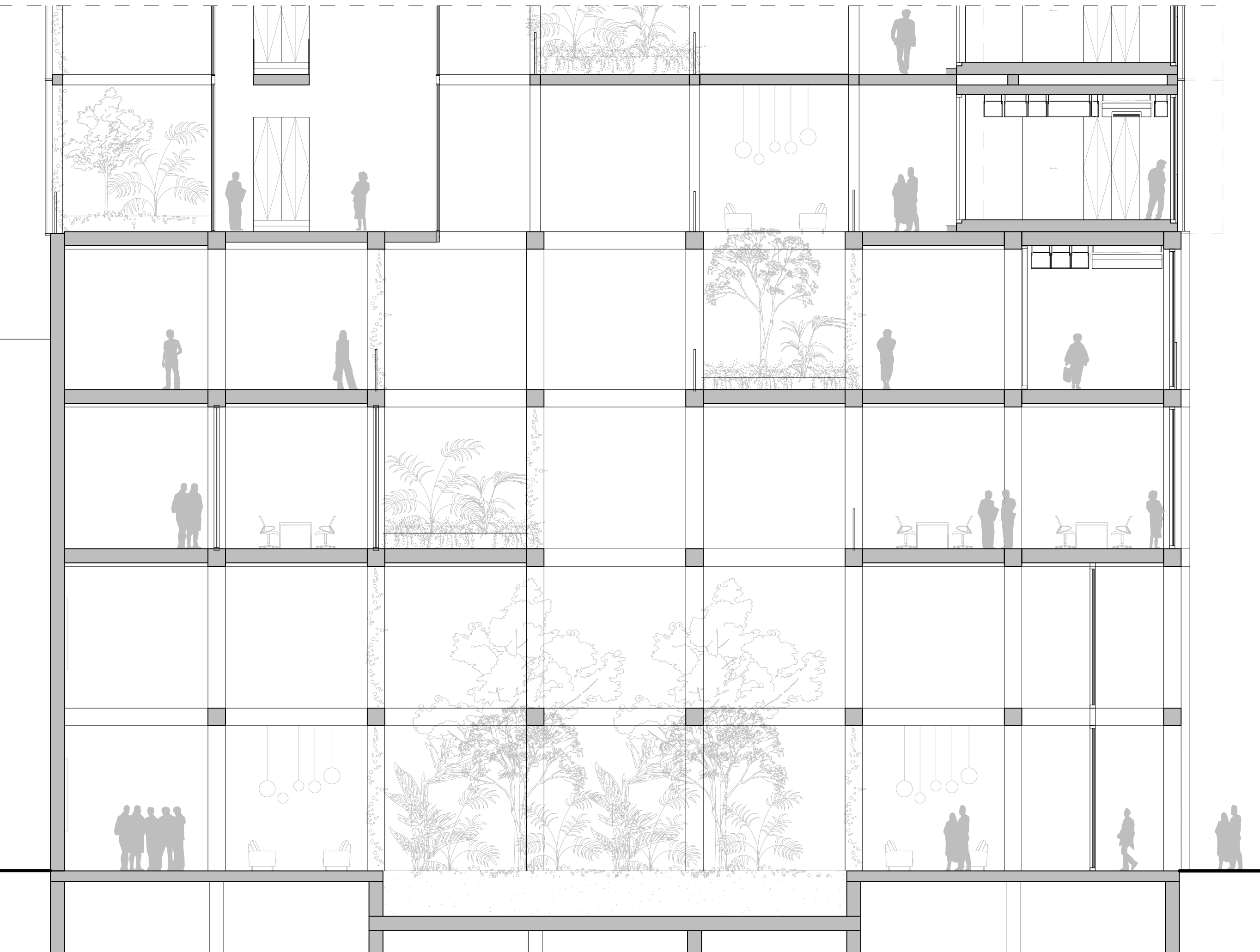
section
fragment 2
1:100 on A3



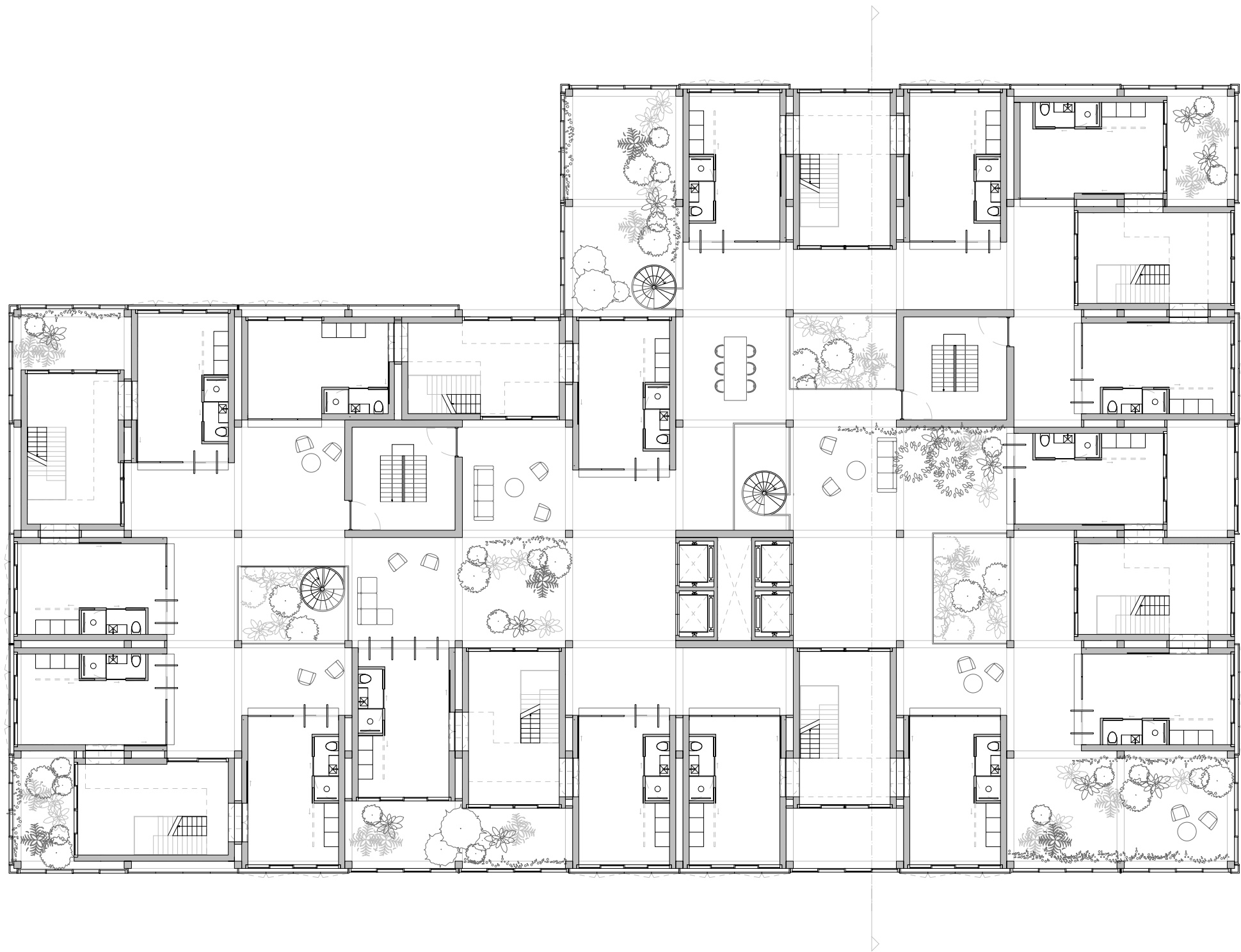
Black steel Manhattan fire escapes as a reference.



Translated to a minimal spiral staircase.

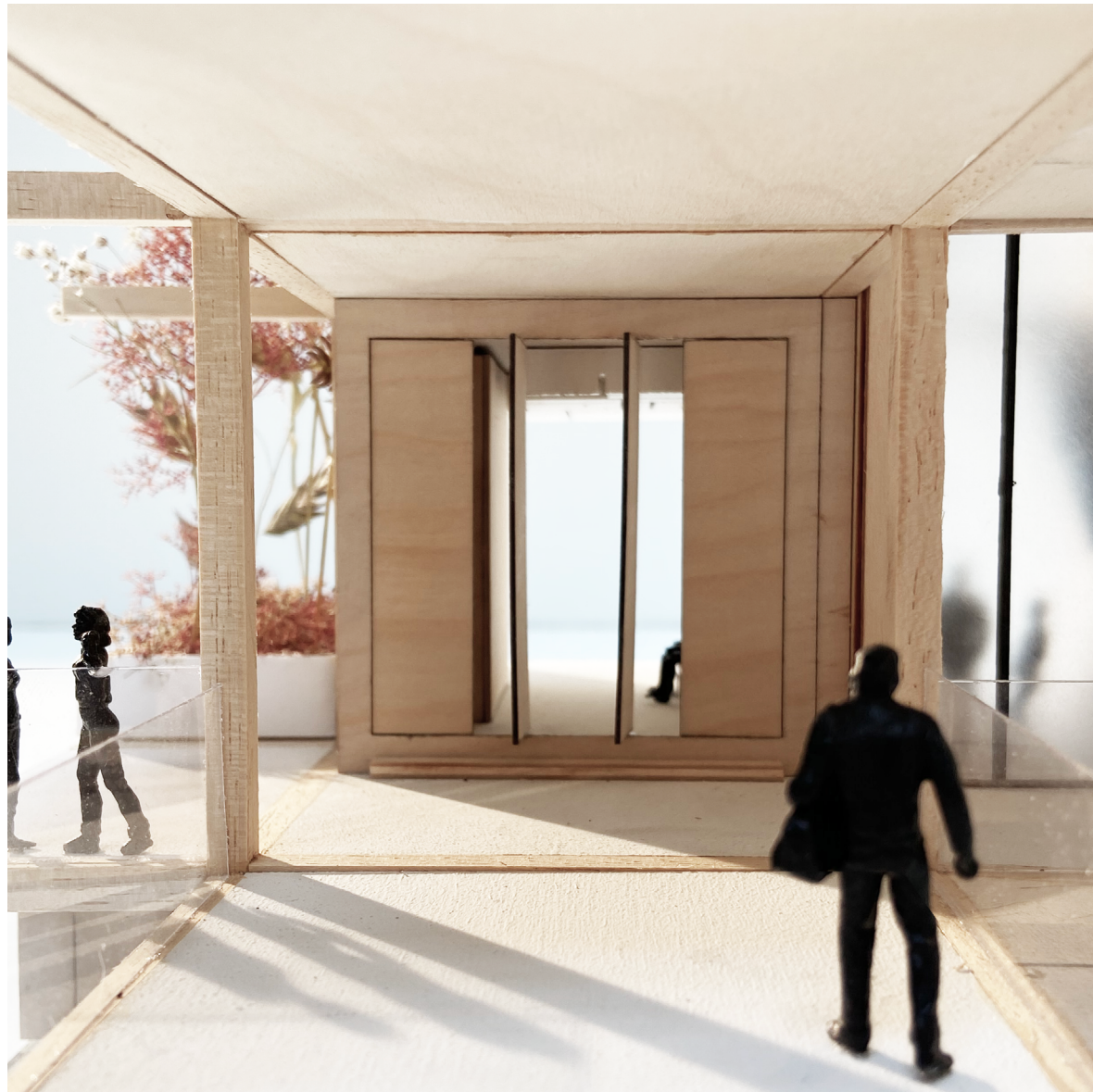


section
fragment
1:100 on A3

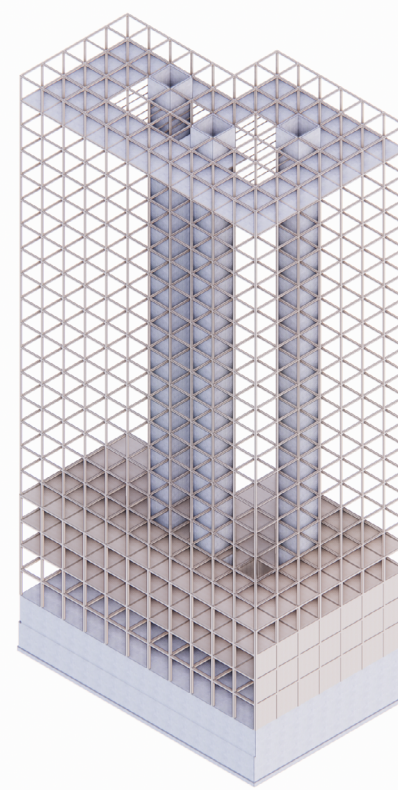
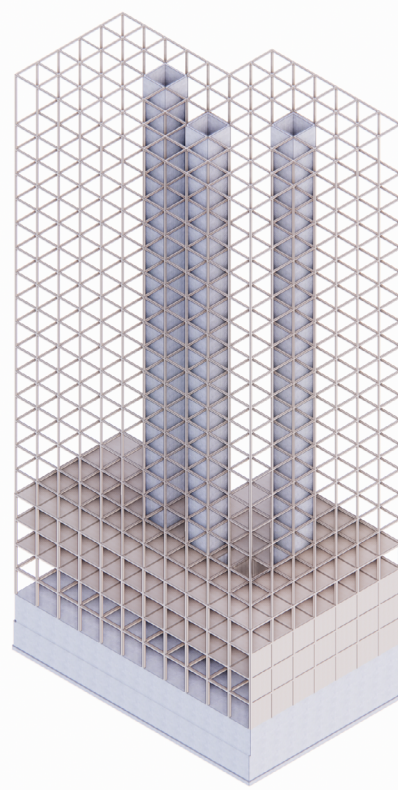
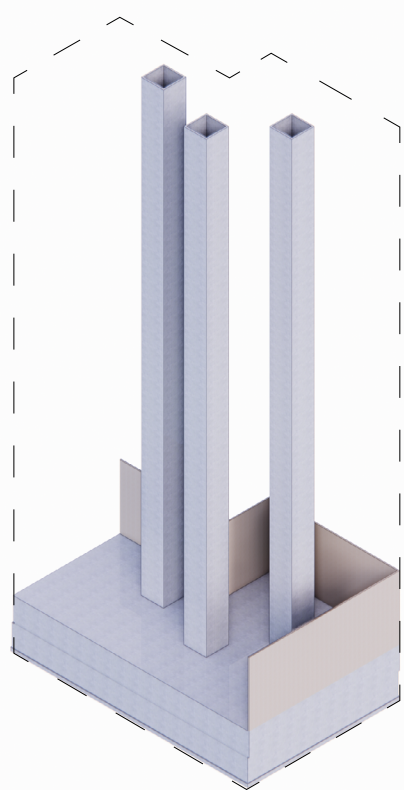
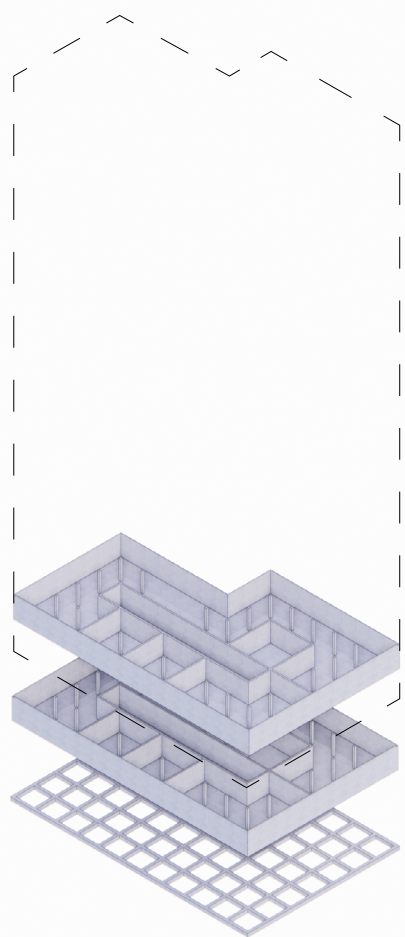


