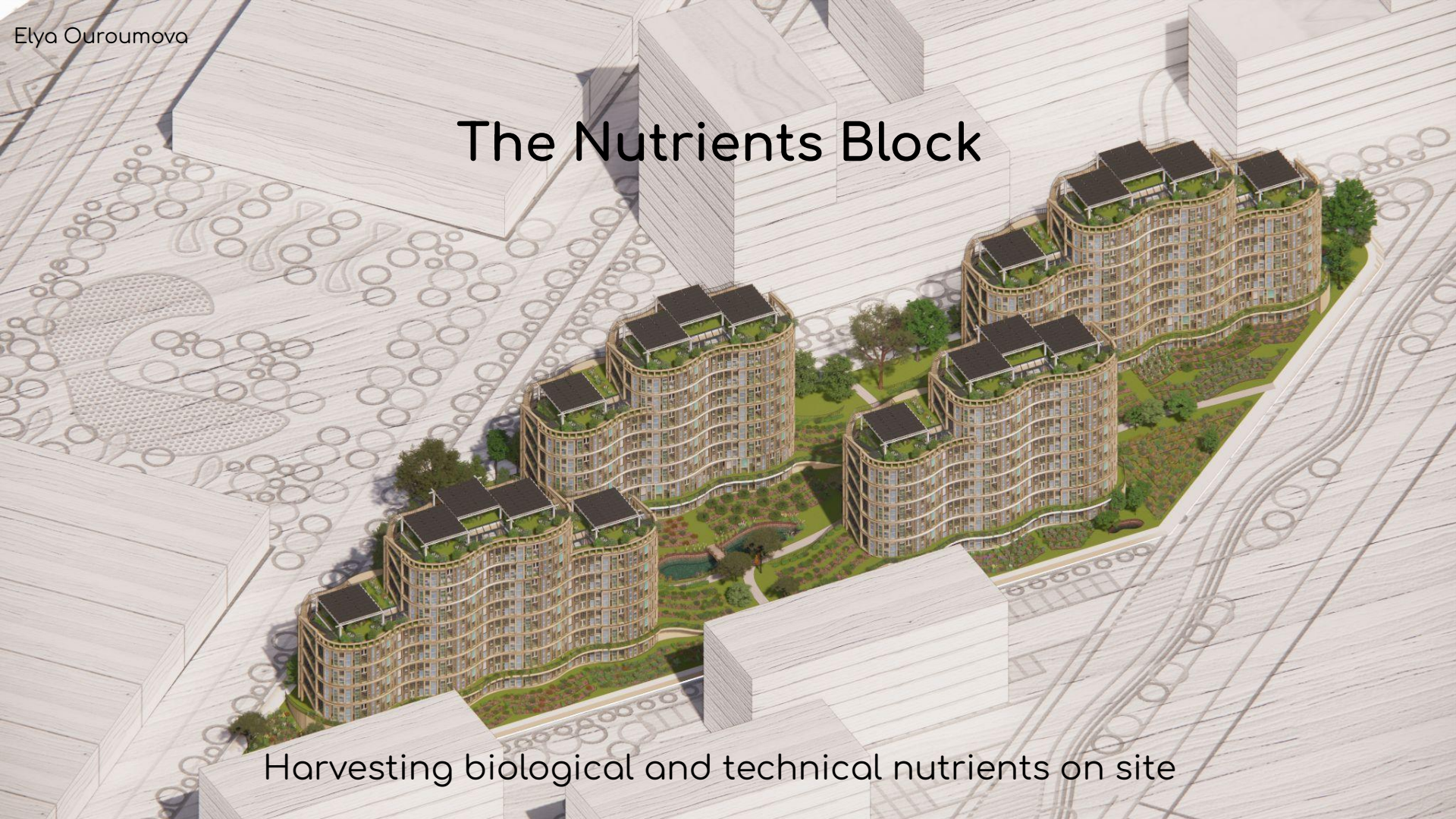


The Nutrients Block

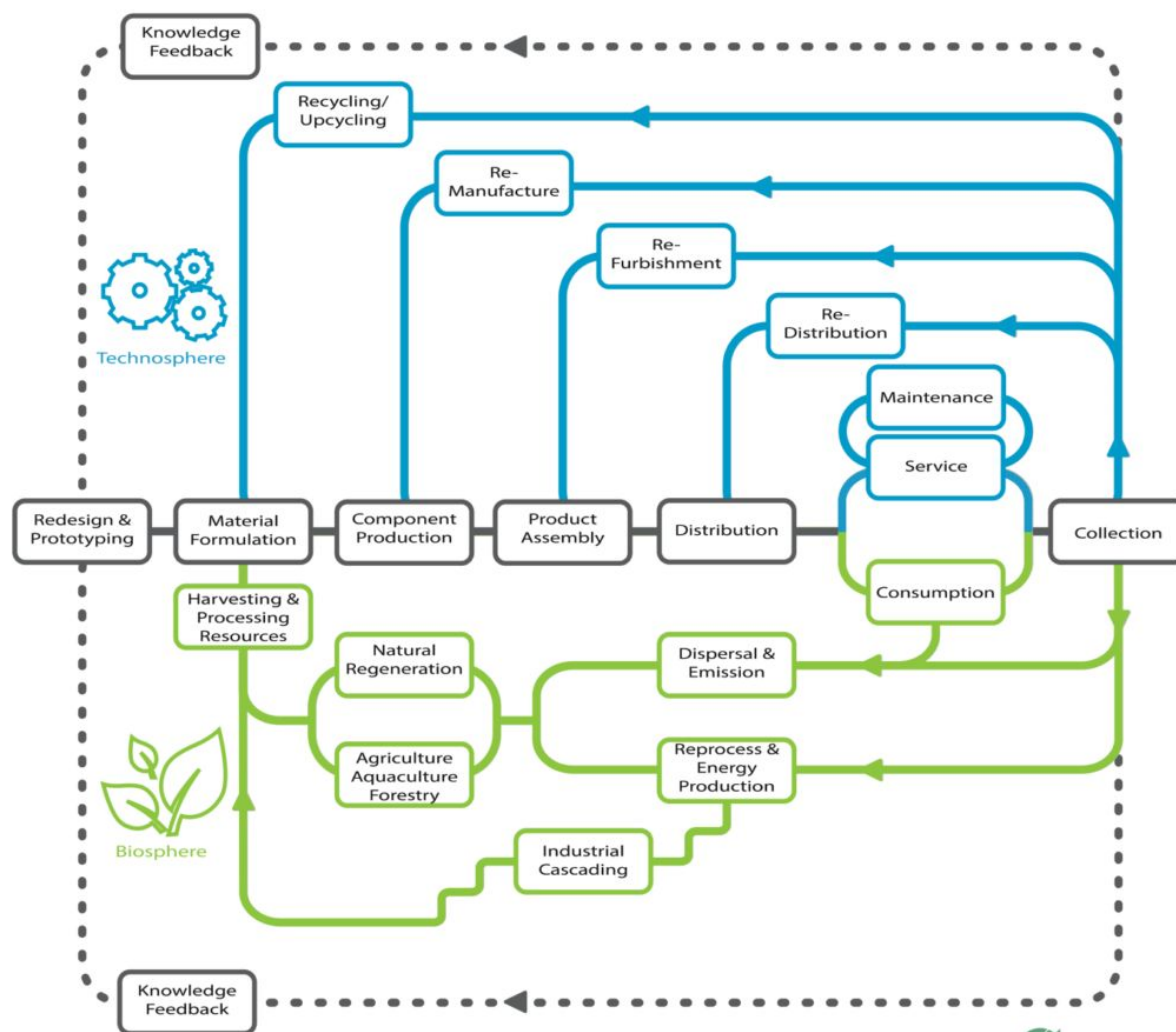
Harvesting biological and technical nutrients on site



An aerial architectural rendering of a proposed sustainable neighborhood in the Amsterdam Port Area. The central focus is a cluster of five interconnected, wavy-rise buildings. These buildings feature a light-colored, textured facade and are topped with flat roofs that serve as green terraces, complete with small trees and garden beds. The buildings are arranged around a central green courtyard that includes a small pond, various trees, and landscaped paths. The surrounding urban context is depicted with simple, light-colored rectangular blocks representing existing buildings. To the left, a large open area is marked with a pattern of concentric circles and lines, suggesting a planned park or public space. To the right, a road with multiple lanes and a series of circular markings is visible. The overall style is clean and modern, emphasizing green integration and sustainable urban design.

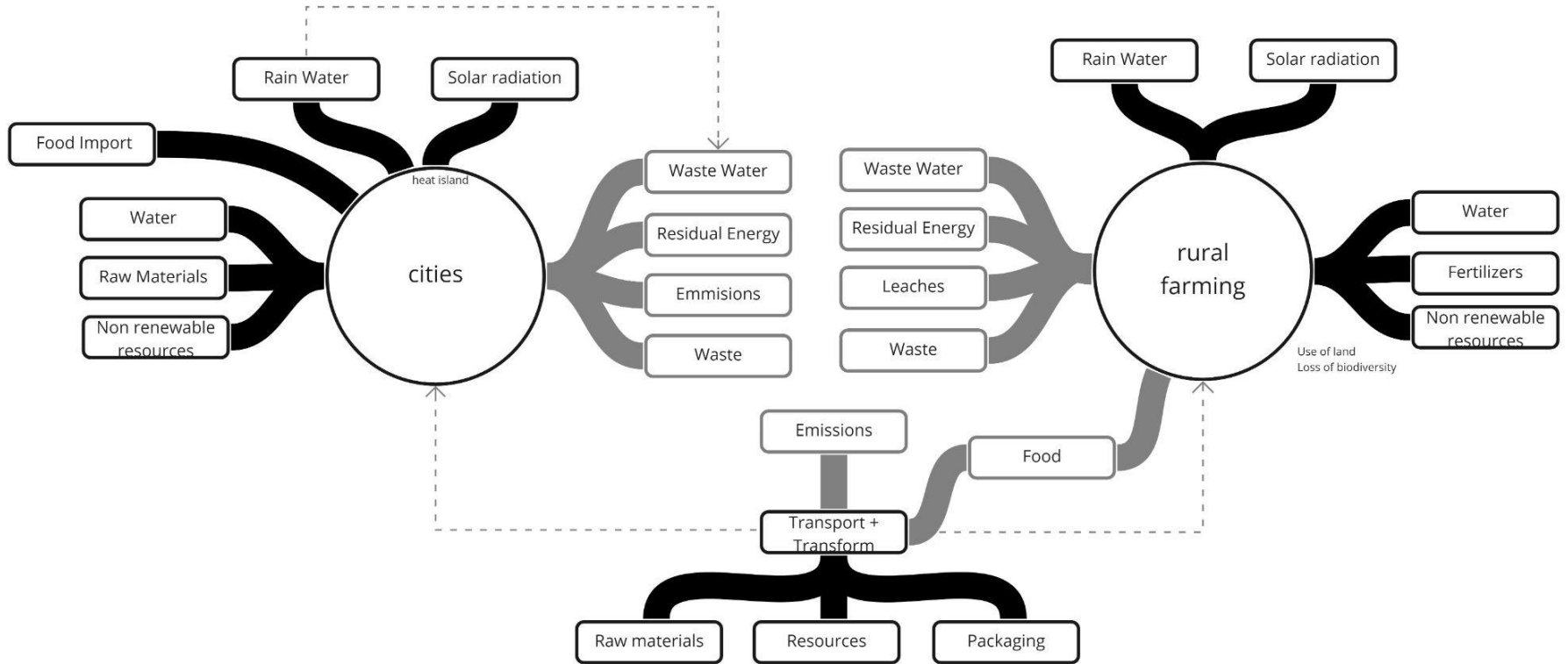
Amsterdam Port Area Redevelopment Project