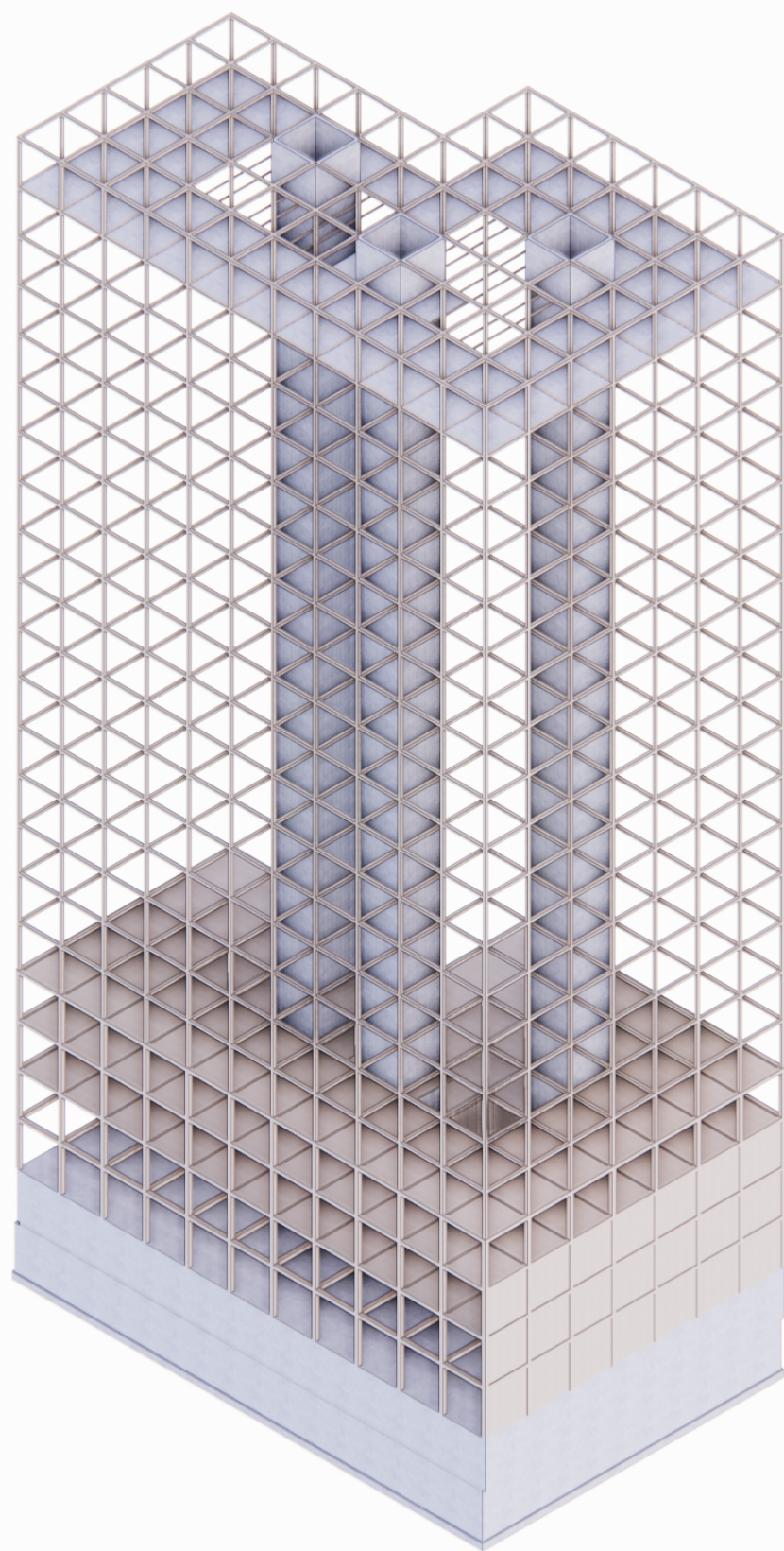
level 16
1 : 200 on A3

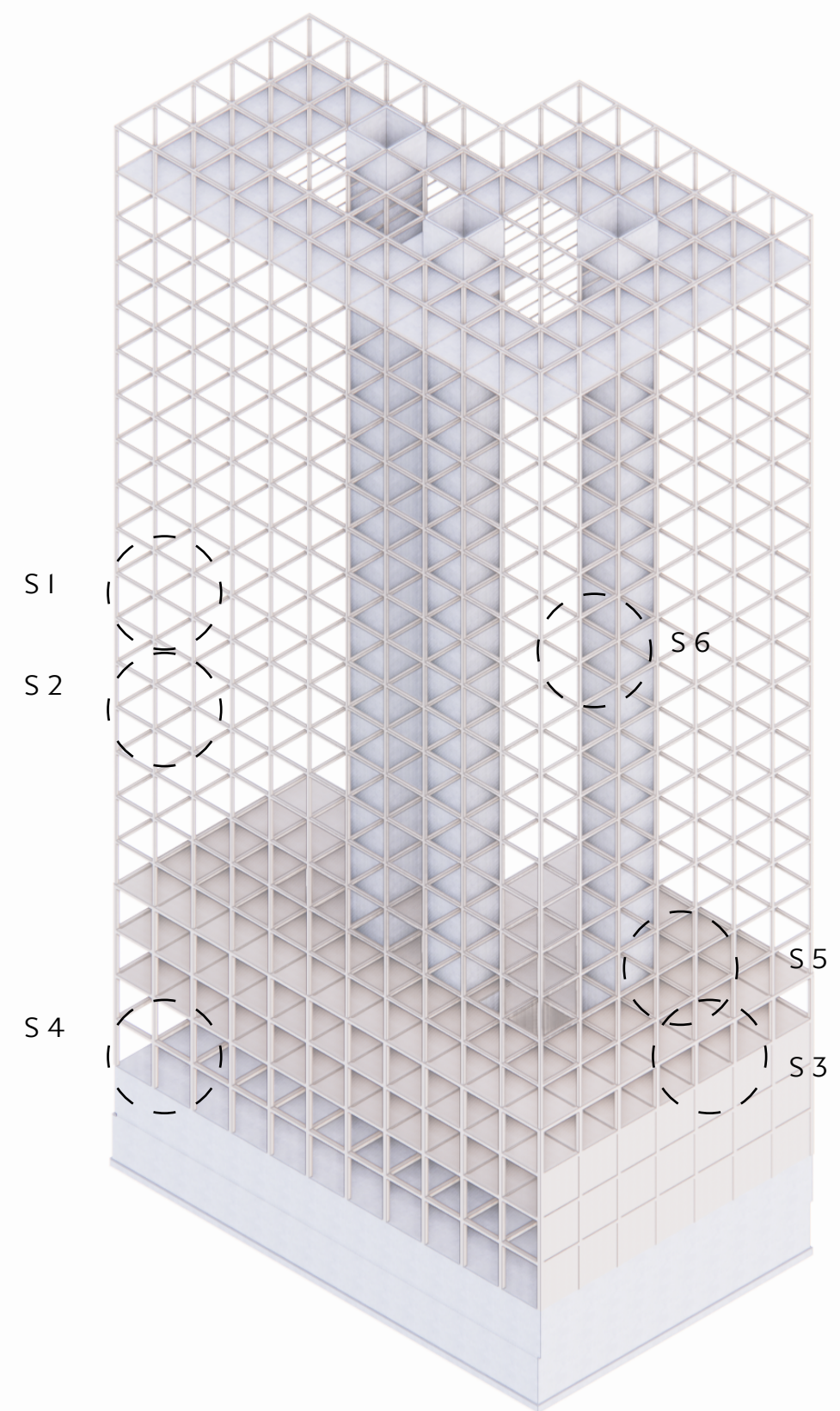


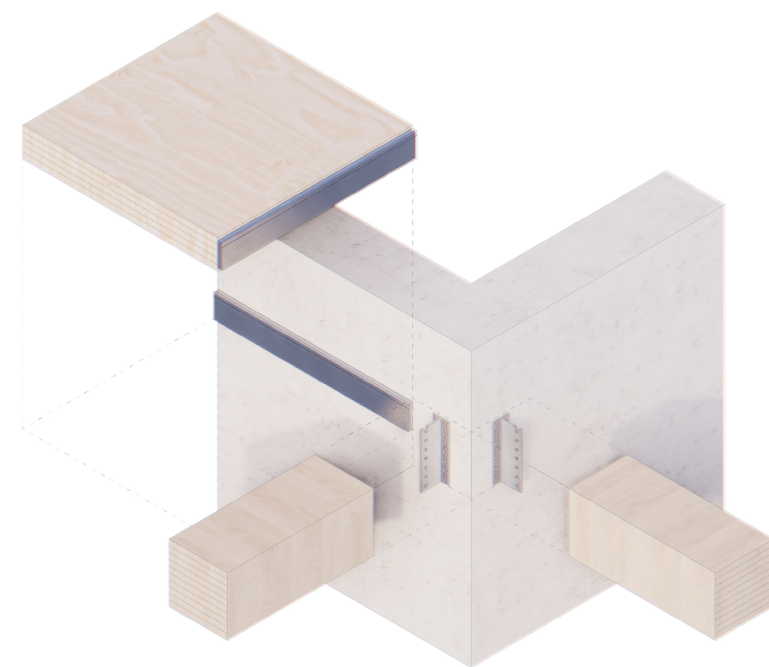
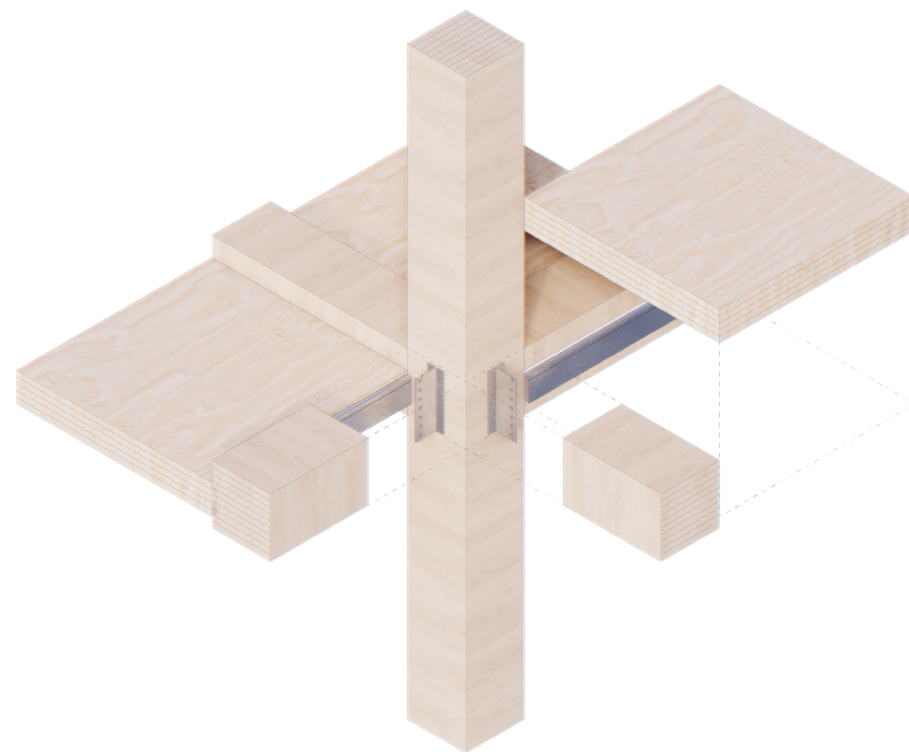
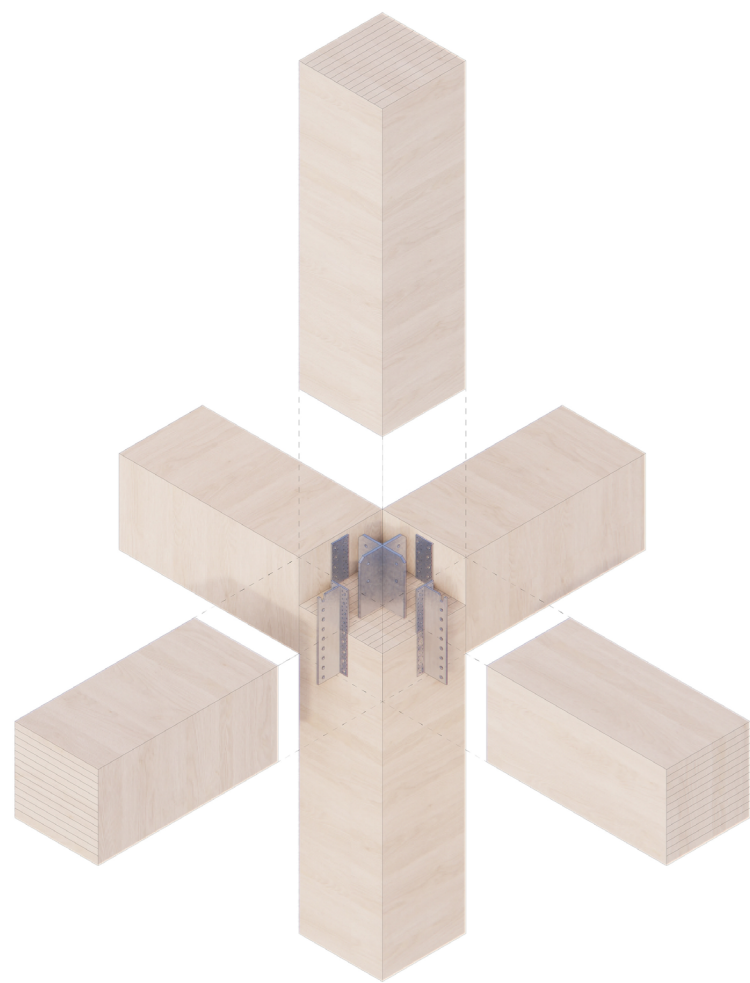


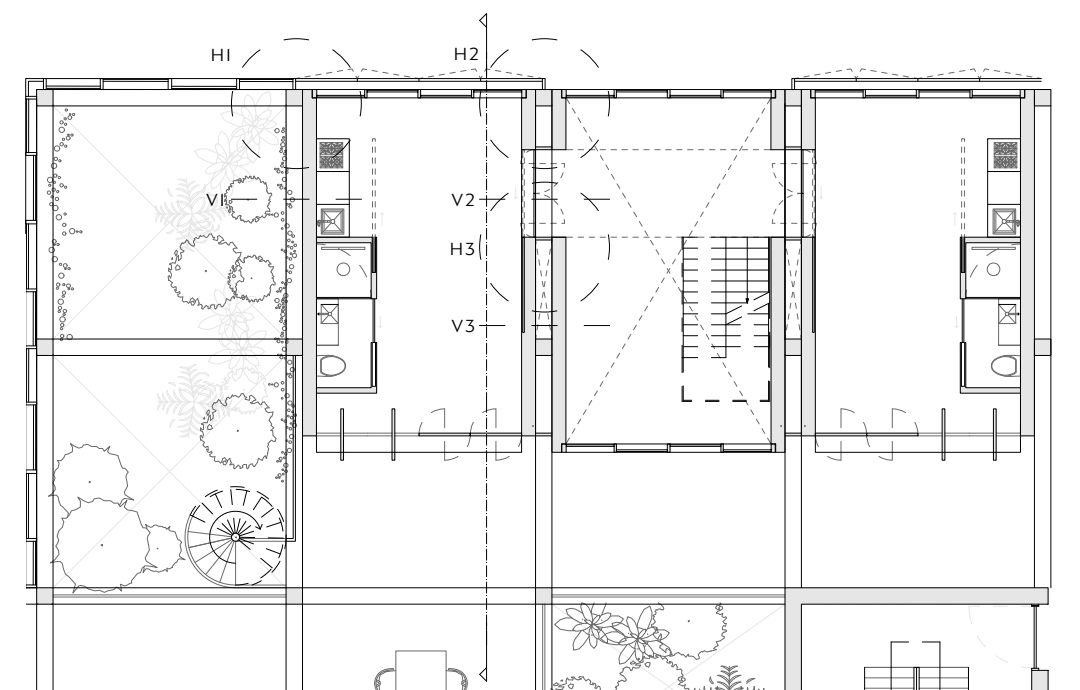
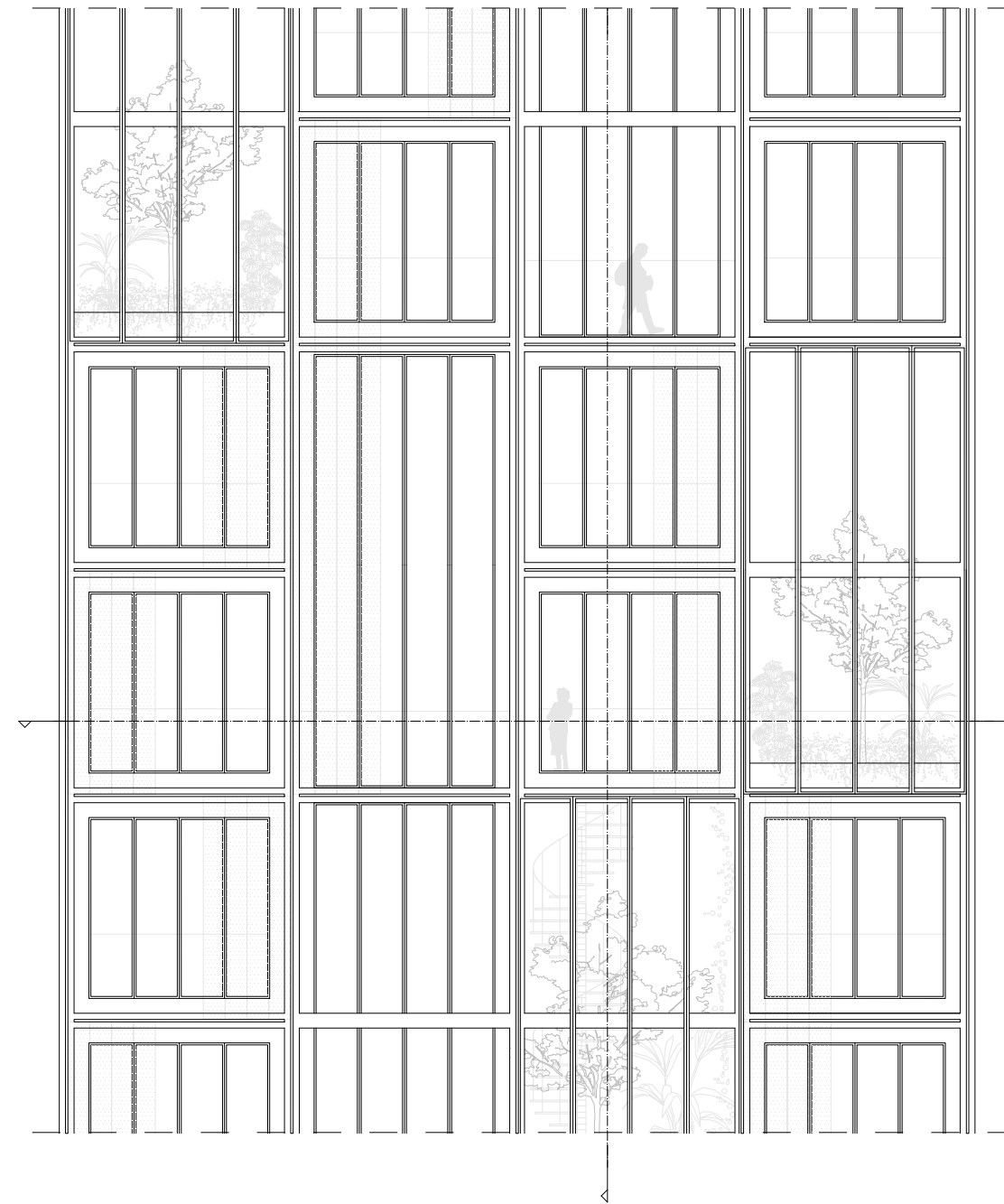
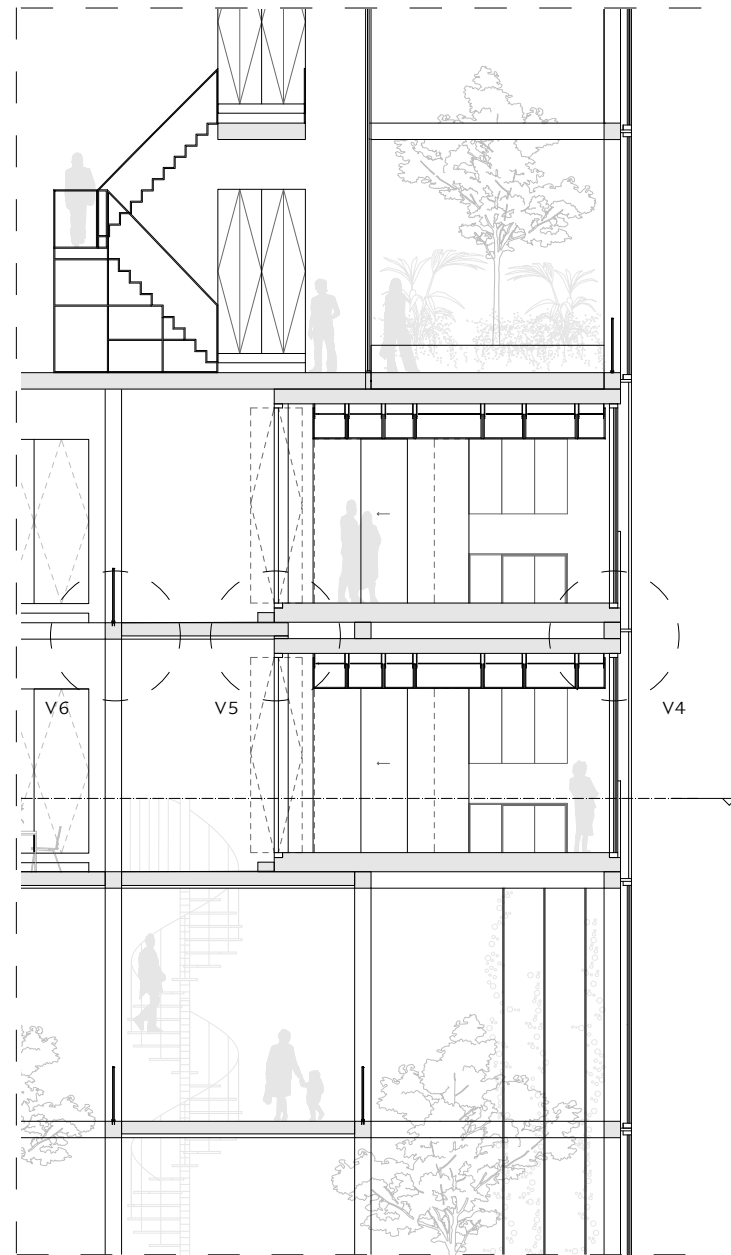




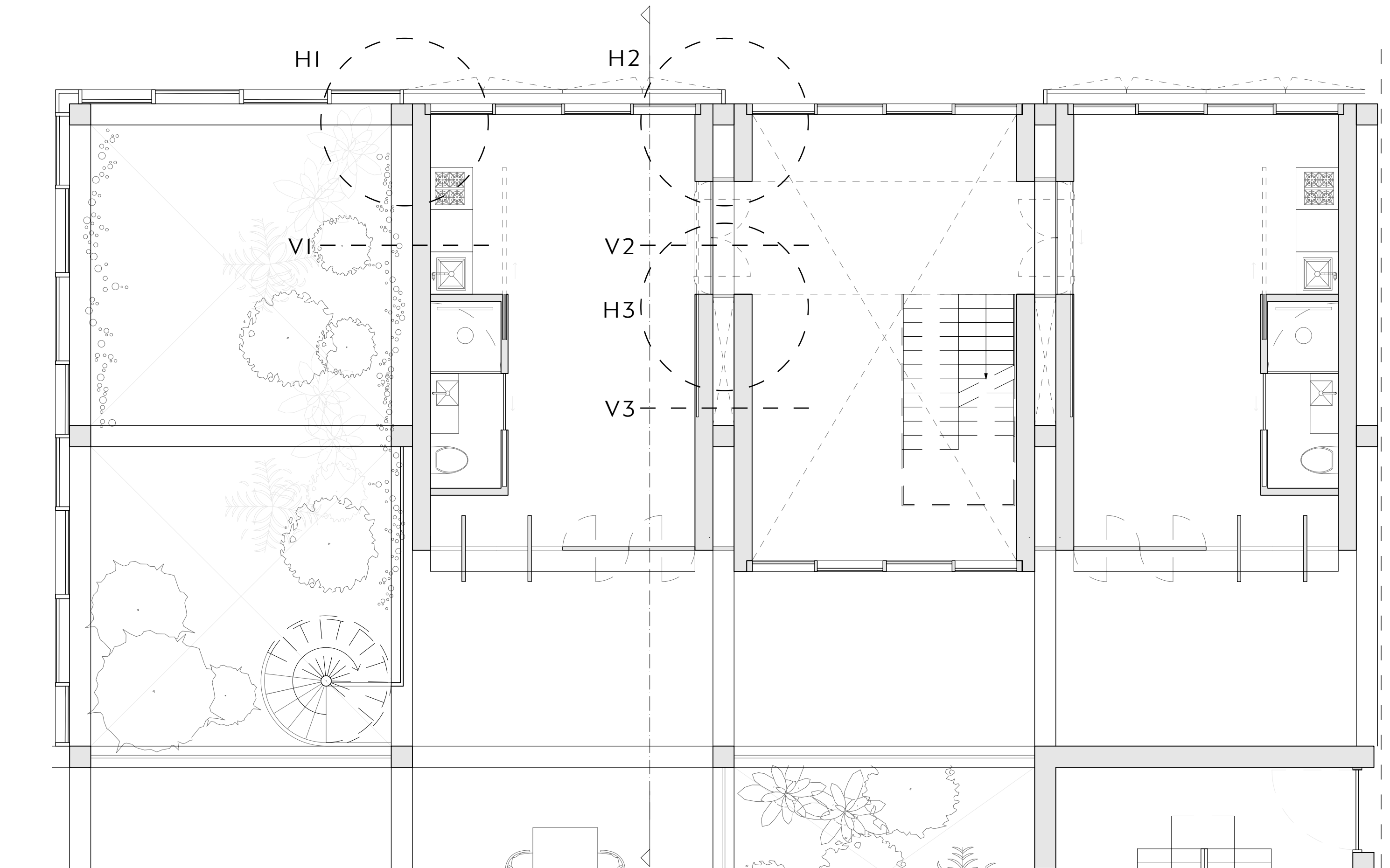






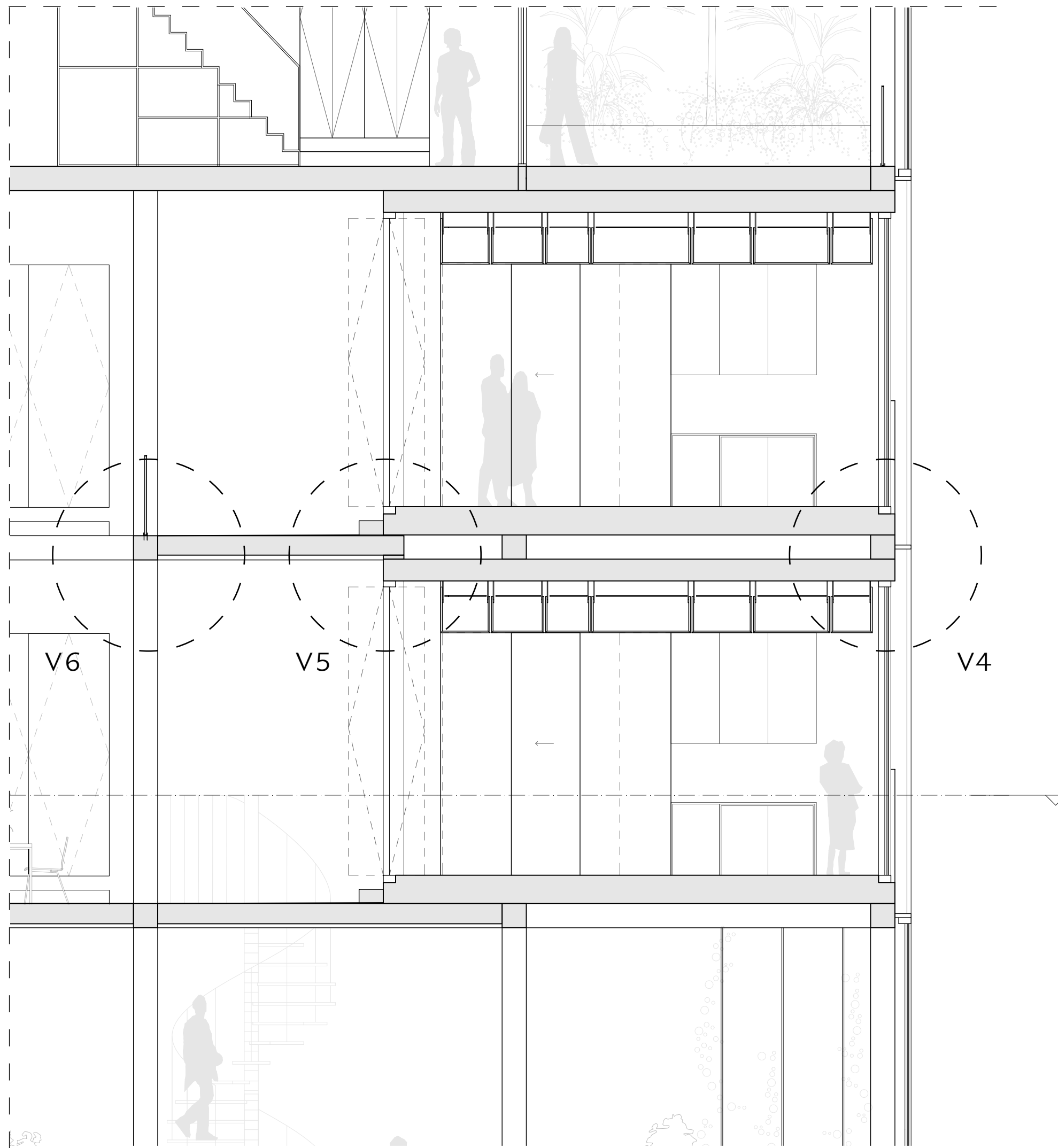


fragment
scaled to fit
(scale 1:50 on poster)