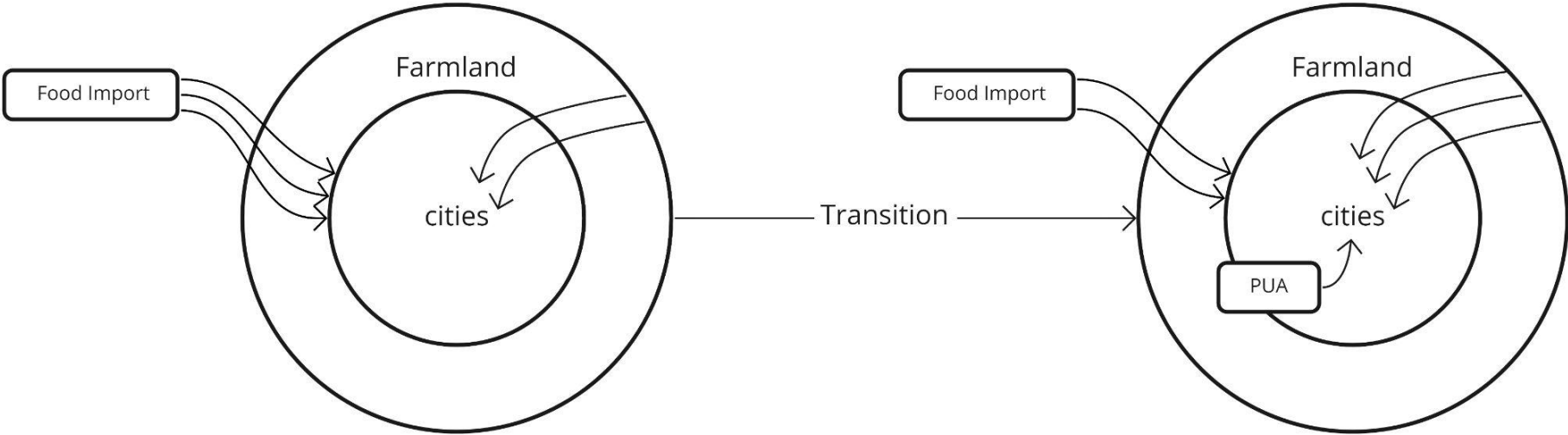
Prototype of a sustainable neighborhood with integrated regenerative food production and local material reuse.



Human nutrient cycle

Why should buildings and cities integrate
food production?

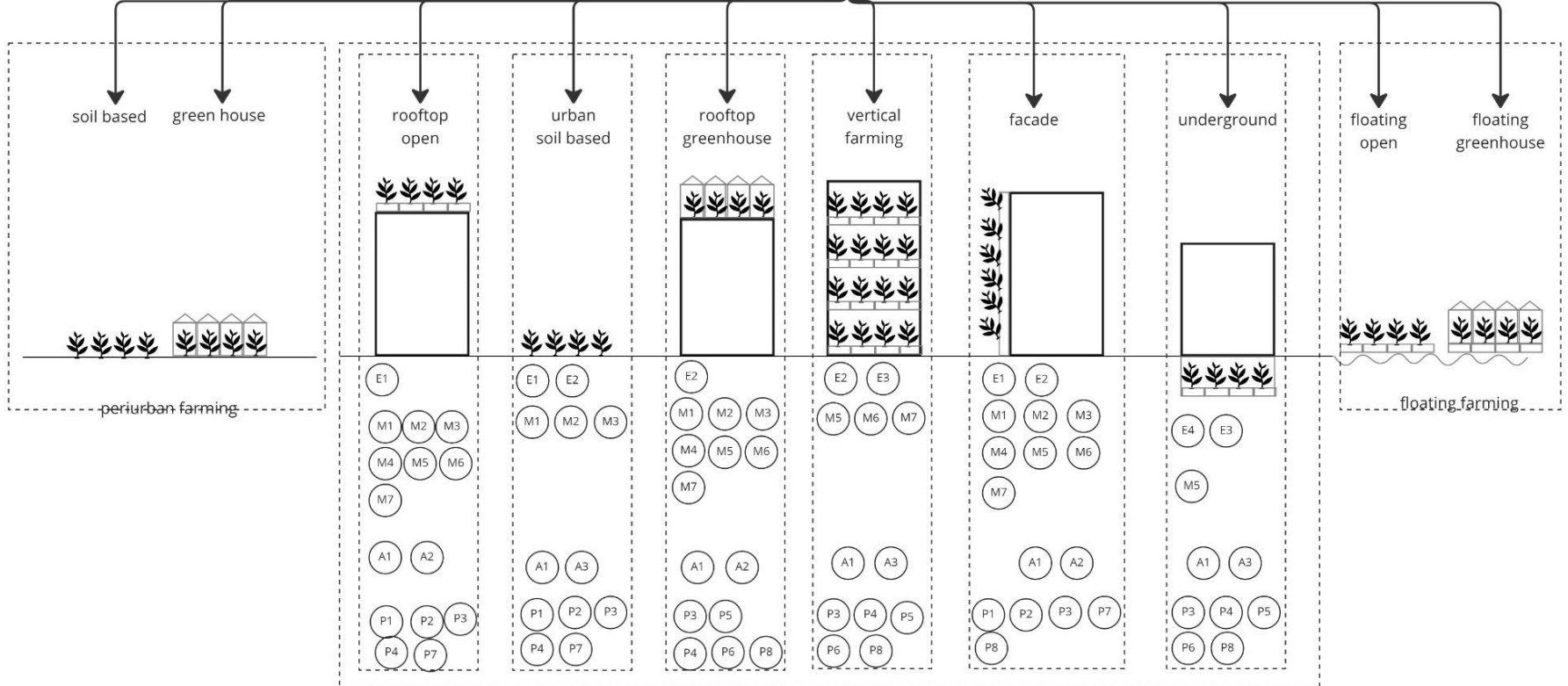




Human nutrient cycle

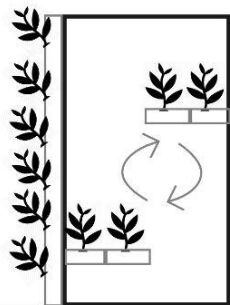
How can buildings and cities integrate
food production?