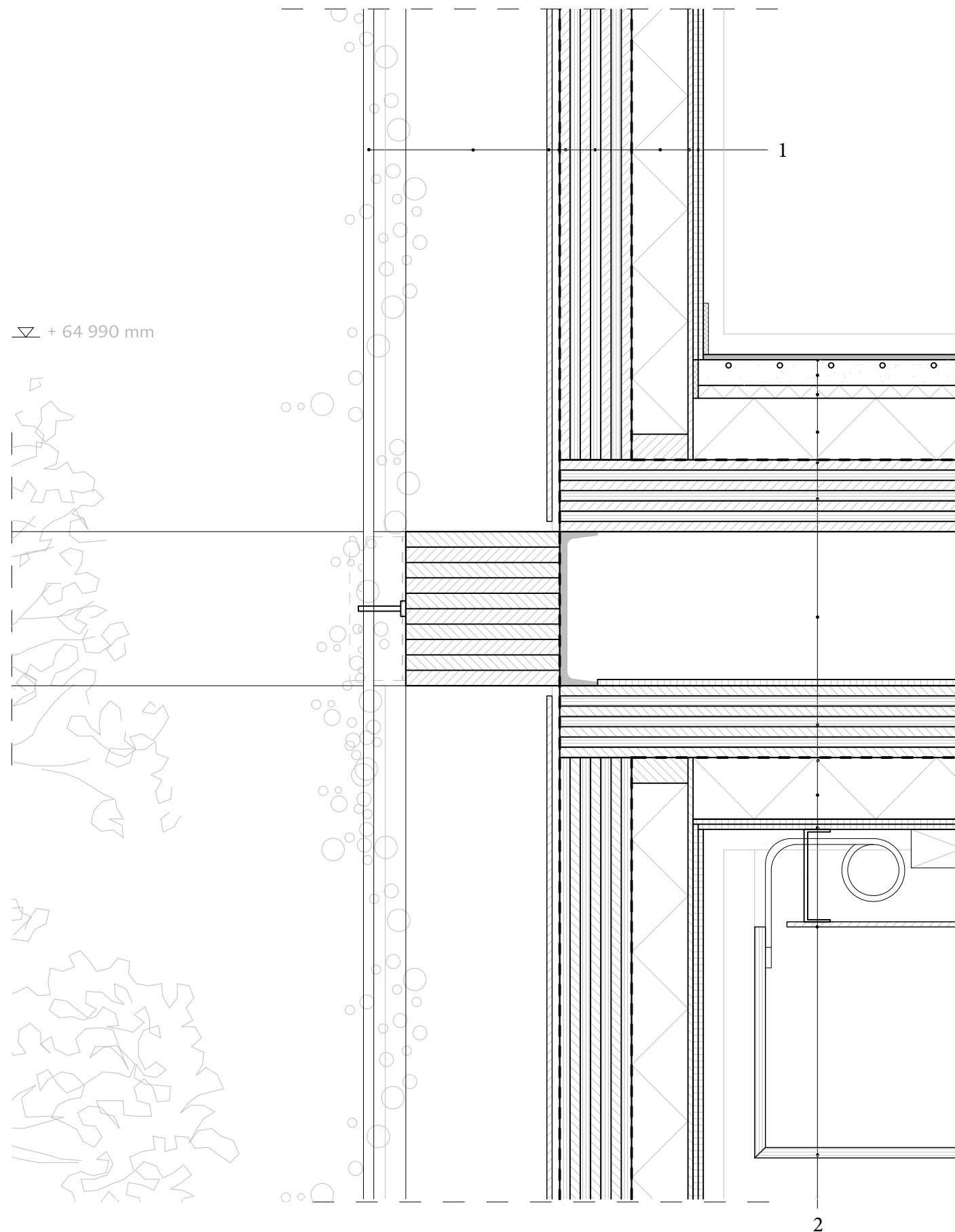


horizontal fragment
scale 1:50 on A3

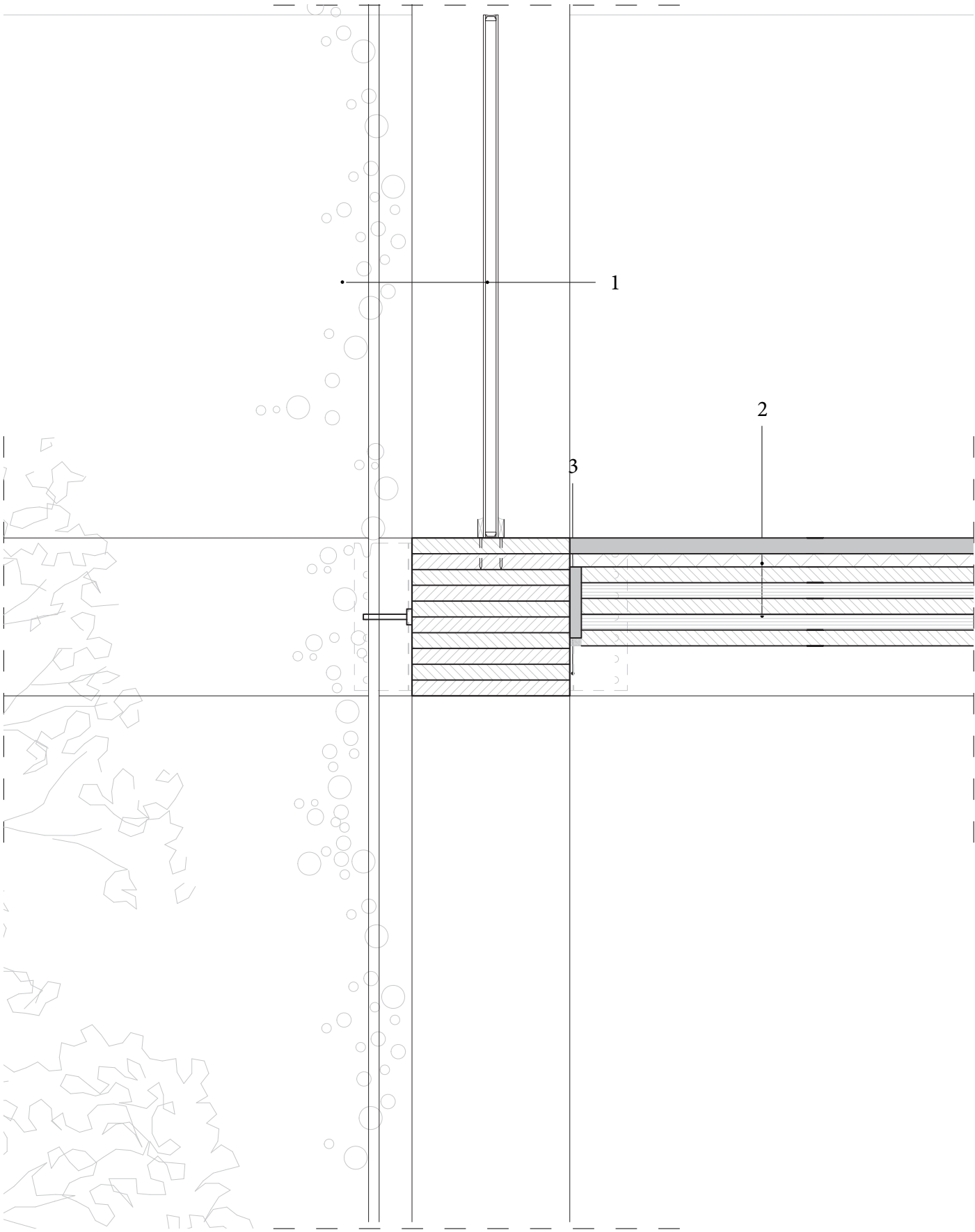




vertical fragment
scale 1:50 on A3



1	steel cable	20
	beech glulam beam	300 x 300
	nord treat fire retardant (tone NTD3I)	-
	Rothoblaas Alu midi anker h=280	
	attached with screws and timber caps	
	wooden finishing (american chestnut)	10
	wooden frame	10 x 10
	waterretaining foil	-
	CLT wall (7 layers x 20 mm)	140
	vapour barrier (polyethylene membrane)	-
	insulation in timber frame	120
	MDF panel	20
	plasterboard	2 x 12,5
2	concrete floor finishing	10
	underfloor heating / cooling	50
	acoustic insulation	30
	rock wool insulation	120
	vapour barrier (polyethylene membrane)	-
	CLT floor (7 layers x 20 mm)	140
	beech glulam beam	300 x 300
	nord treat fire retardant (tone NTD3I)	-
	Rothoblaas Alu midi anker h=280	
	attached with screws and timber caps finishing	
	gypsum fireproofing	12,5
	CLT floor (7 layers x 20 mm)	140
	vapour barrier (polyethylene membrane)	-
	insulation	120
	MDF panel	20
	plasterboard	12,5
	automated pulley system (ref. Bumblebee type S)	
	specifics are yet to be determined.	
	american chestnut finishing	10
	attached with steel C ankers	
	american chestnut containers h=450	20



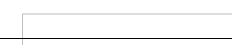
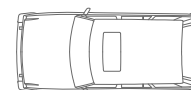
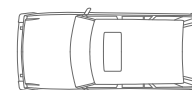
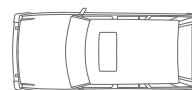
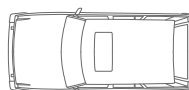
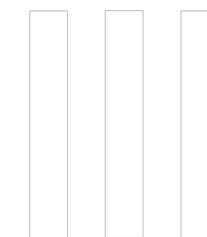
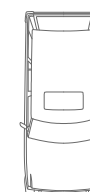
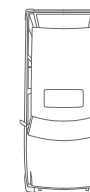
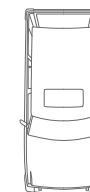
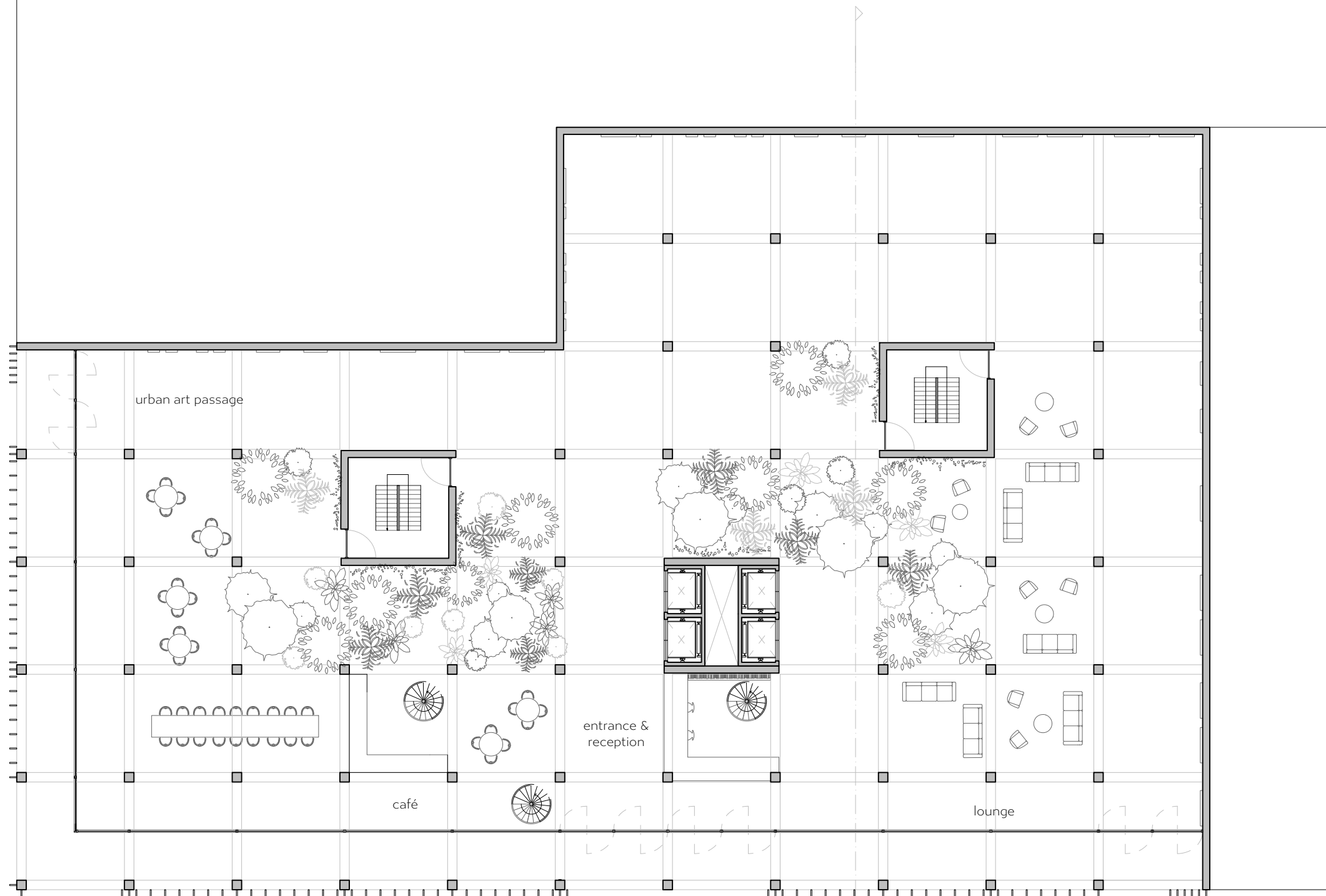
▽ + 64 645 mm

1	steel cable glass railing (h=1600)	d = 10 50
2	epoxy flooring white high shine finish accoustic insulation CLT floor (7 layers x 20 mm)	30 30 140
3	connection CLT floor to beam Rothoblaas T-lock connector nord treat fire retardant (tone NTD31) beech glulam beam	- 300 x 300