Growing Food
in the city



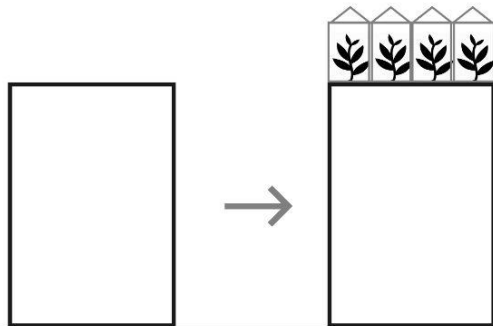
Approach

holistic



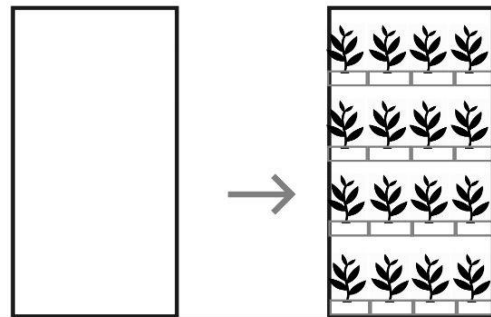
A1

retrofitted/
adds-on

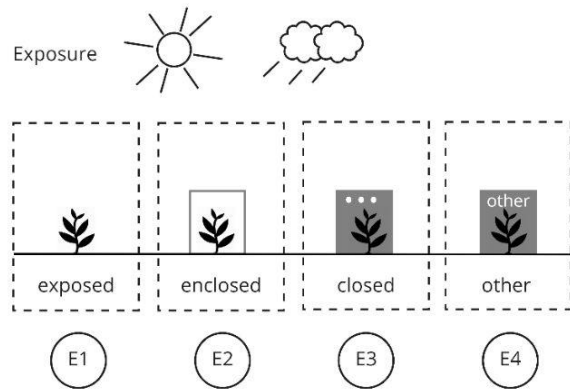


A2

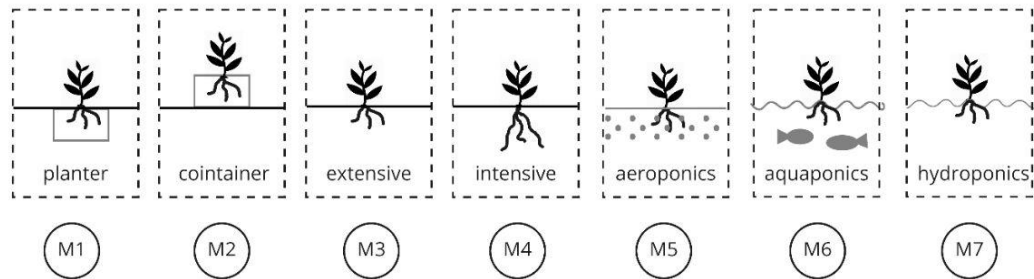
converted



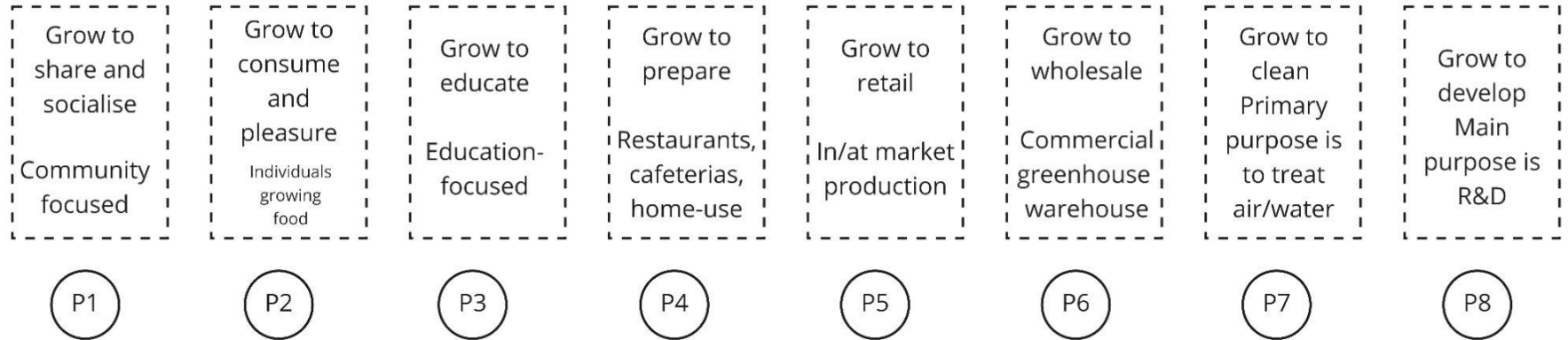
A3



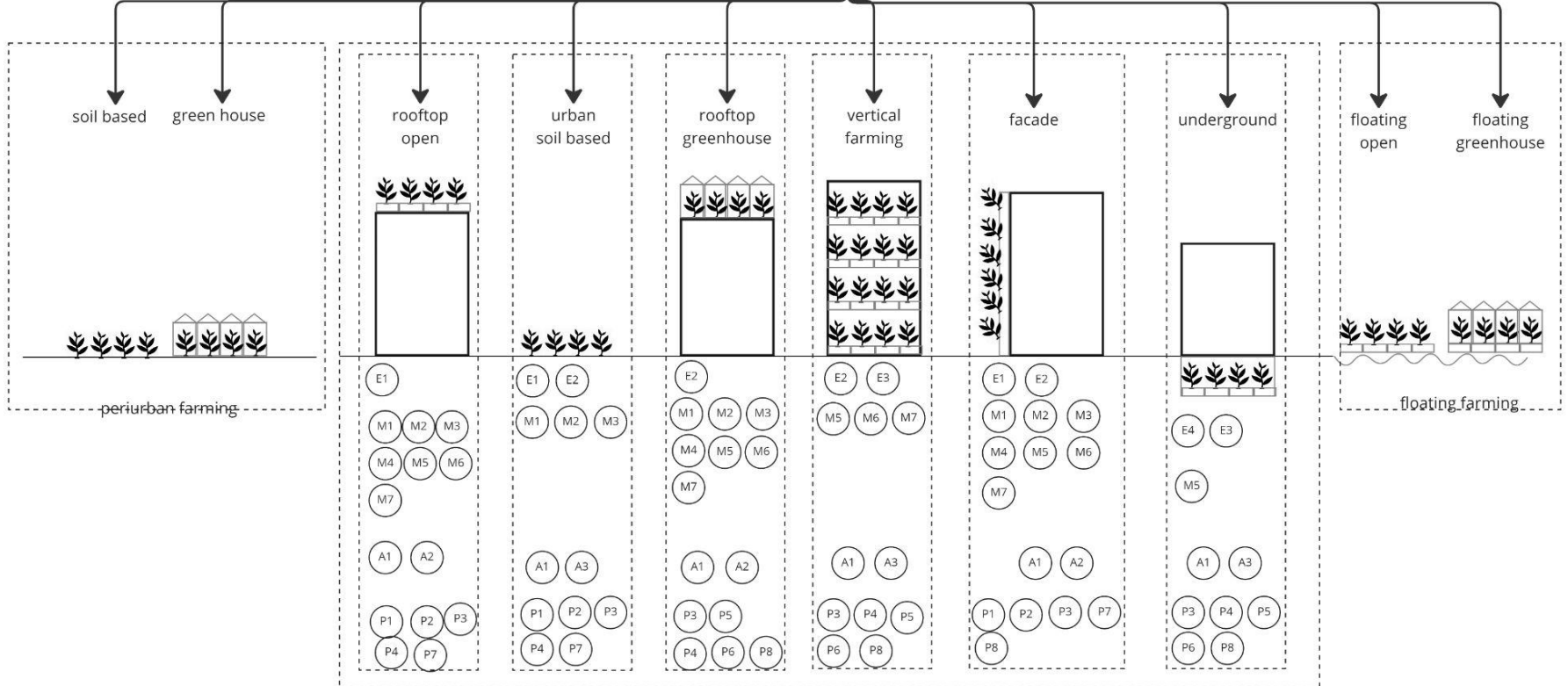
Growing medium



Production Purpose



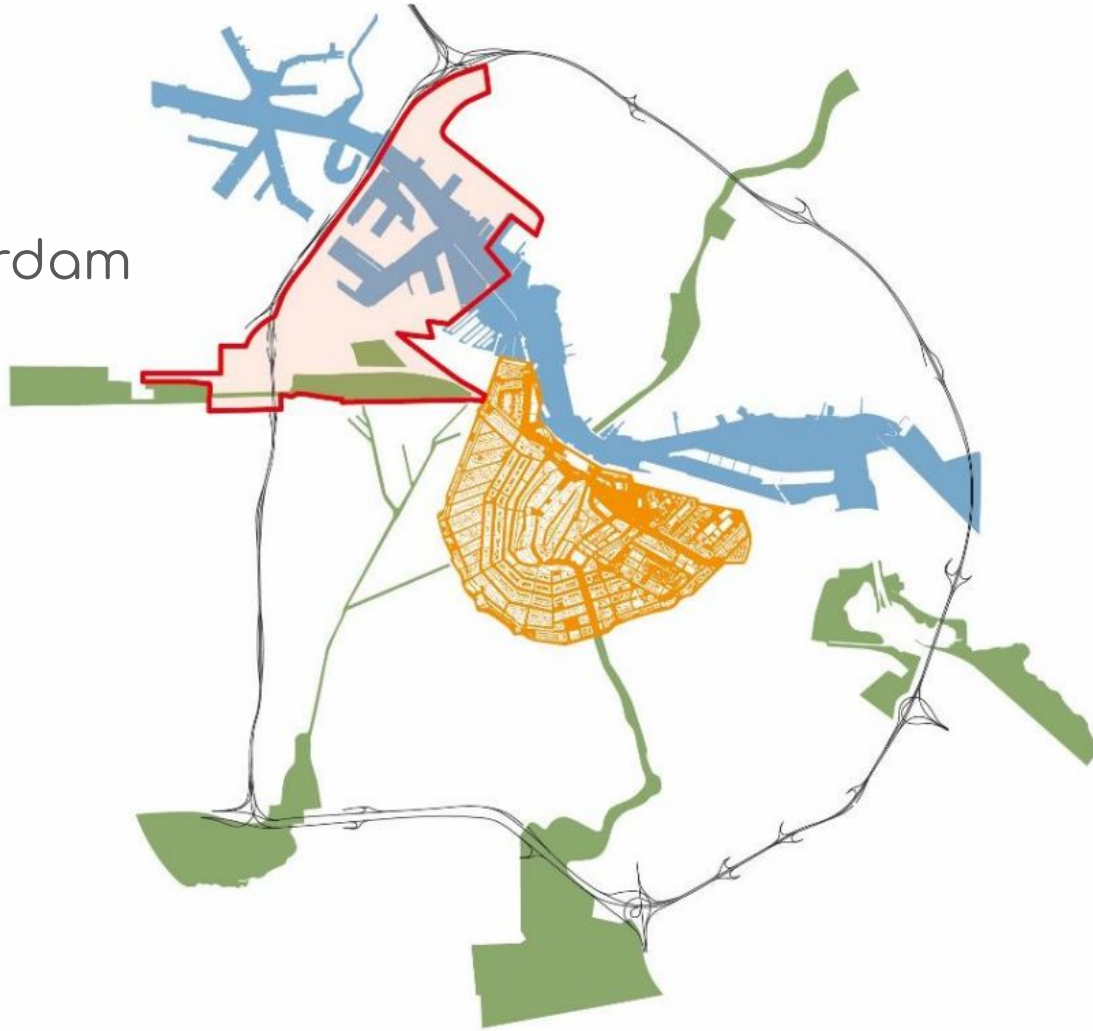
Growing Food
in the city



Context

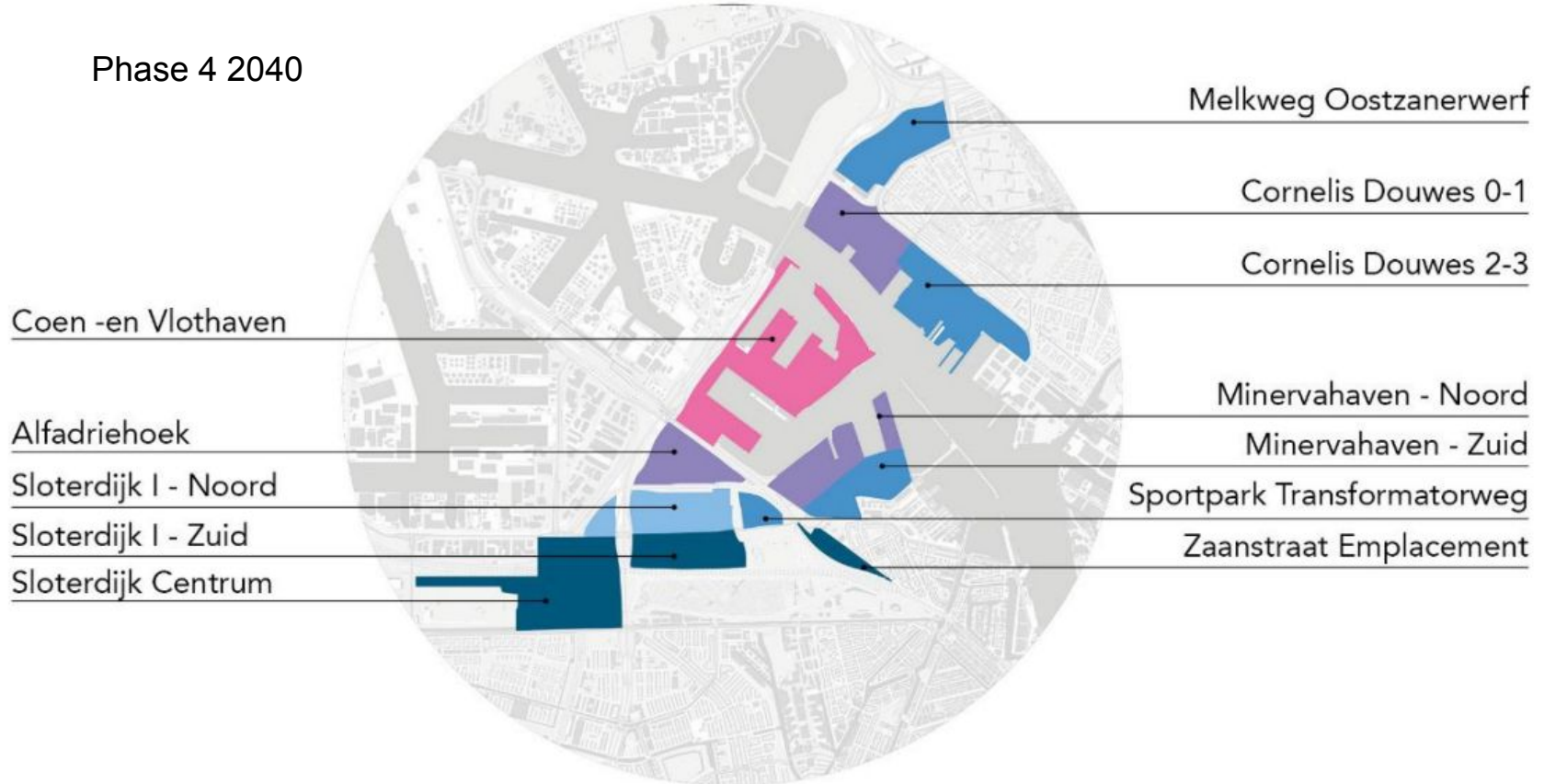
Amsterdam

Amsterdam





Phase 4 2040



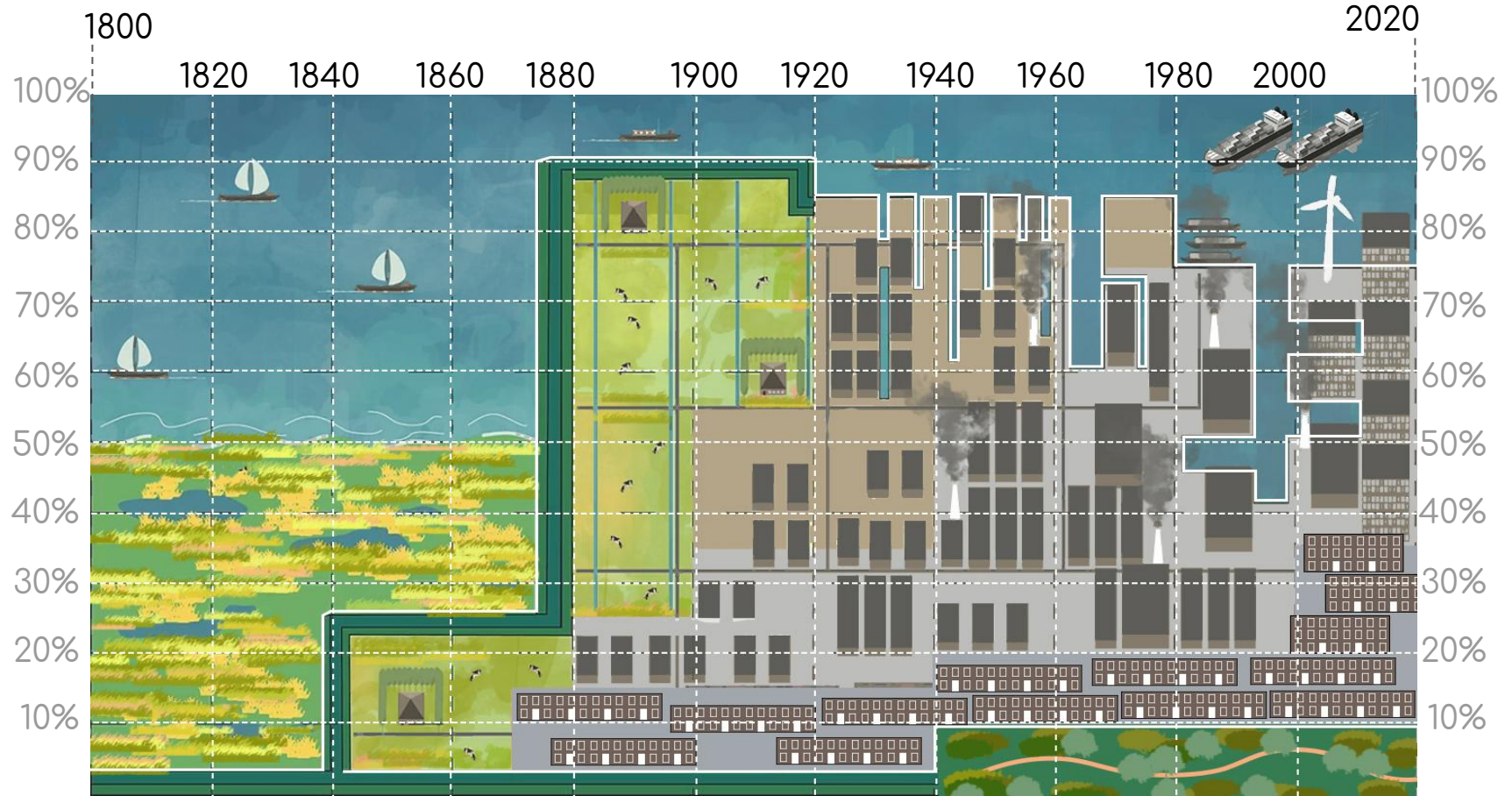
CURRENT STATE

SITE



SUCCESSION

Amsterdam Port



IDENTITIES

Amsterdam Port



TRADERS



FARMERS



DOCK WORKERS



INDUSTRIAL
WORKERS



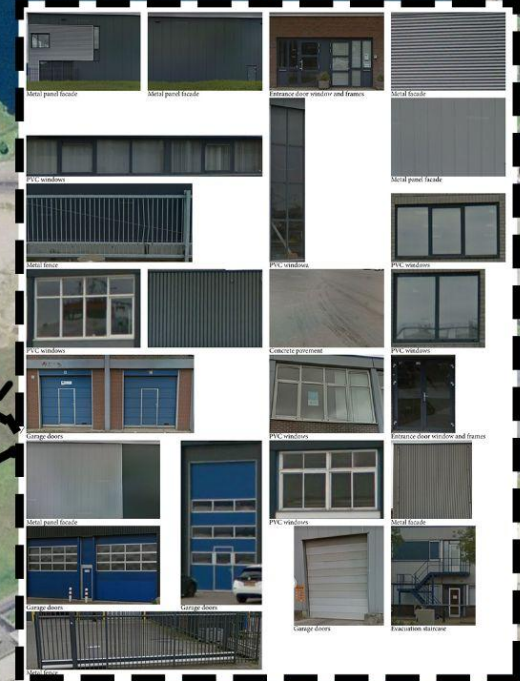
FAMILIES

CURRENT STATE

SITE



MATERIAL BANK



The Neighborhood

WATER
WIND
SUN
FOOD

Technological and
biological nutrients

Mixed use neighborhood
Residential area
Flexible working space
Light industries
Material bank of the port
Food Market



The Block



WATER
WIND
SUN
FOOD

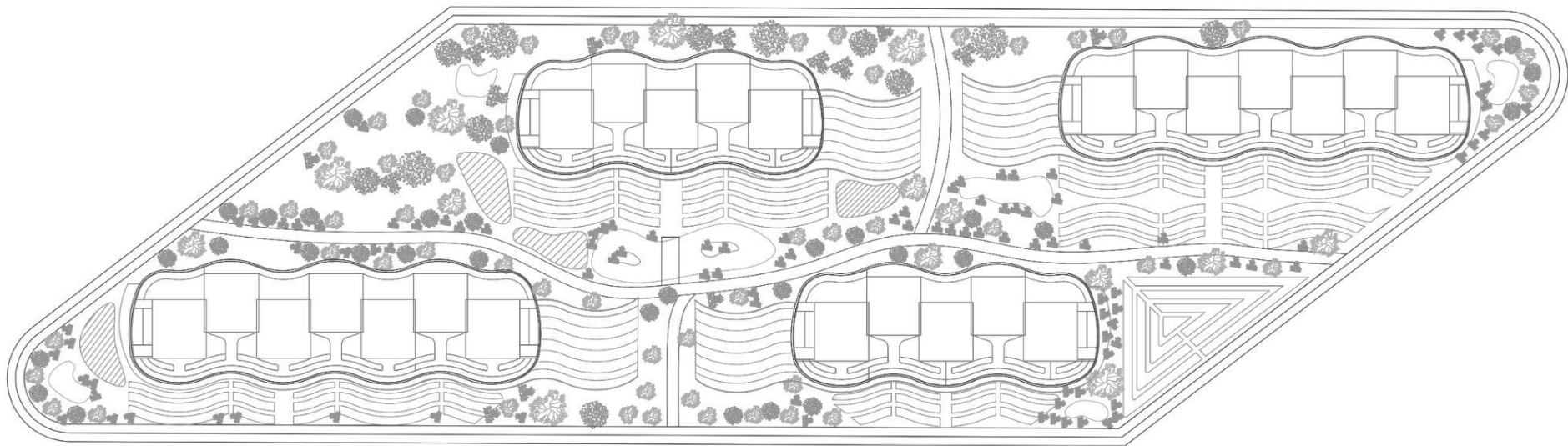
Mixed-use
residential and working area

Different housing typologies
with a mix of family
apartments, co-living
spaces, senior and student
accommodation.

Housing up to 1500 resident
and creating 100 unskilled
job for marginalized workers