N° 4 THE **URBAN** ANCHORING

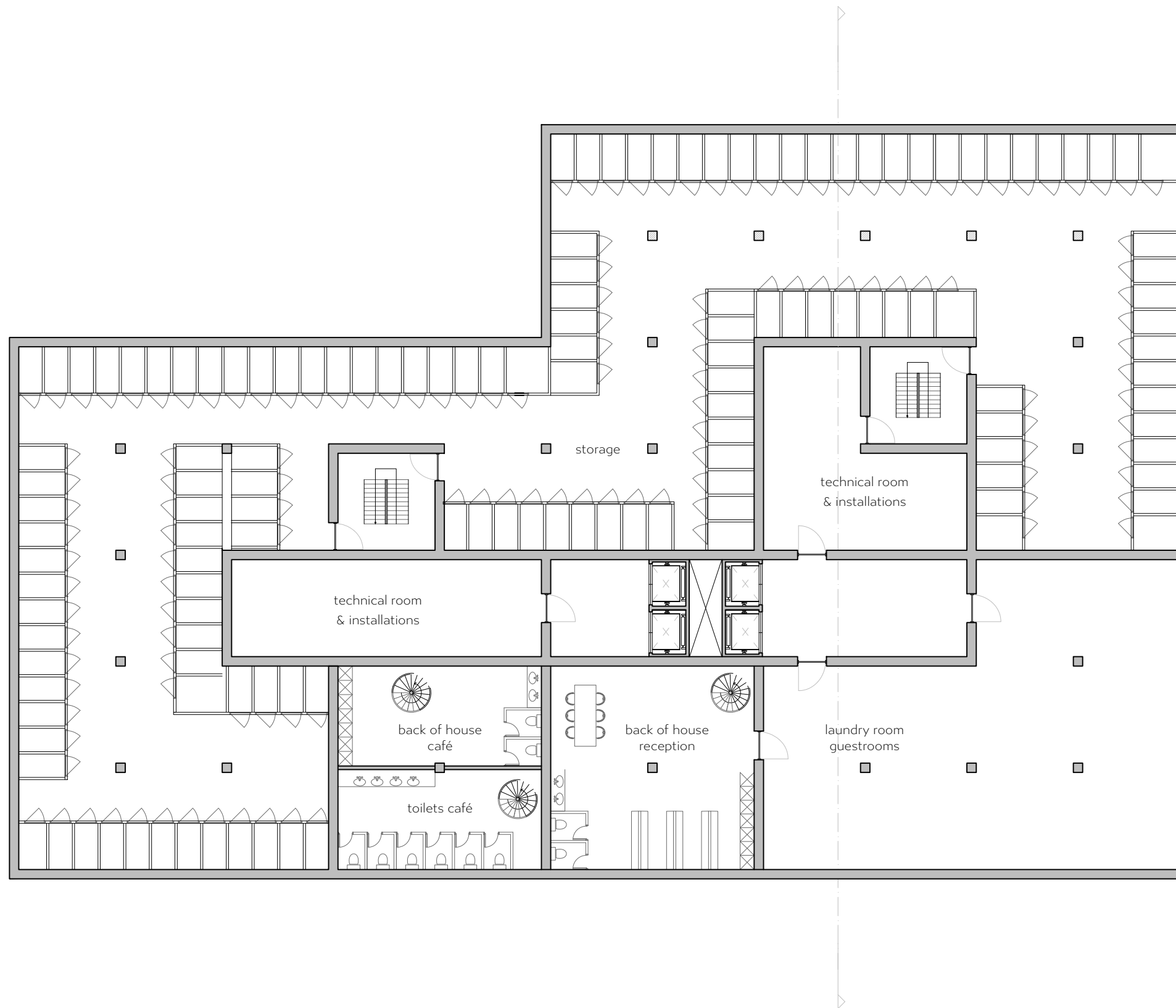
level 0
1 : 200 on A3





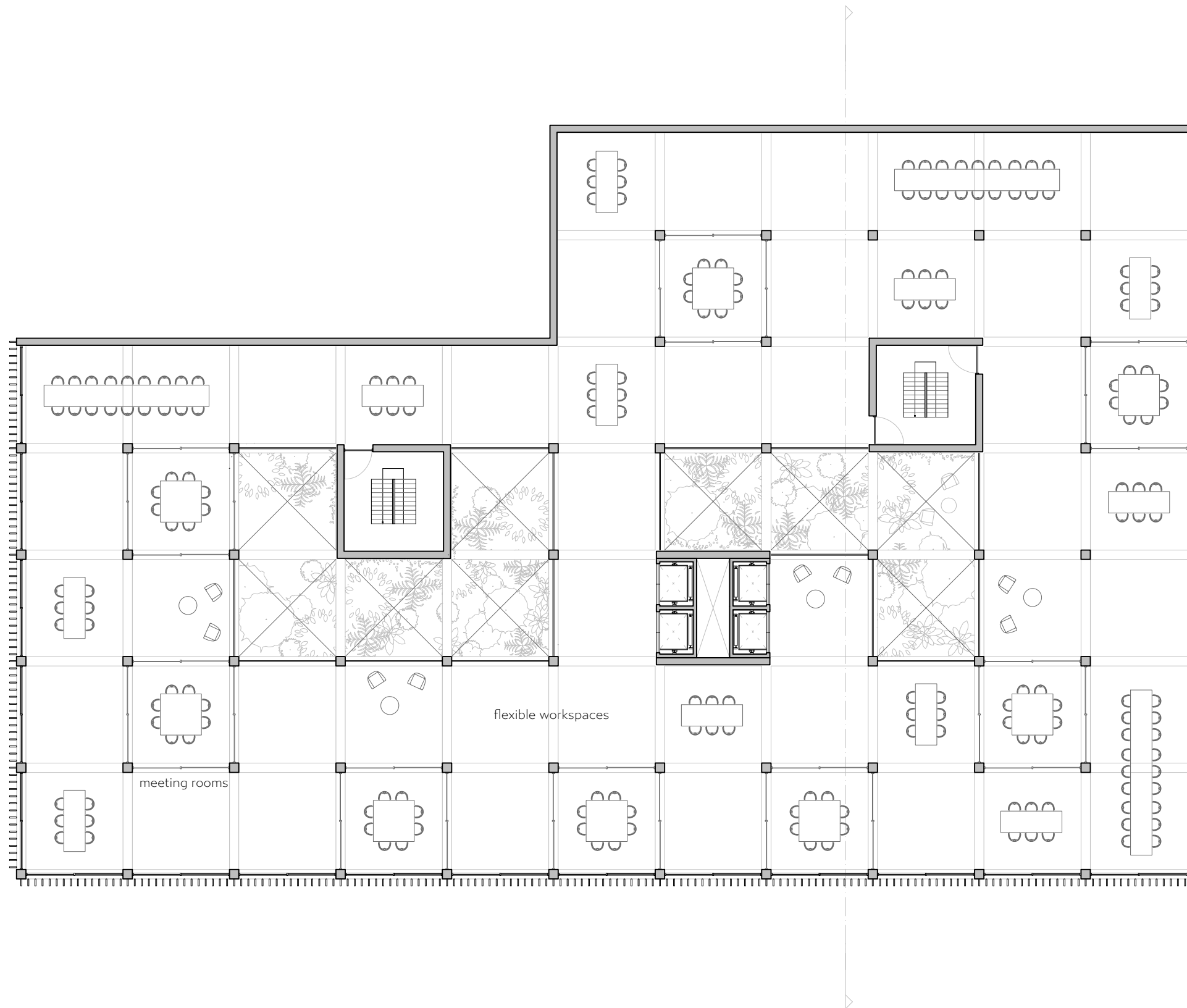






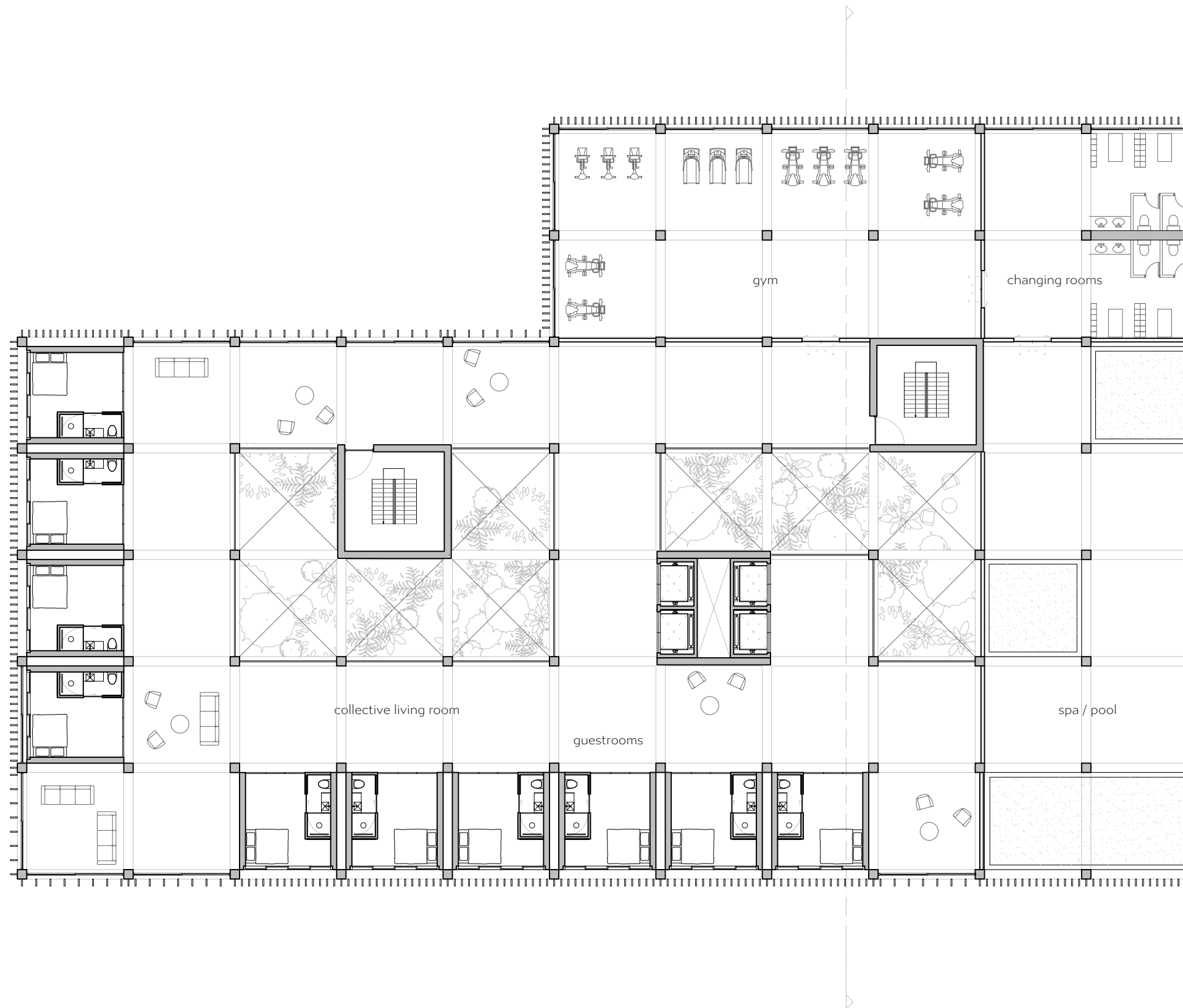
level -1
1 : 200 on A3





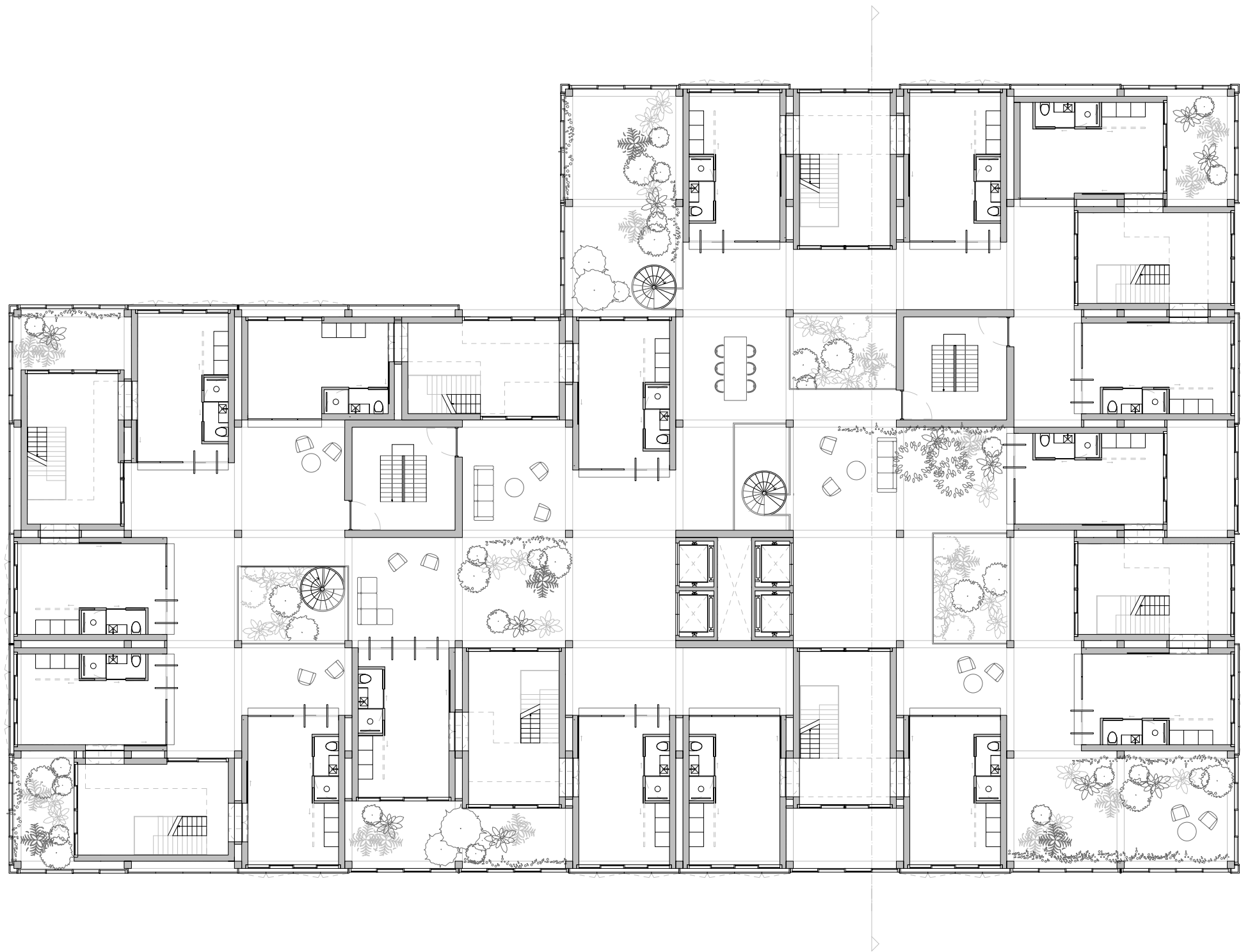