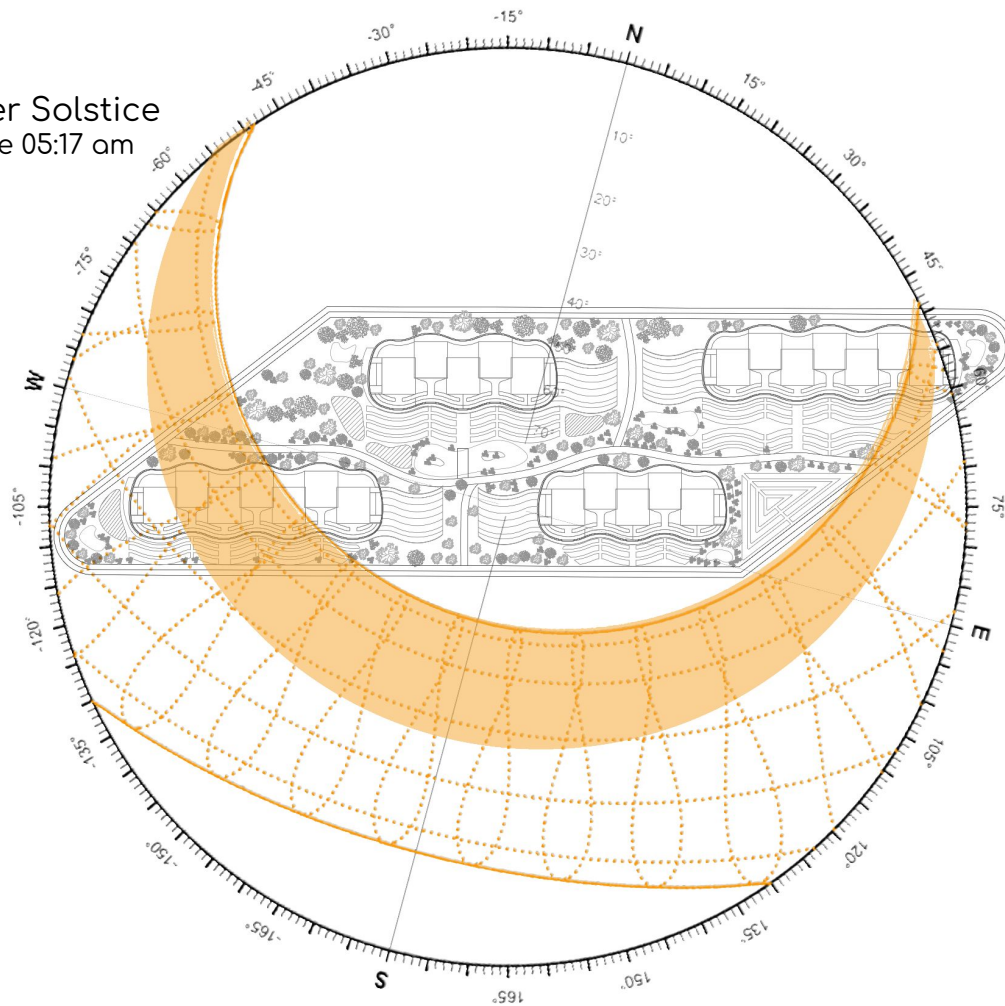


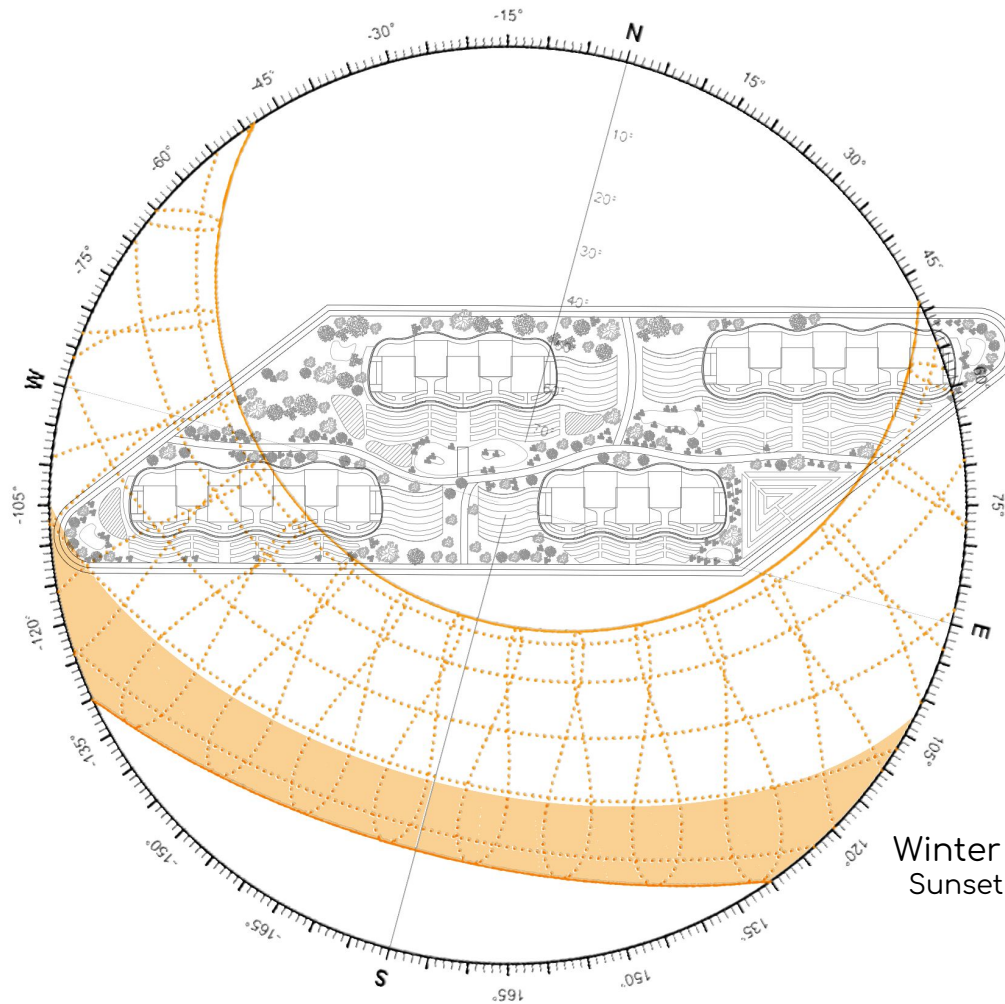


Summer Solstice
Sunrise 05:17 am

Summer Solstice
Sunset 22:07 pm

Daylight duration
16h 50 min





Summer Solstice
Sunrise 08:48 am

Winter Solstice
Sunset 16:29 pm

Daylight duration
7h 41 min



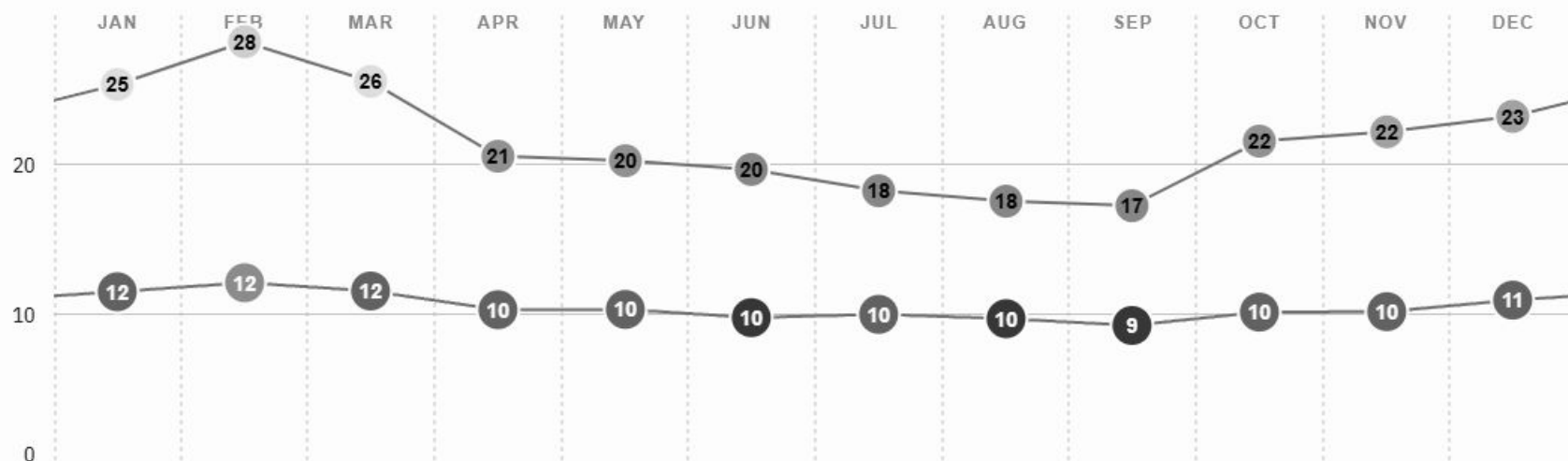


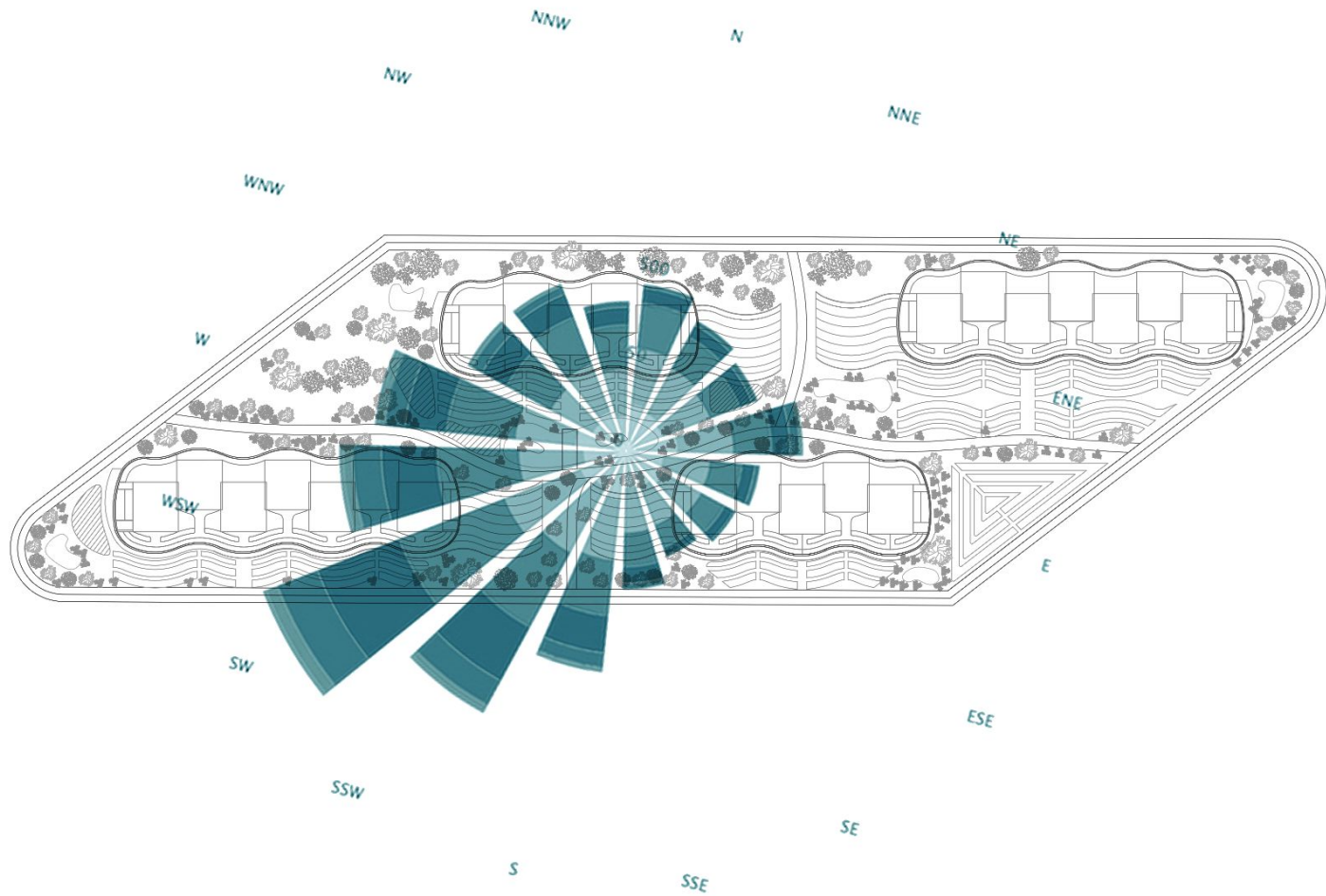
Dominant wind direction

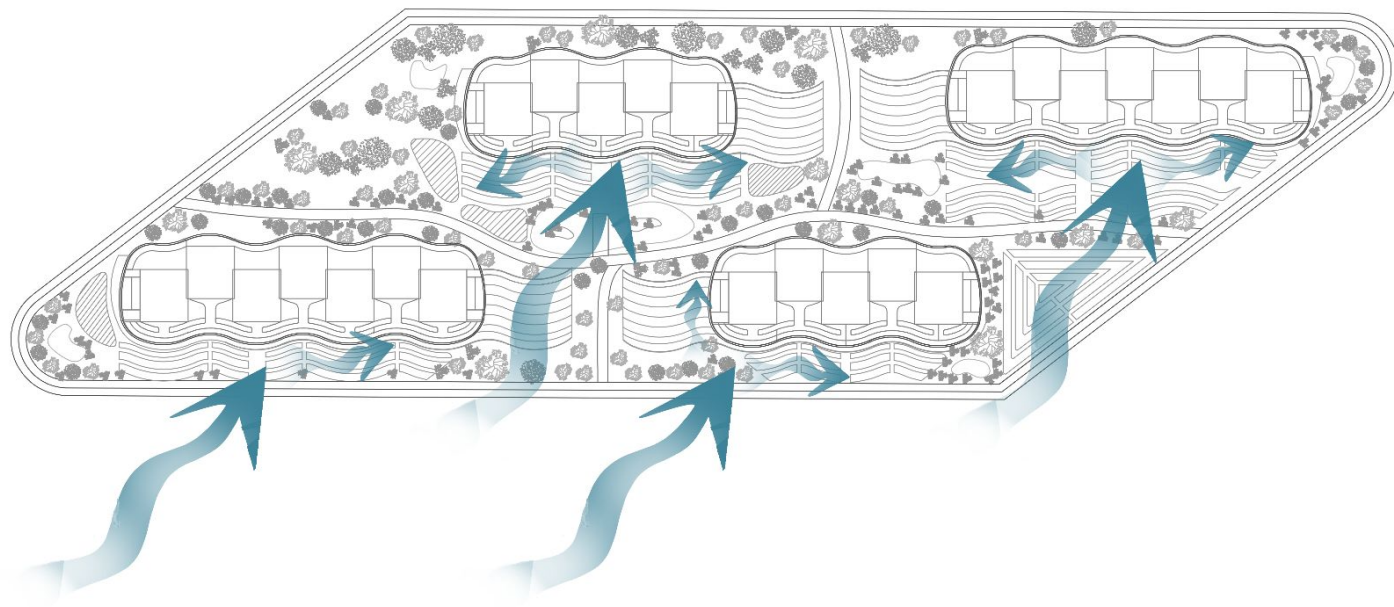
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SW	SW	WSW	NW	WNW	W	W	WSW	WSW	SSW	SSW	SSW



Average wind speeds and gusts (kts)

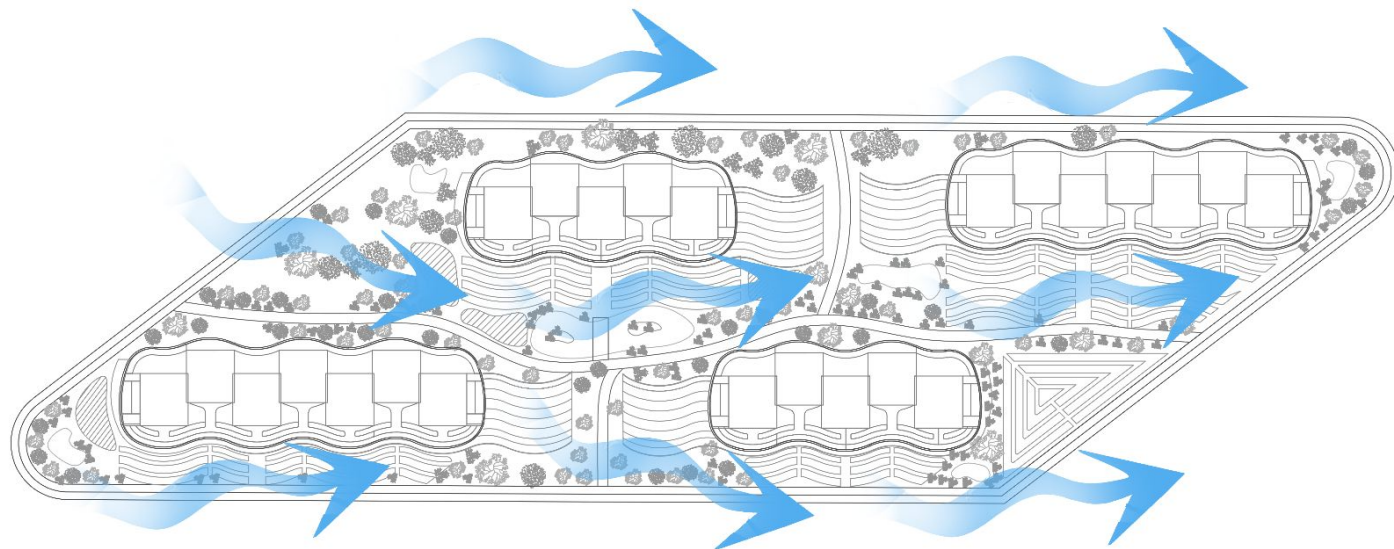






Winter Wind
SW / SSW





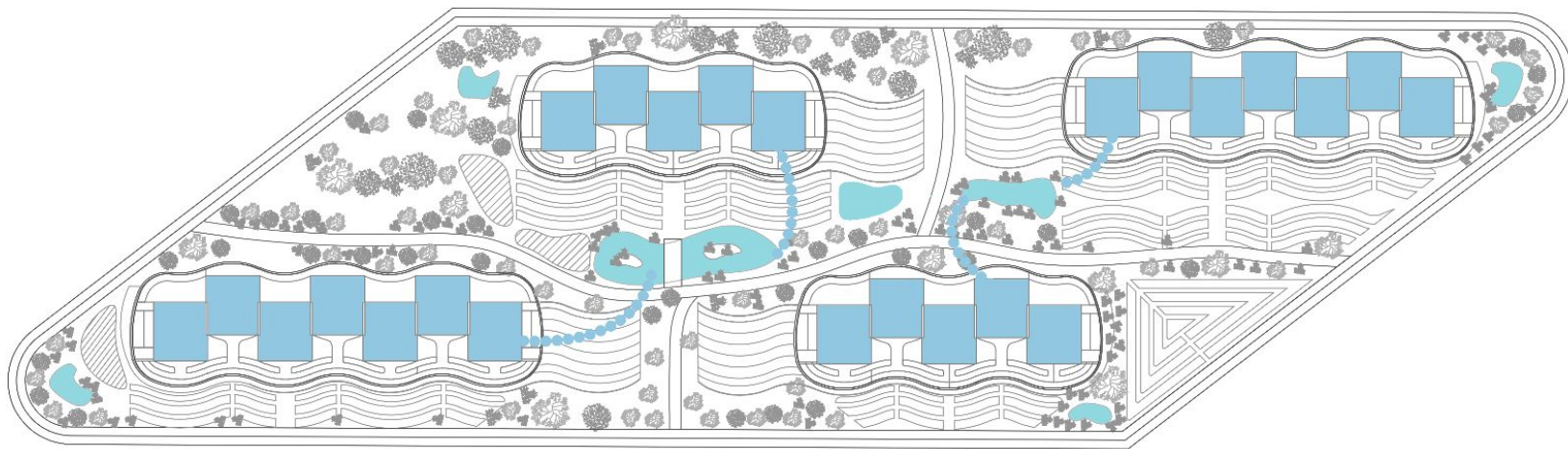
Summer Wind
W / WSW





	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
L/m2	68	53	44	49	52	58	77	87	72	72	70	64
L on site	952 000	742 000	616 000	686 000	728 000	812 000	1 078 000	1 218 000	1 008 000	1 008 000	980 000	896 000

Total : 10 724 000 L annually



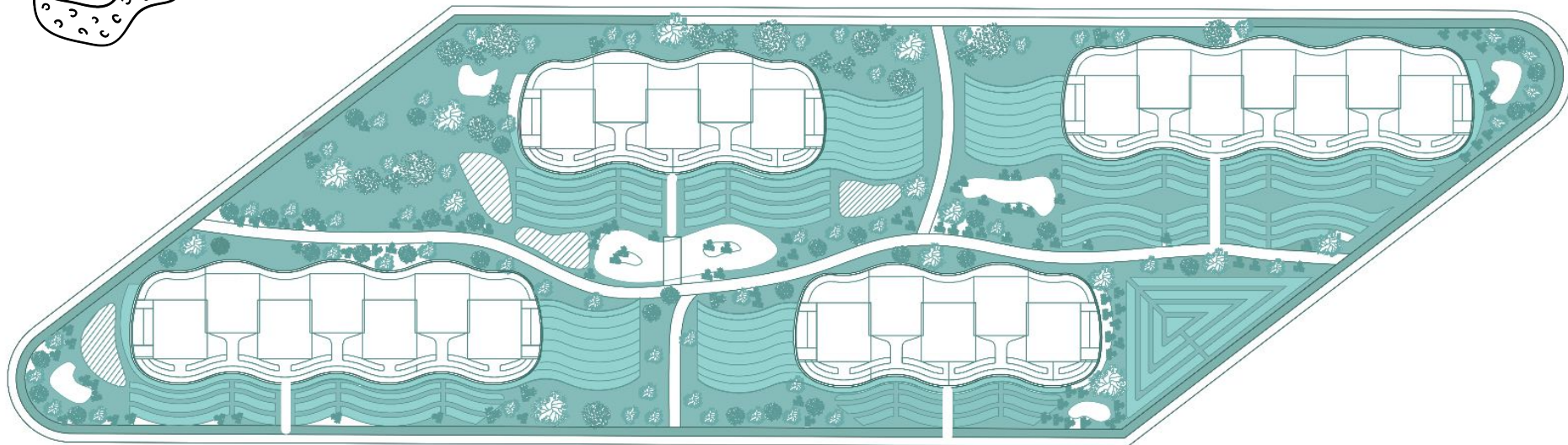
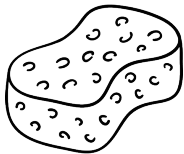
Rain water captured

10% rain
1 072 400 L

Rain water storage
in buildings

1 072 400 L
Cistern size:





Groundwater recharge

70% rainfall
7 506 800 L

Evaporation

4% rainfall
42 900 L

Transpiration

10% rainfall
1 072 400 L

Rain water collected

10% rain
1 072 400 L

Storm water runoff

6% of rainfall
644 000 L





Edible forest
landscape

15% site area

Permaculture
gardens

30% site area

Farming on building
structure
(horizontal)

7000m²
+50%

Farming on building
structure
(vertical)