level 2
1 : 200 on A3





level 3
1 : 200 on A3

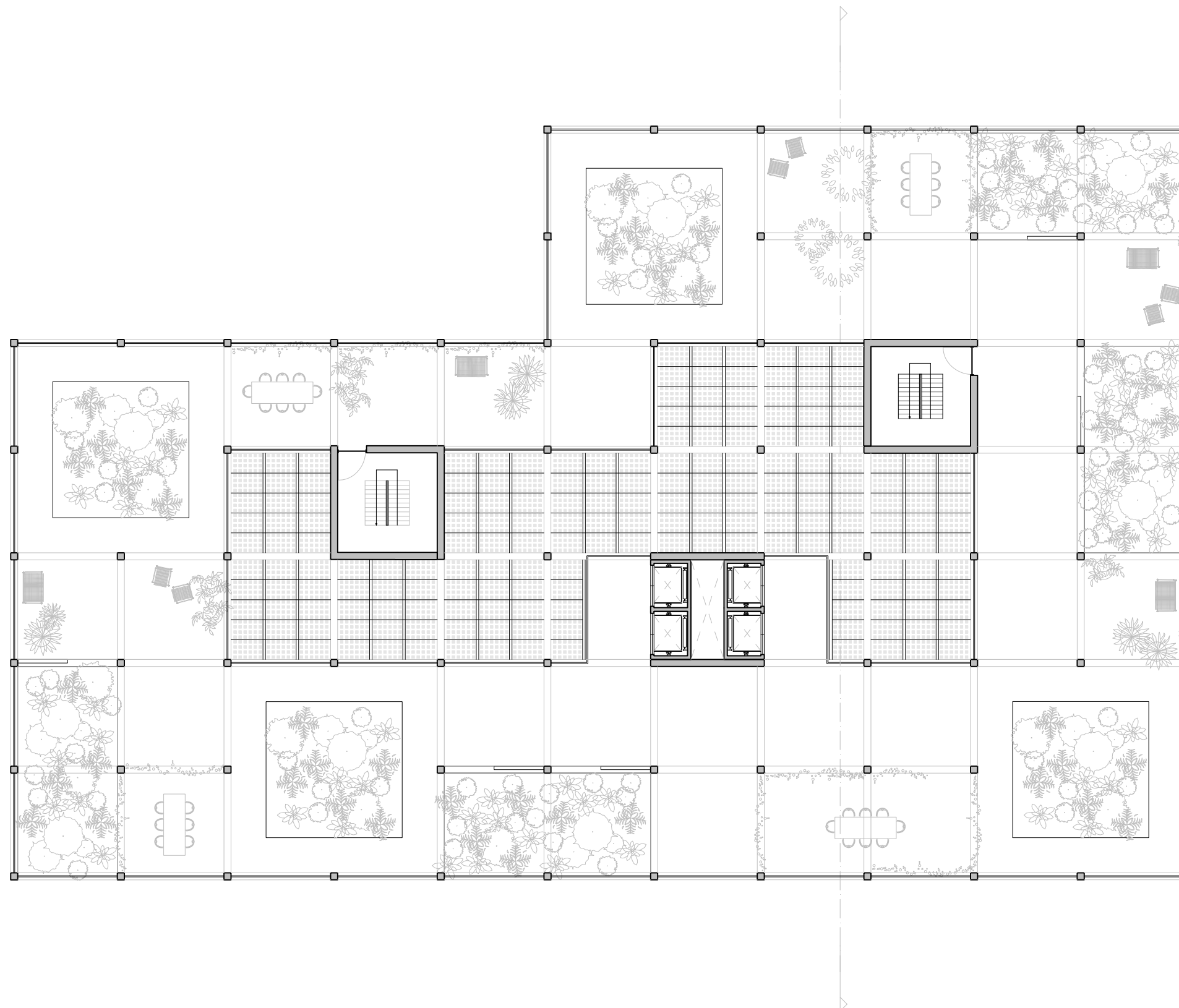


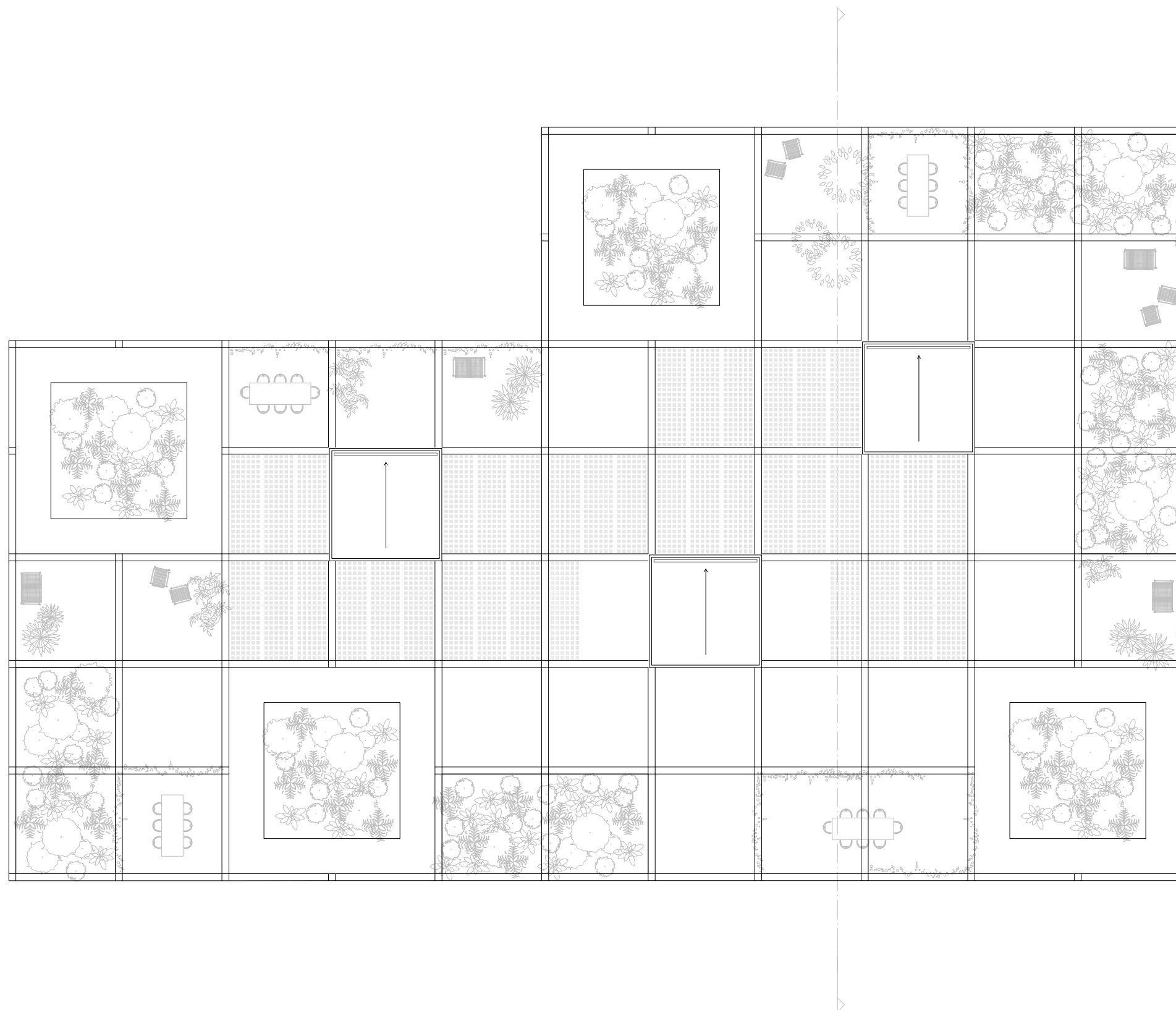


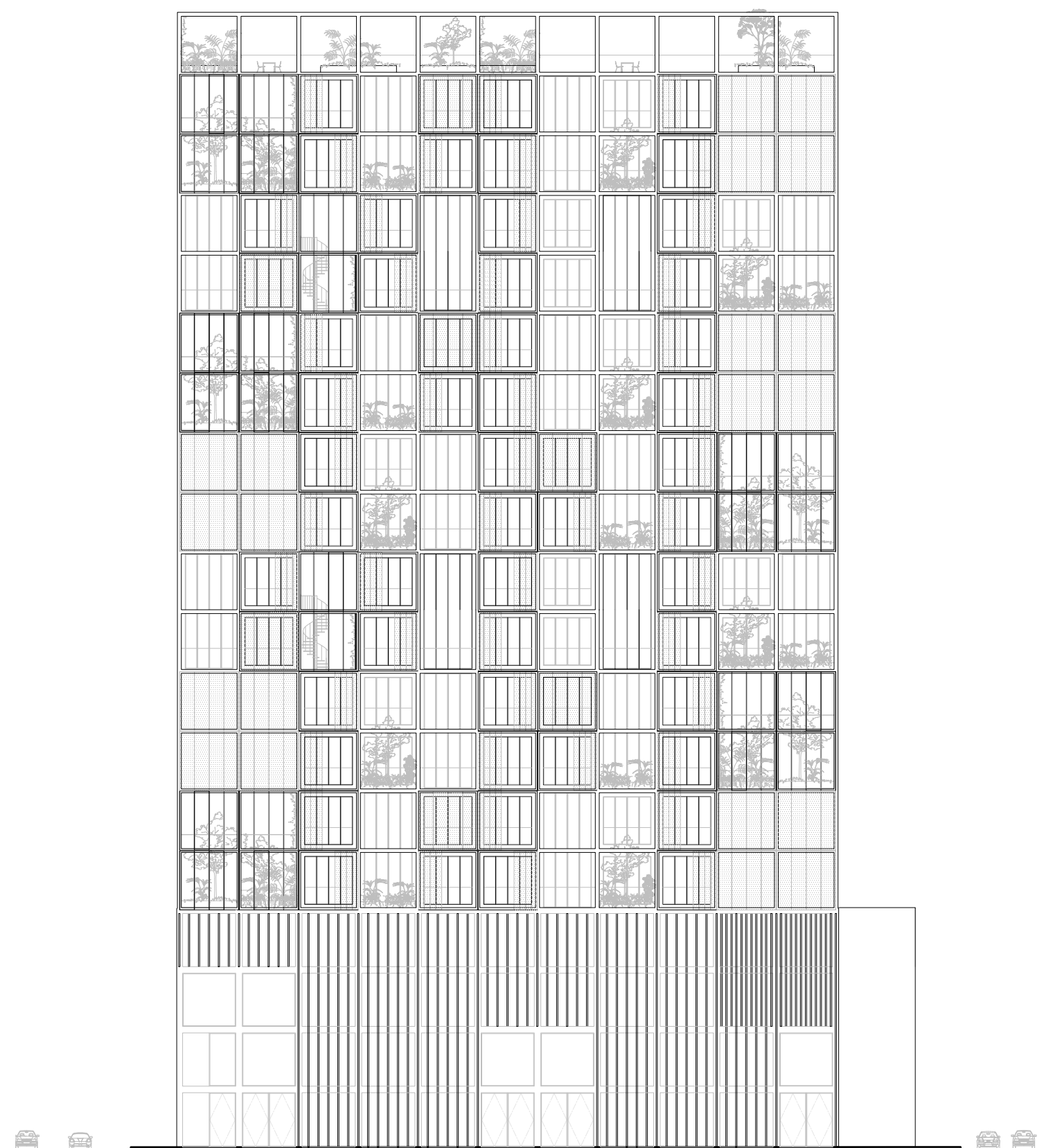
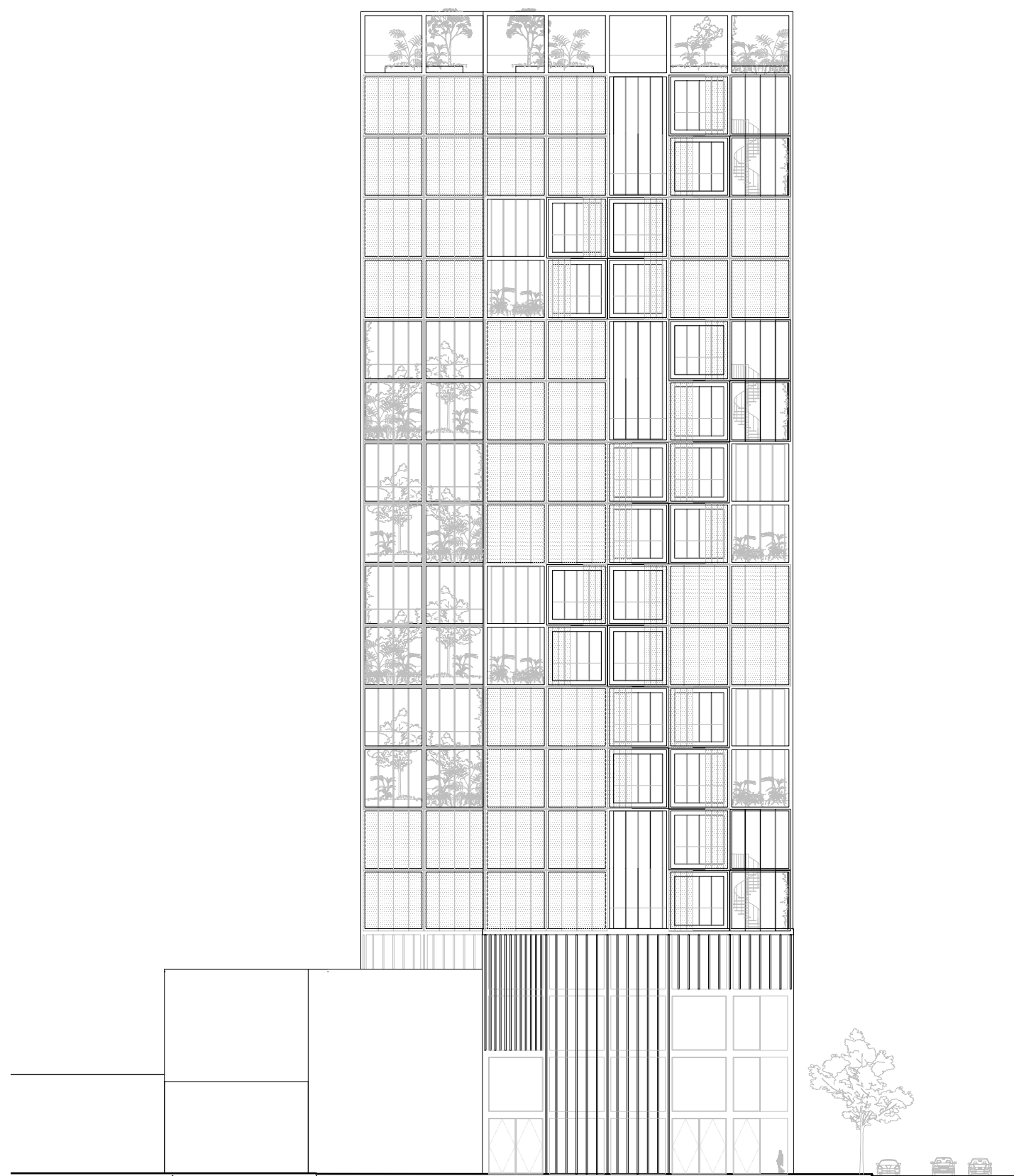
level 16
1 : 200 on A3