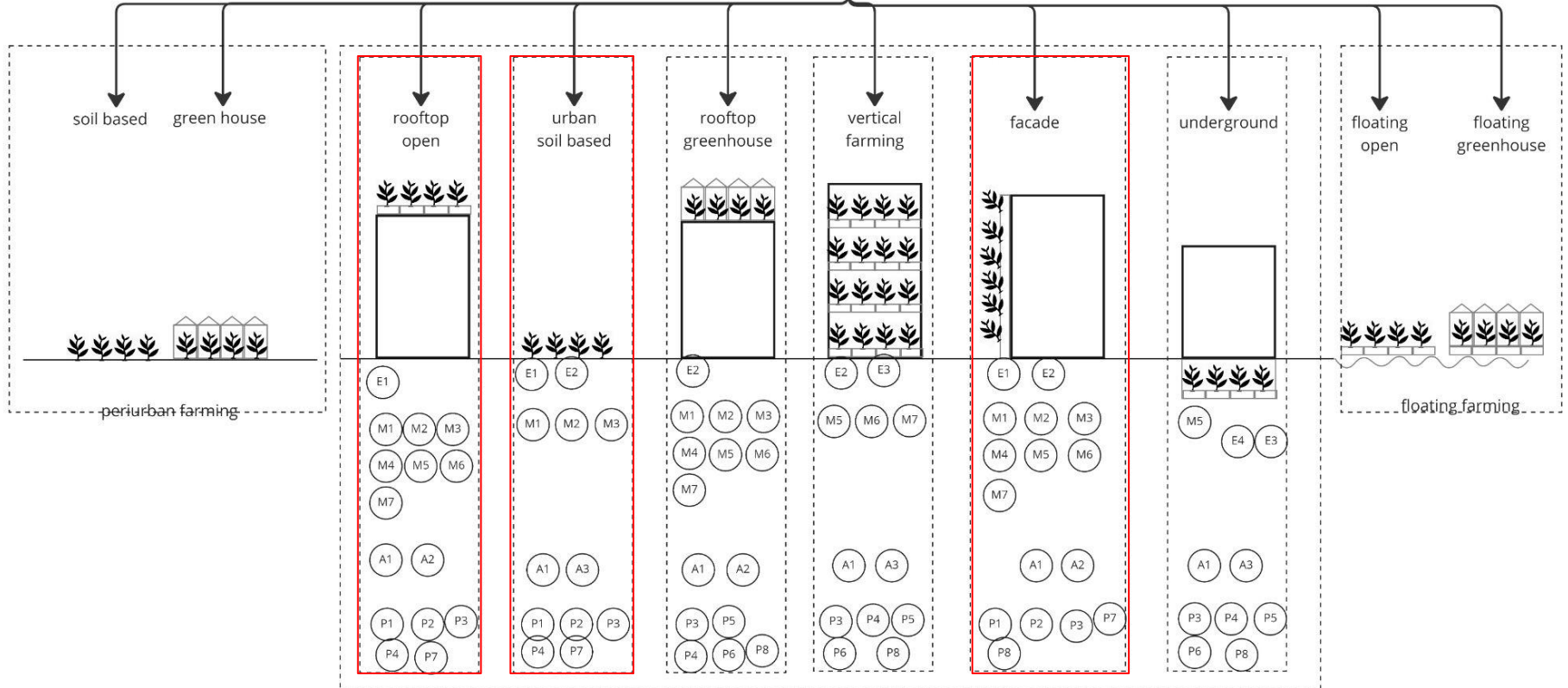
2560 m²
+20%

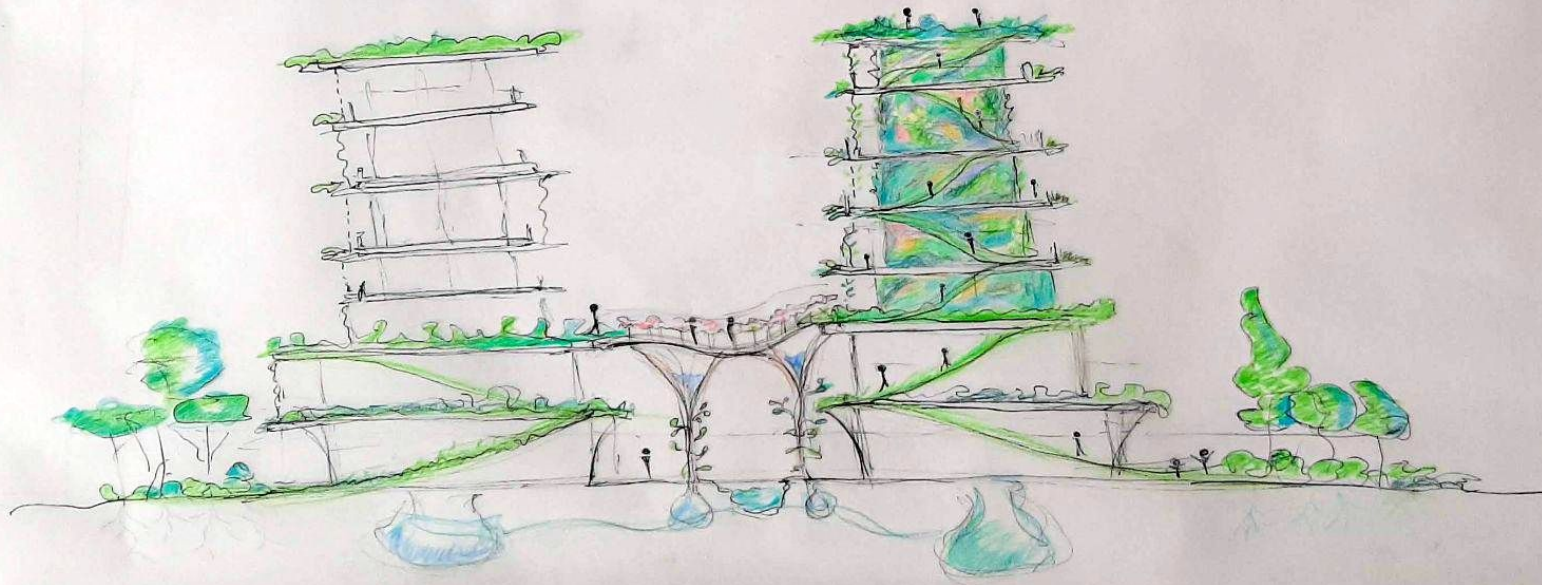
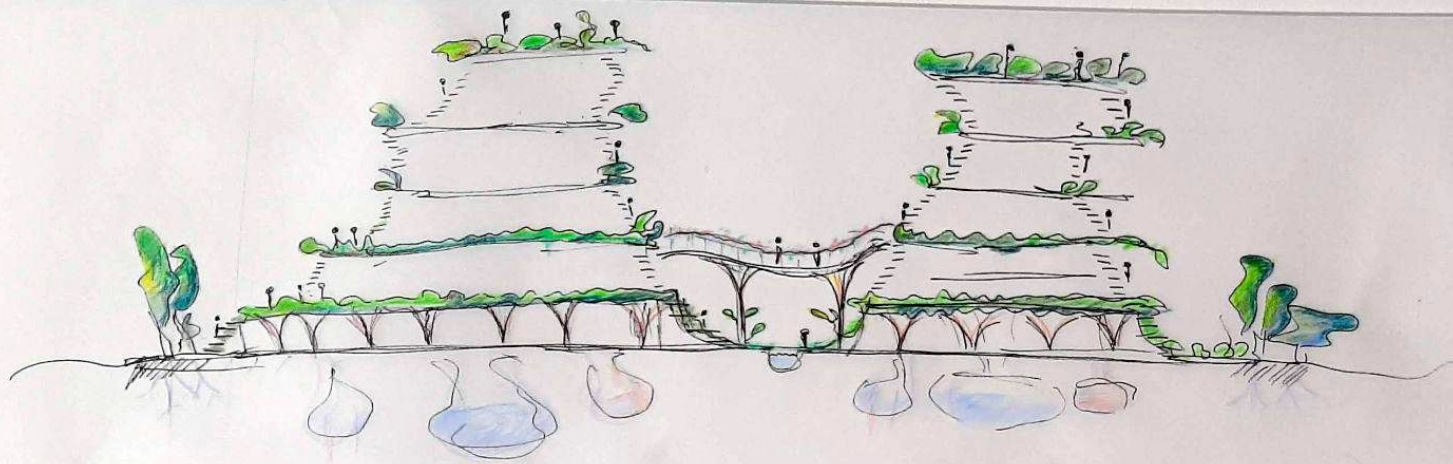
Edible
rain gardens