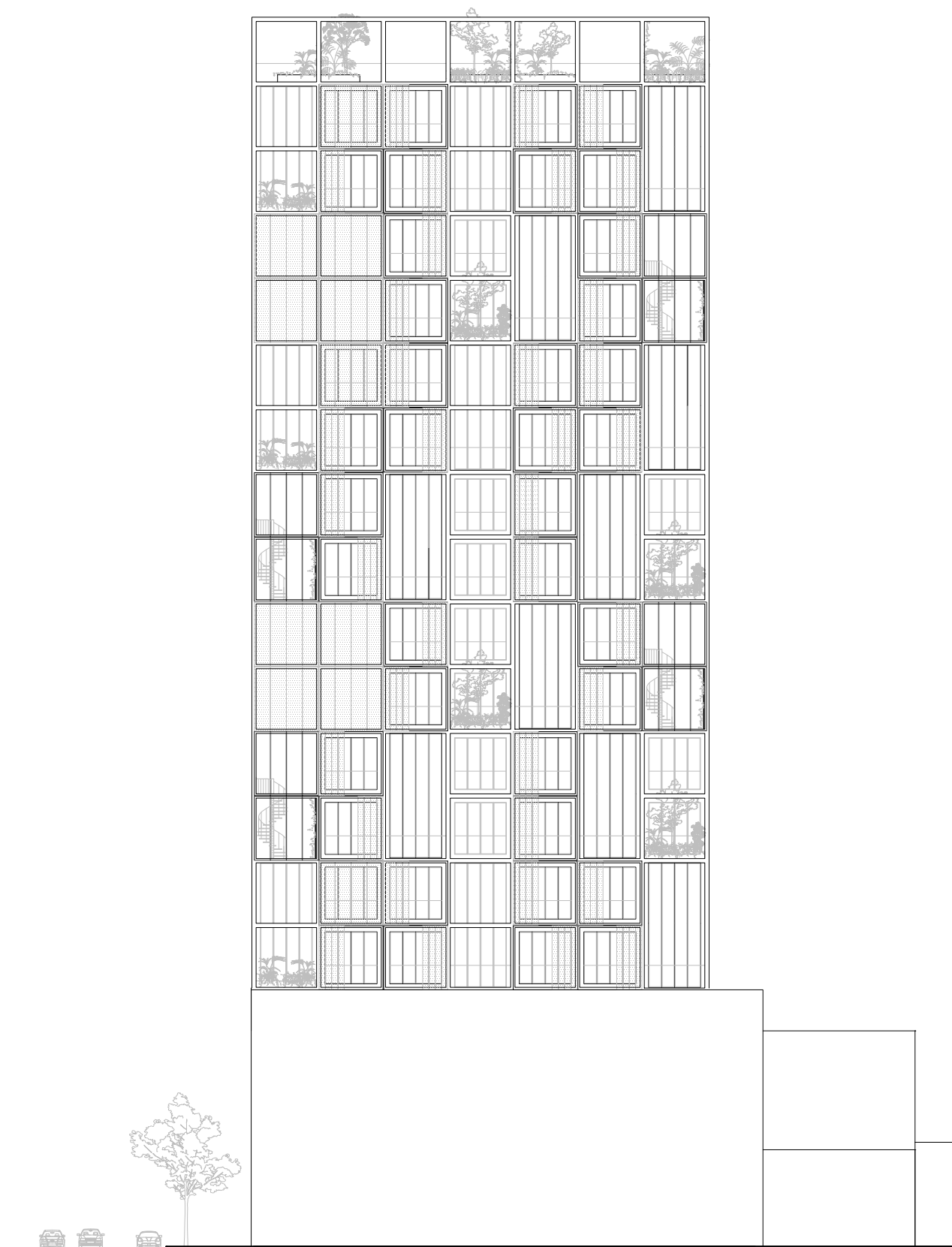




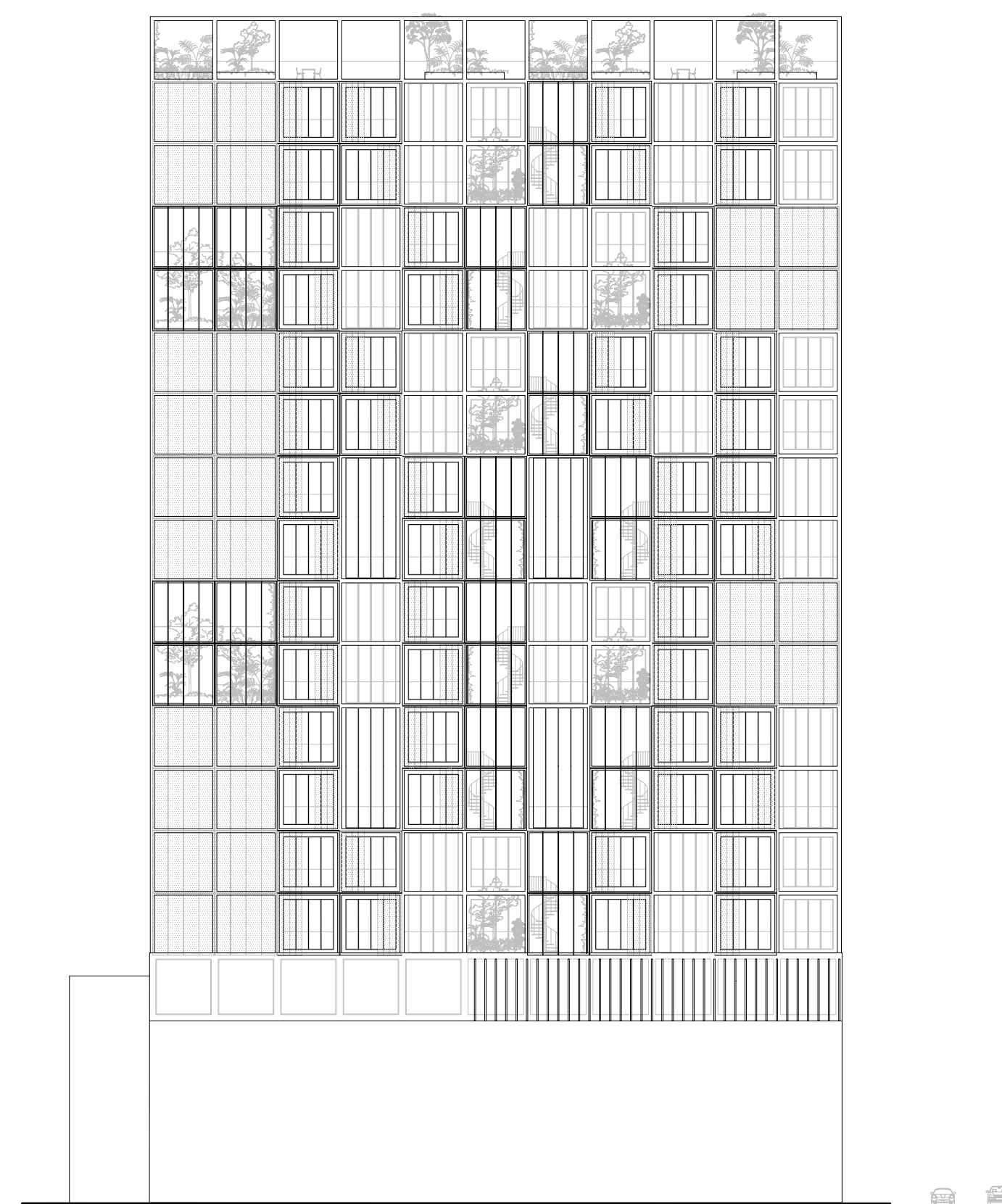




façade S & W
I : 400 on A3



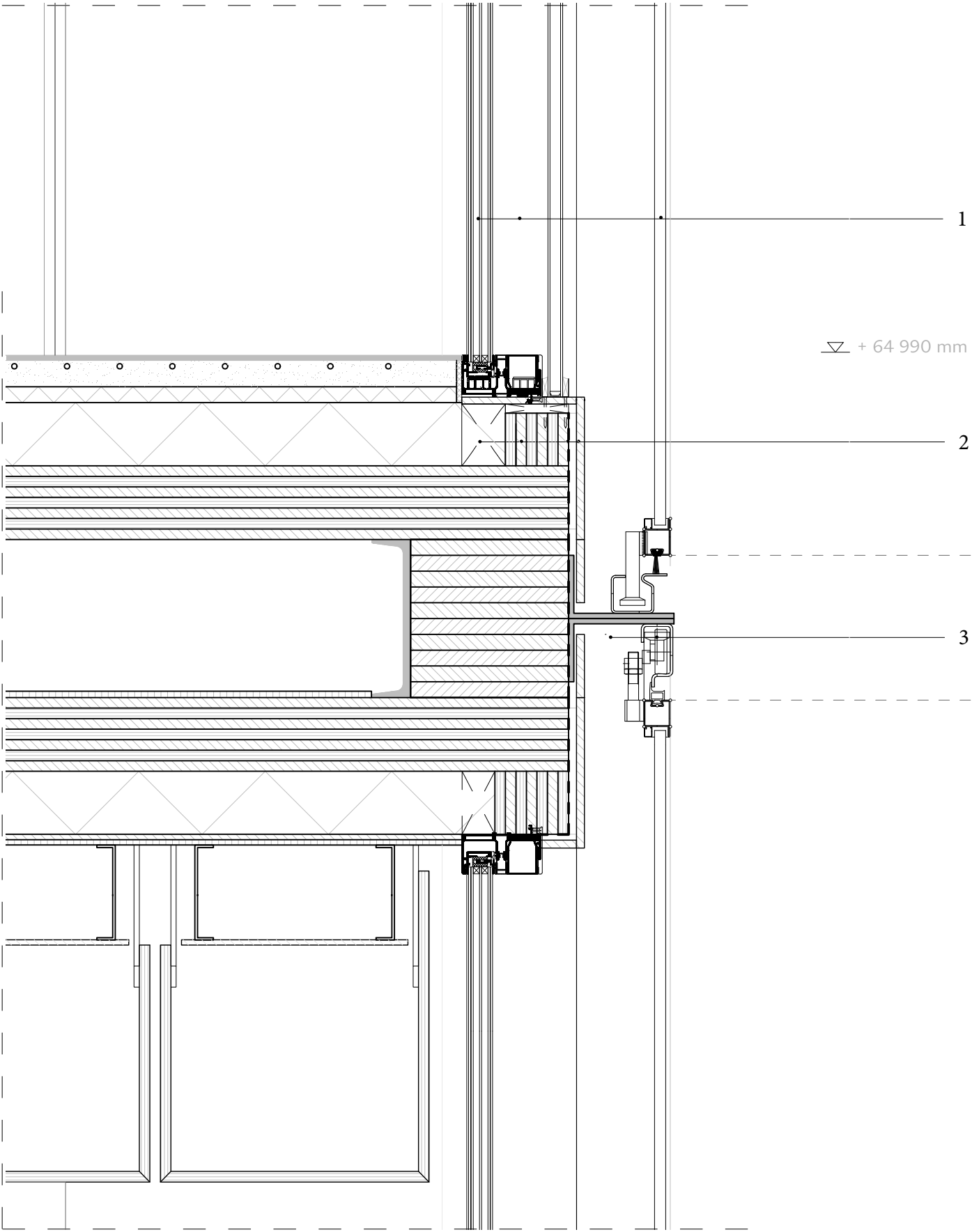
façade S & W
 1 : 400 on A3











- 1

triple glazing
 Metaglas Thermo XL XHS-9 sliding door frame
 double glazing railing in steel C frame
- 2

CLT wall (7 layers x 20 mm) 140
 waterretaining foil 0,5
 ventilation 10
 american chestnut timber finishing 15
 waterretaining coating (specifics yet to be determined)
- 3

steel L profiles 120 x 100 x 8
 folding doors Jansen by ODS
 perforated steel shutters 21
 white colour finishing throughout



RETHINKING **MINIMALISM**

“ How can we optimize **minimal housing**

on both the architectural and urban scale
in the future scenario of high density living
due to mass-urbanization? ”

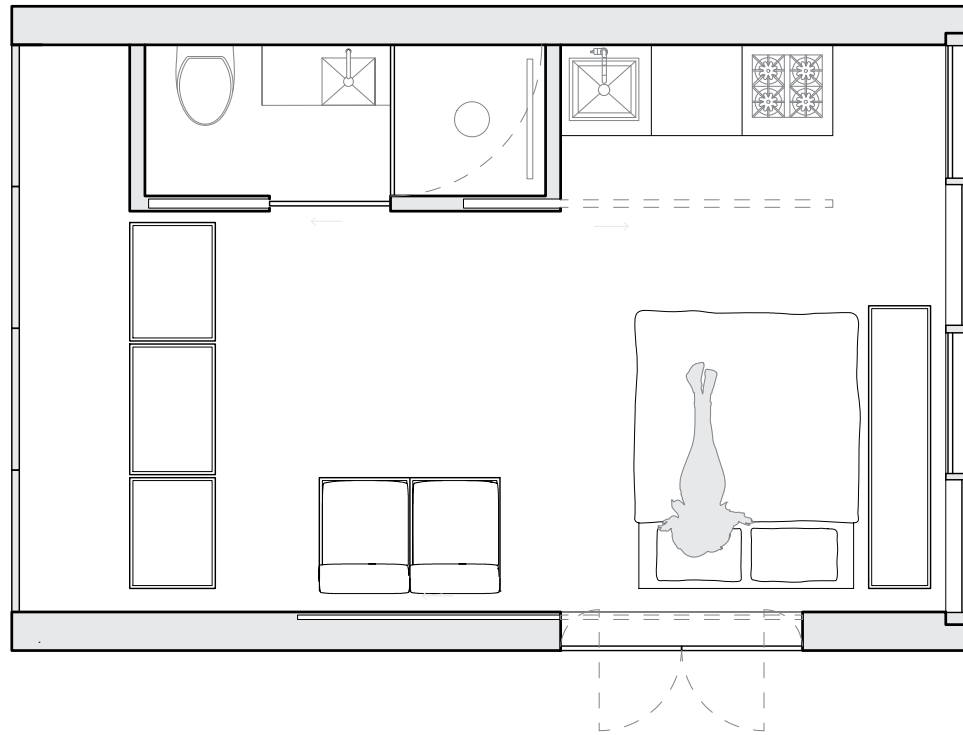
*average Chelsea
apartment*

*Rethinking Minimalism
design*

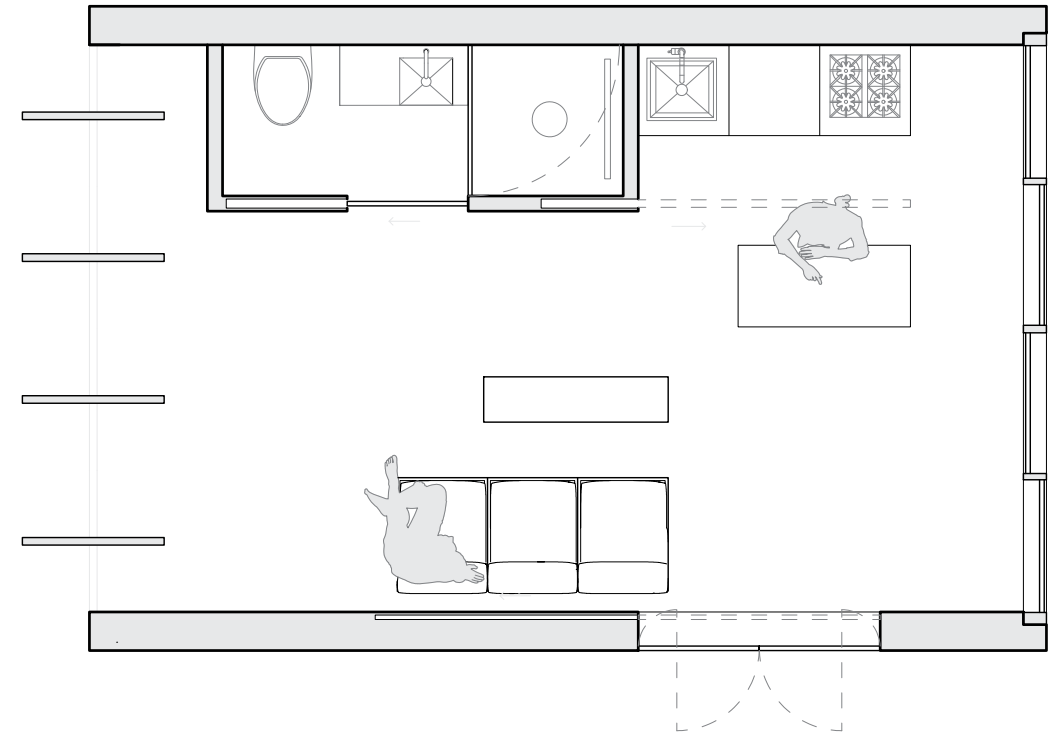
average apt. size	57 m ²	22 m²
units in given building volume	11 units per floor 154 units total	16 units per floor 224 units total

145 %

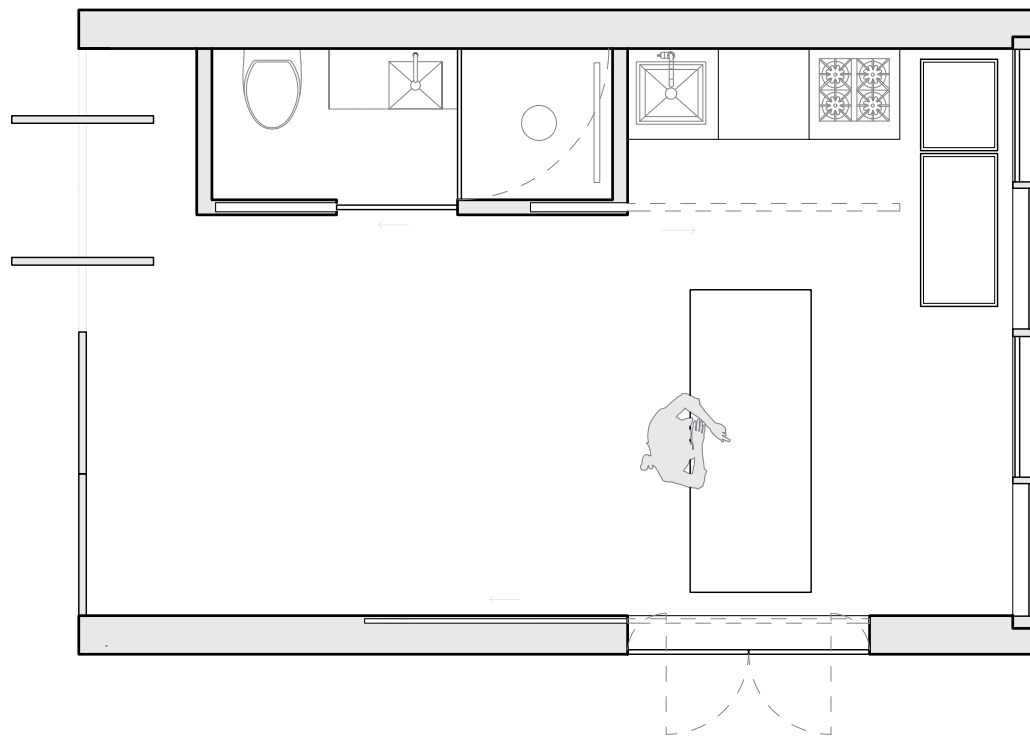
22 m² **24-hr-architecture**



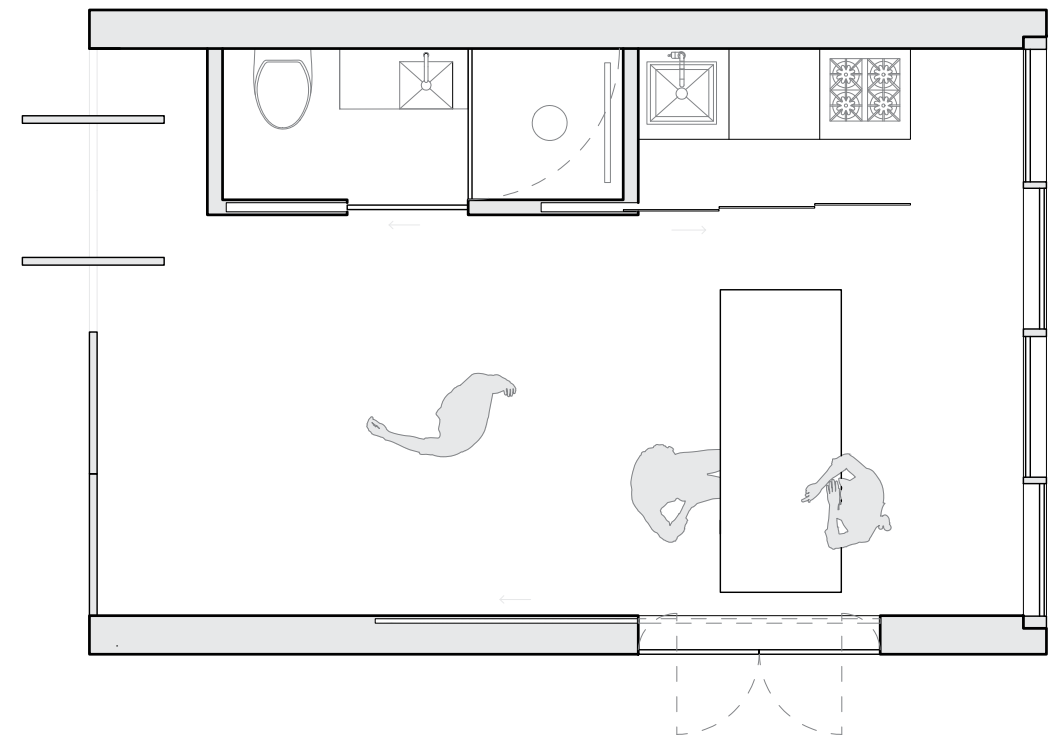
1. night-time / morning



3. leisure

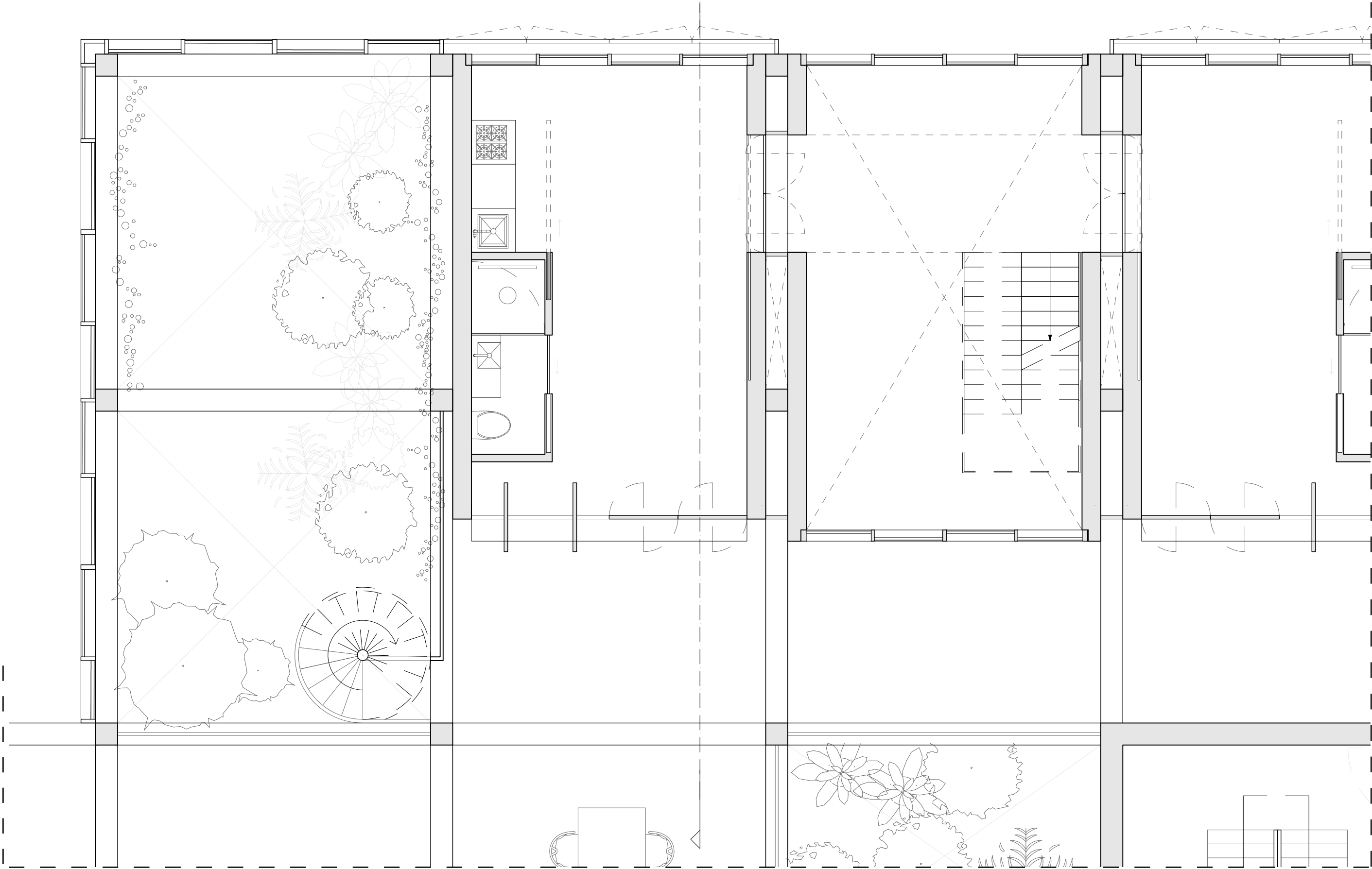


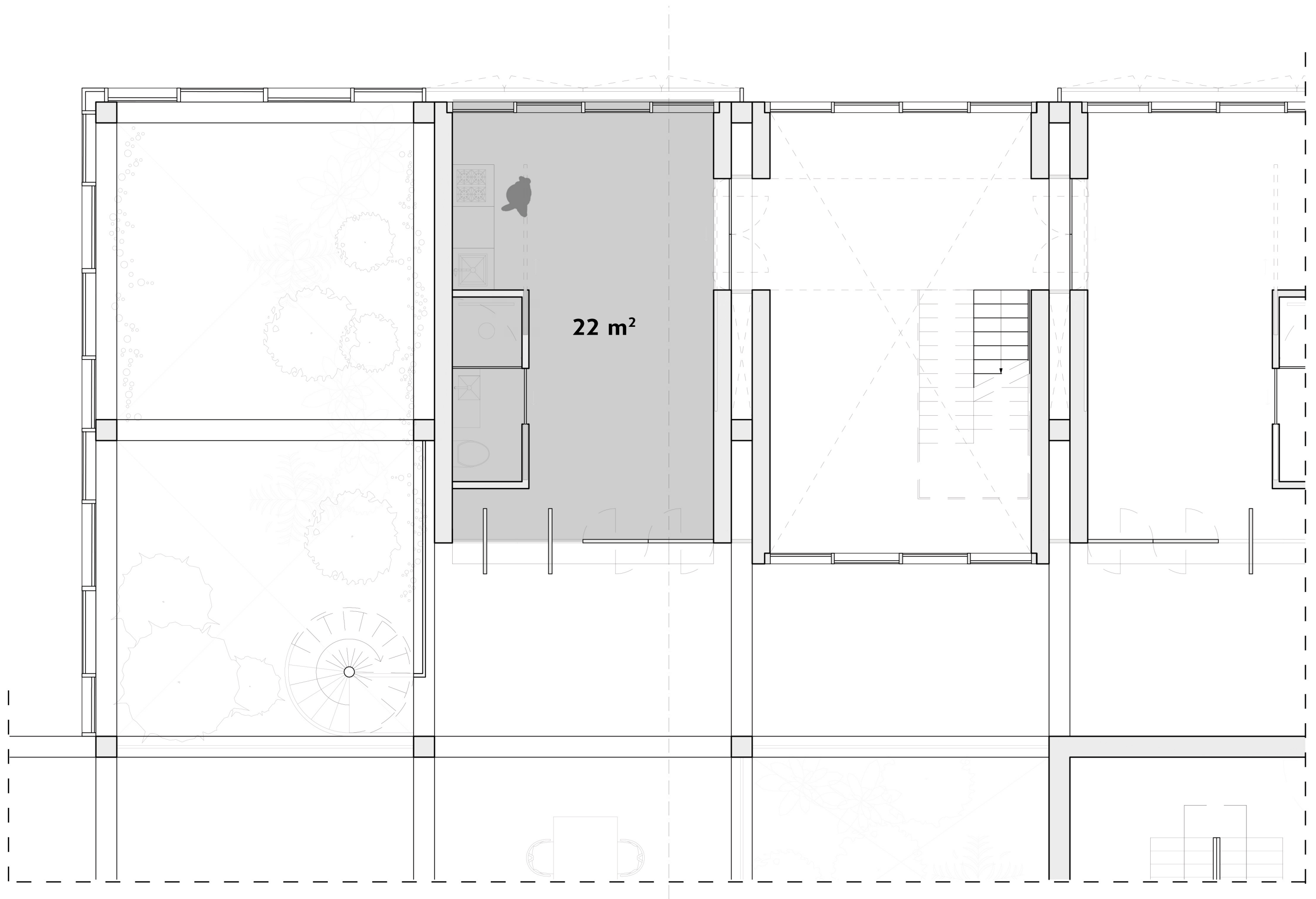
2. working from home

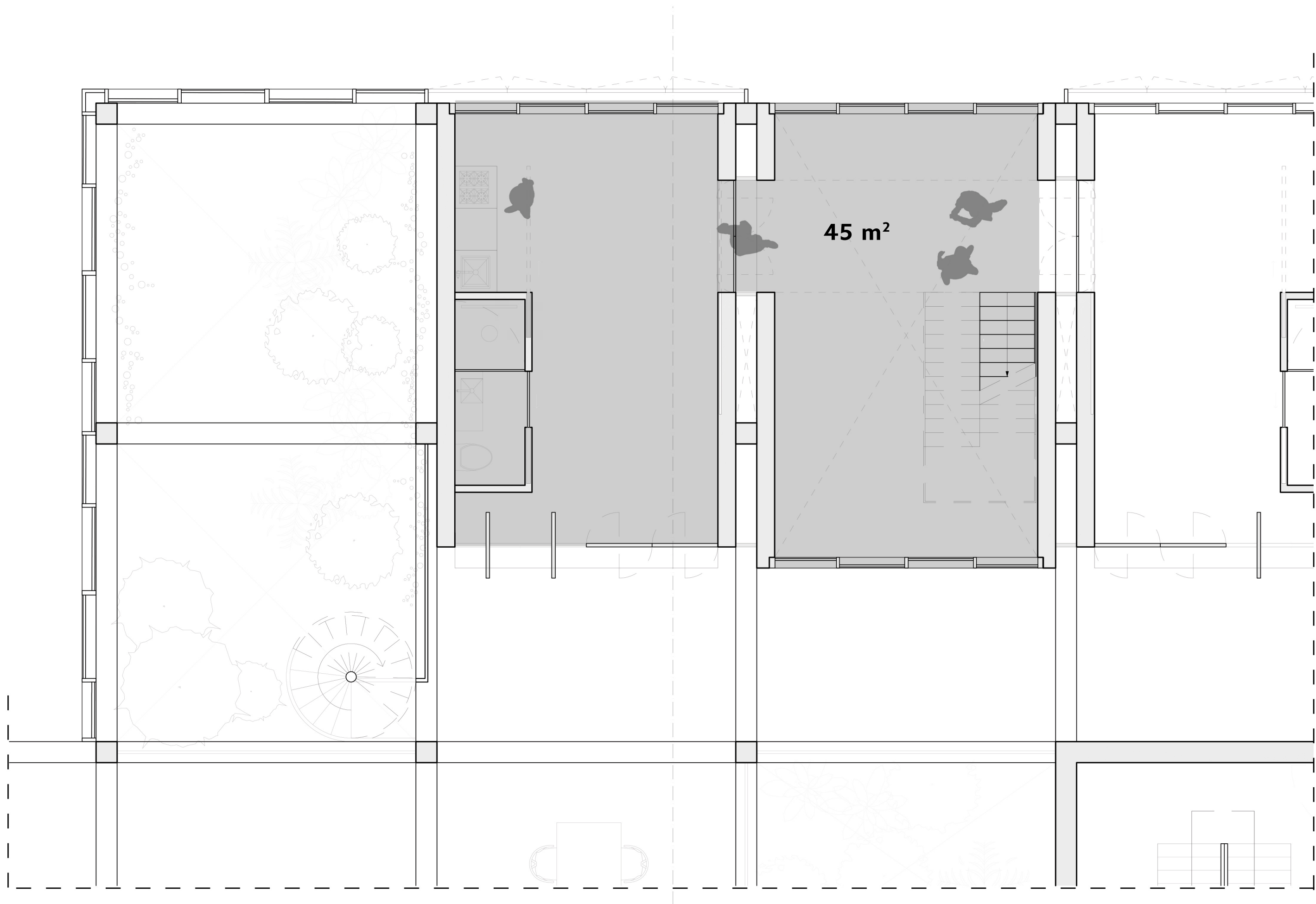


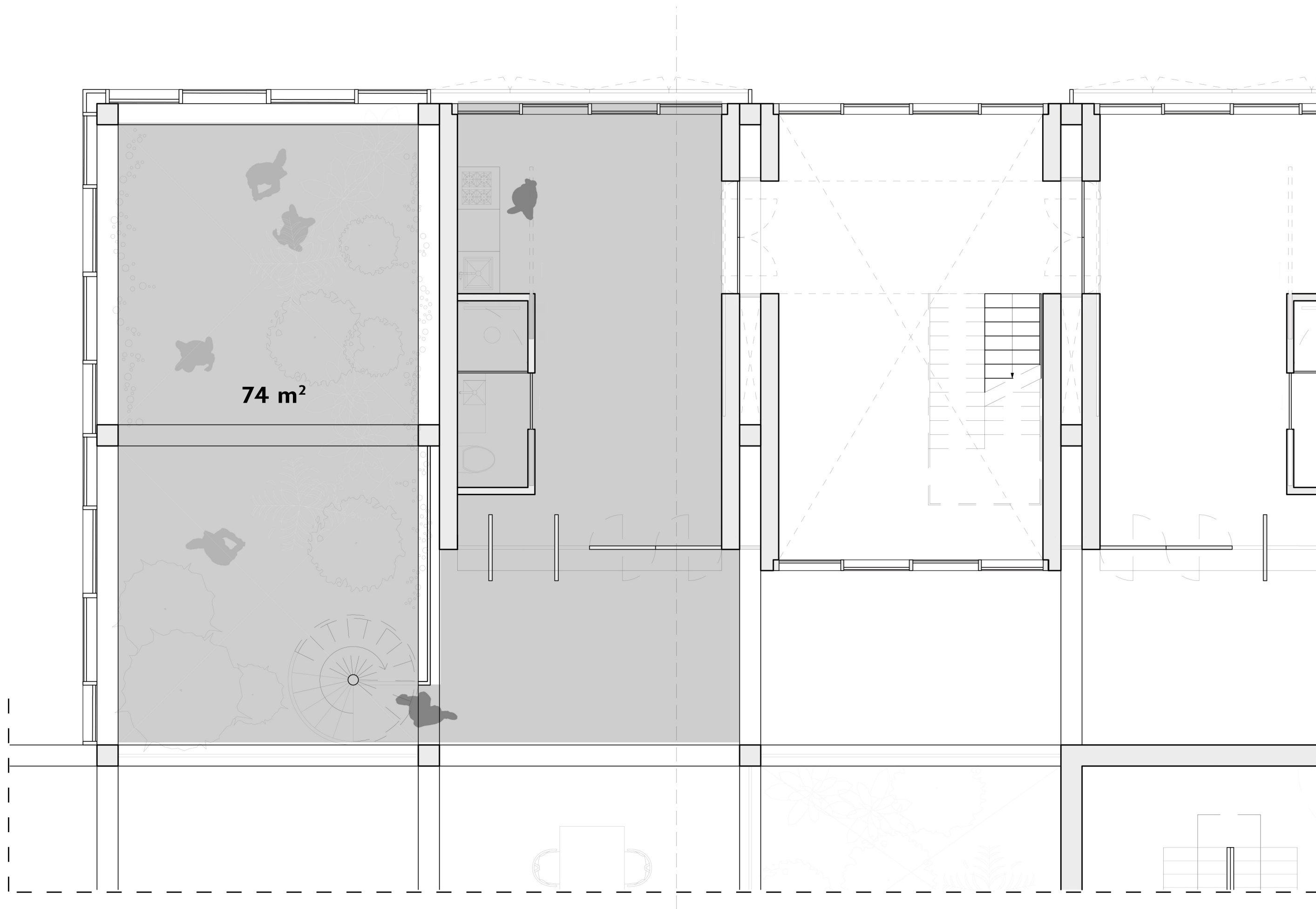
4. evening

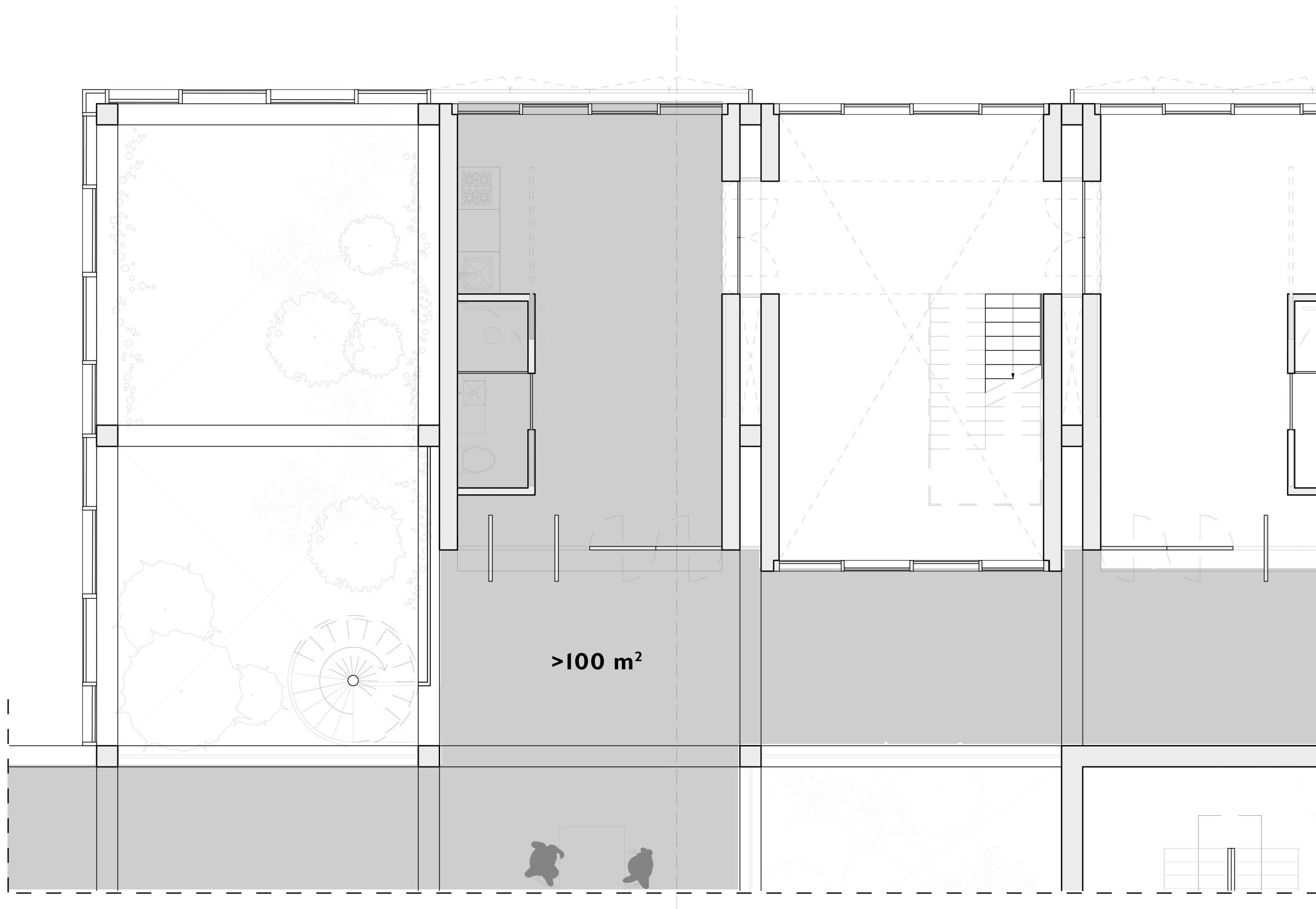
constant **negotiation of space**











sustainability

sustainability

affordability

sustainability

affordability

target group

RETHINKING MINIMALISM

HIGH DENSITY LIVING IN MANHATTAN

EXPLORE LAB - DELFT UNIVERSITY OF TECHNOLOGY