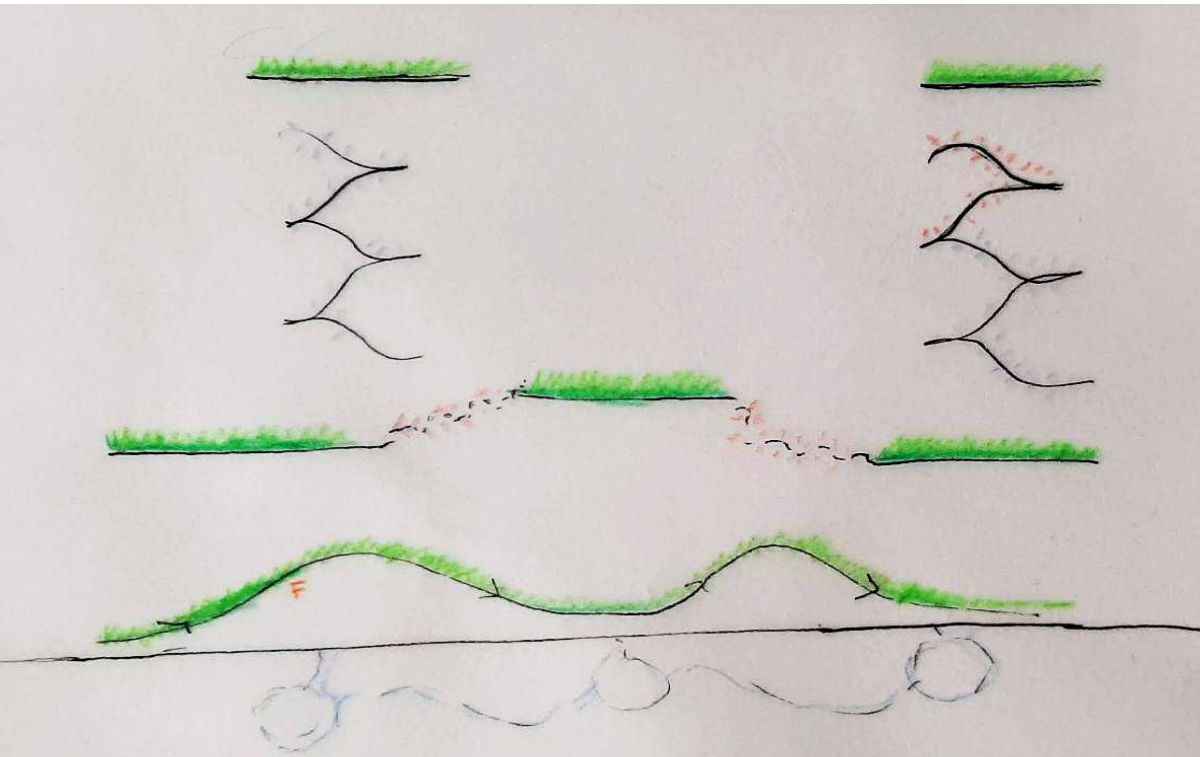
5% of site area



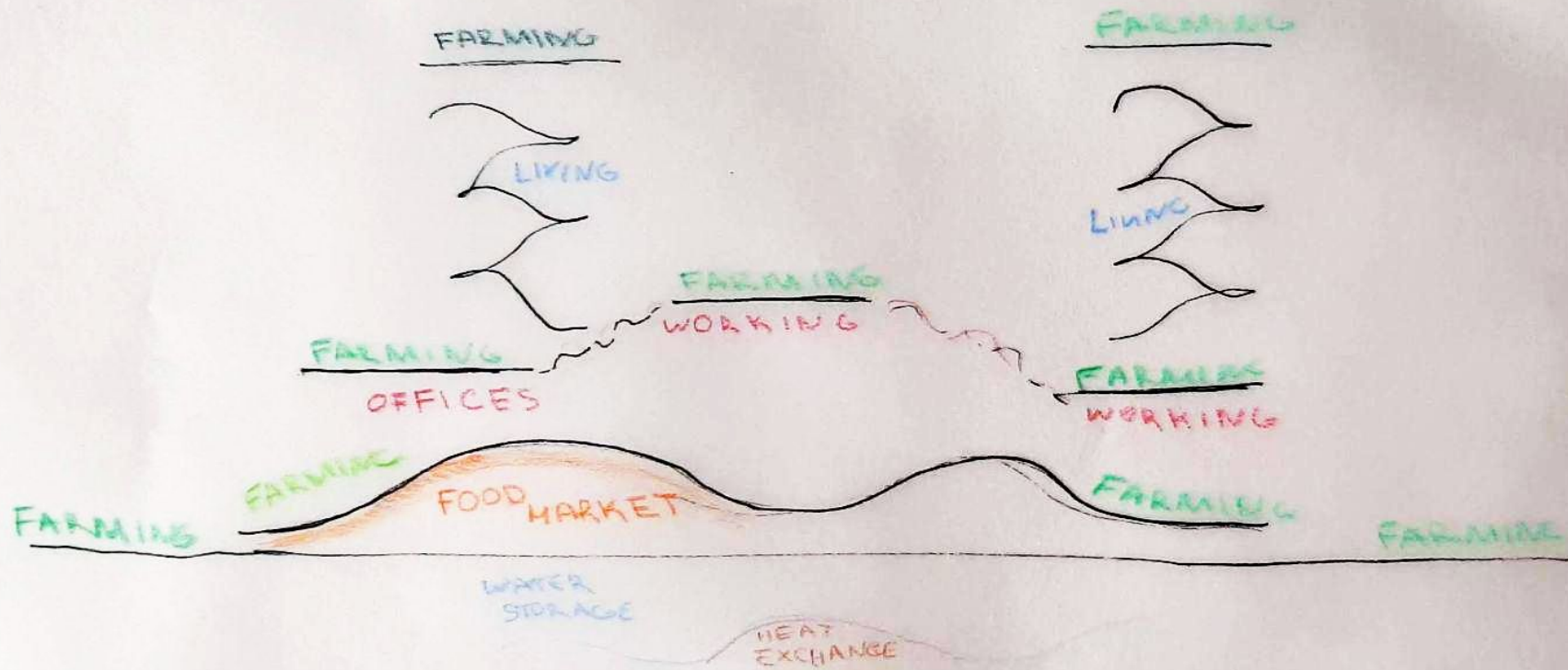
Growing Food
in the city







PRODUCERS



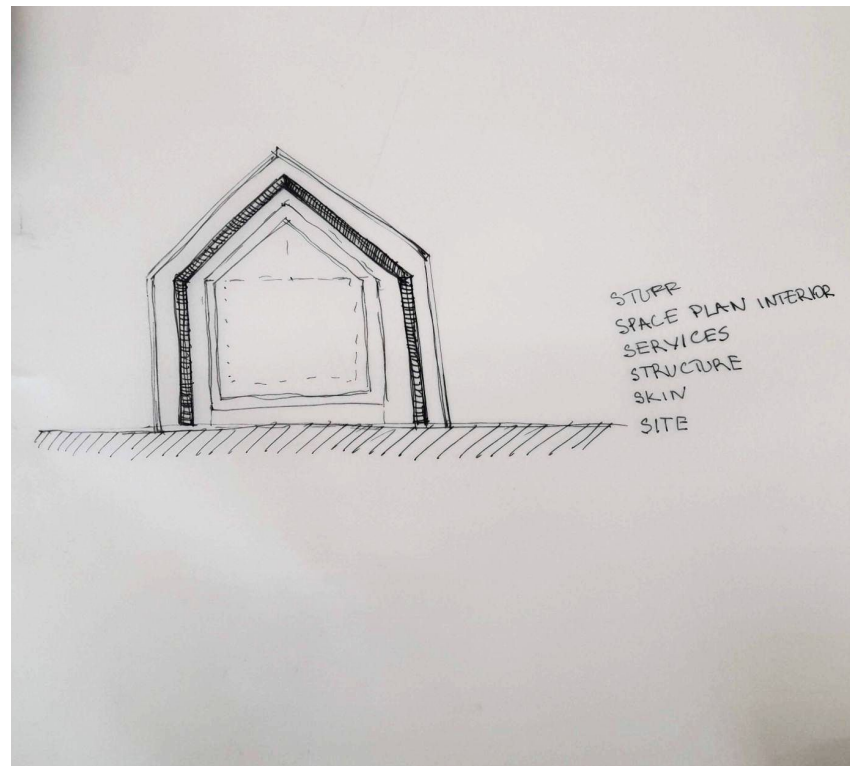
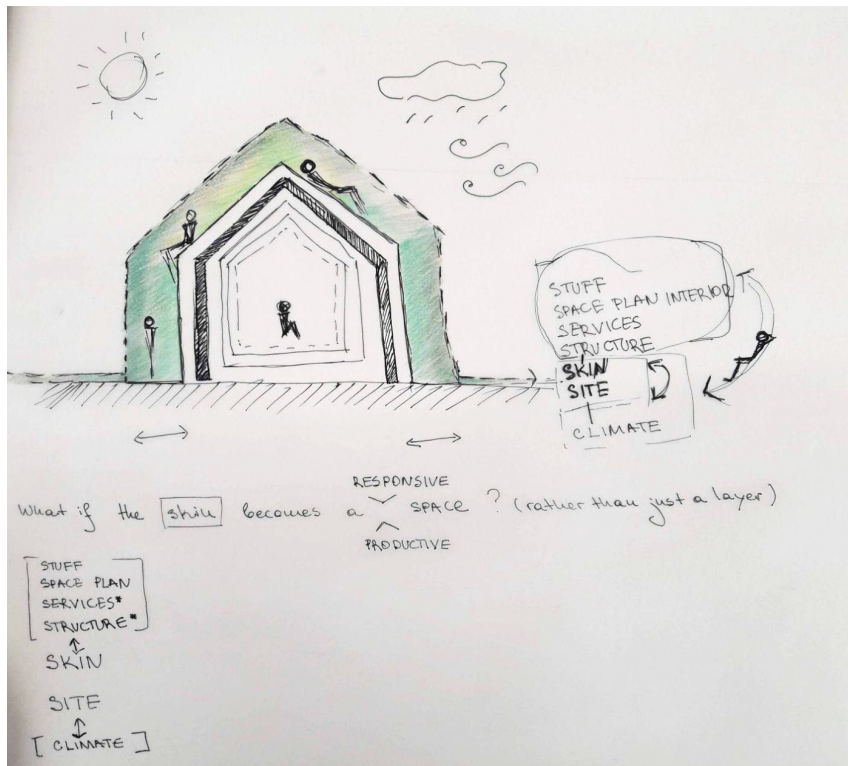


Building

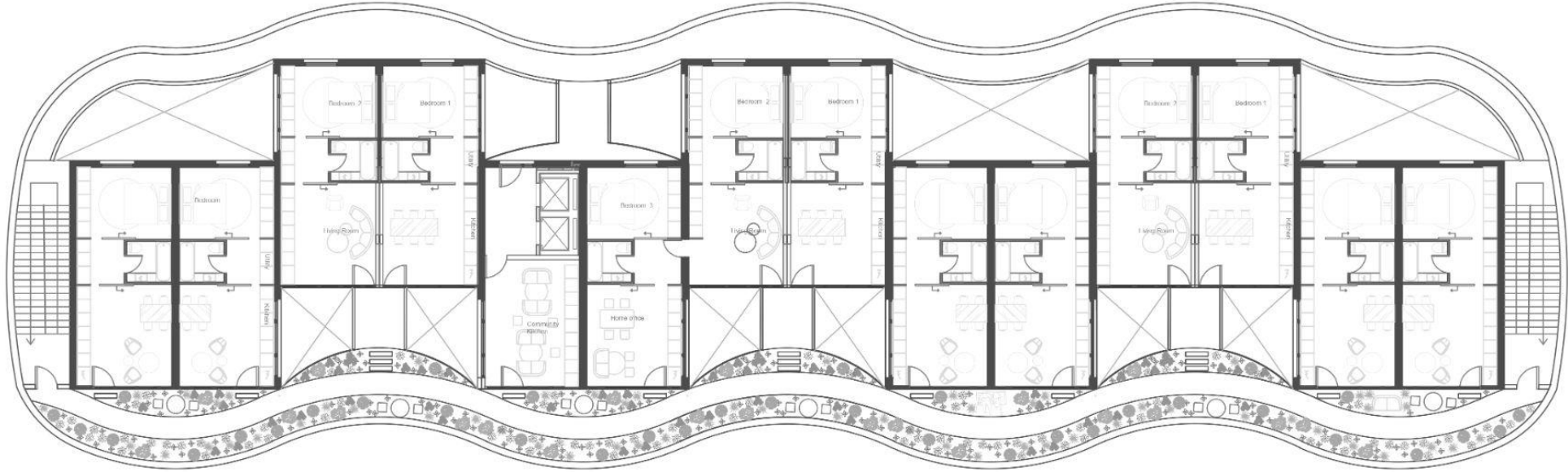


Building





Residential Floor plan



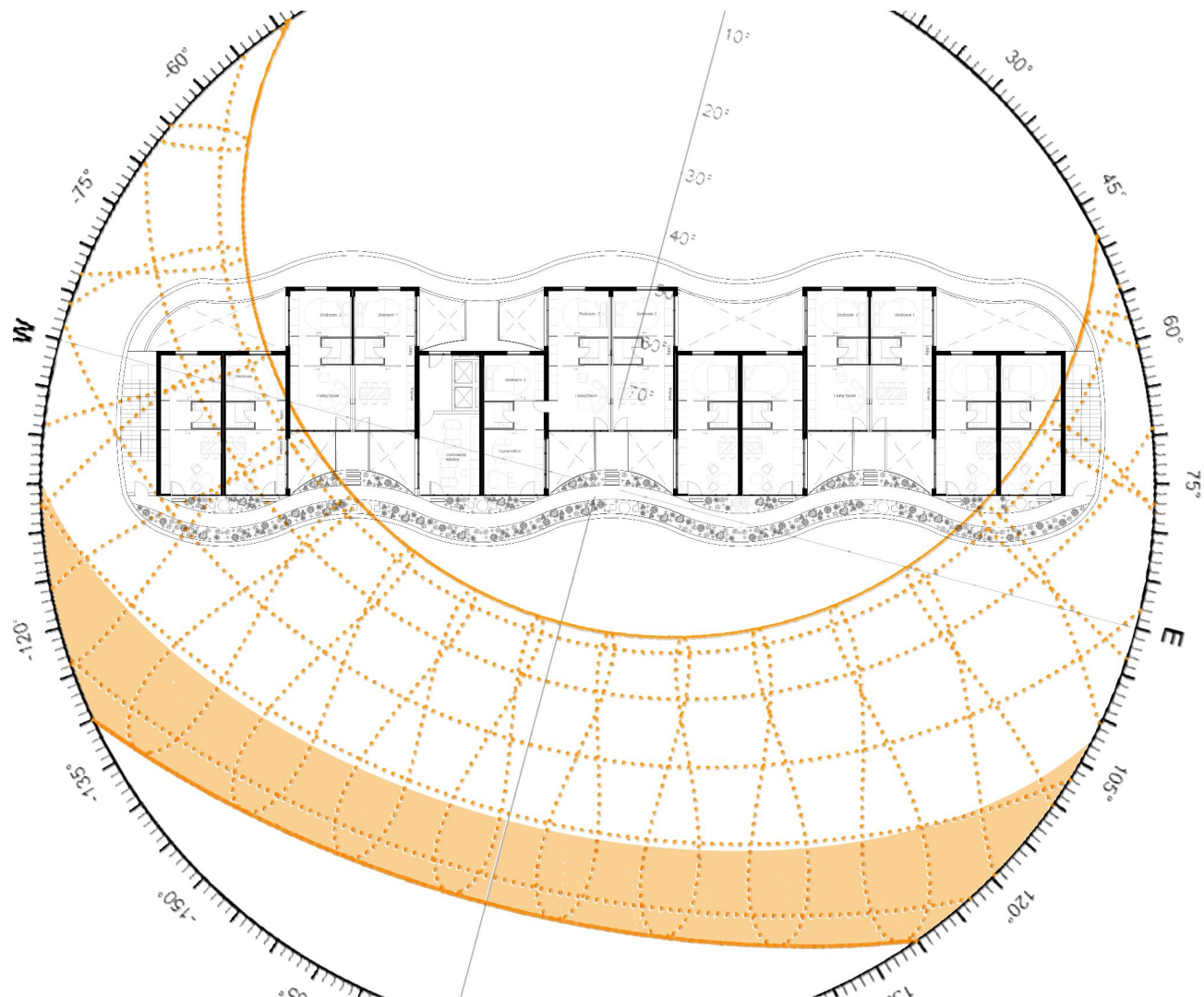
Building
operation

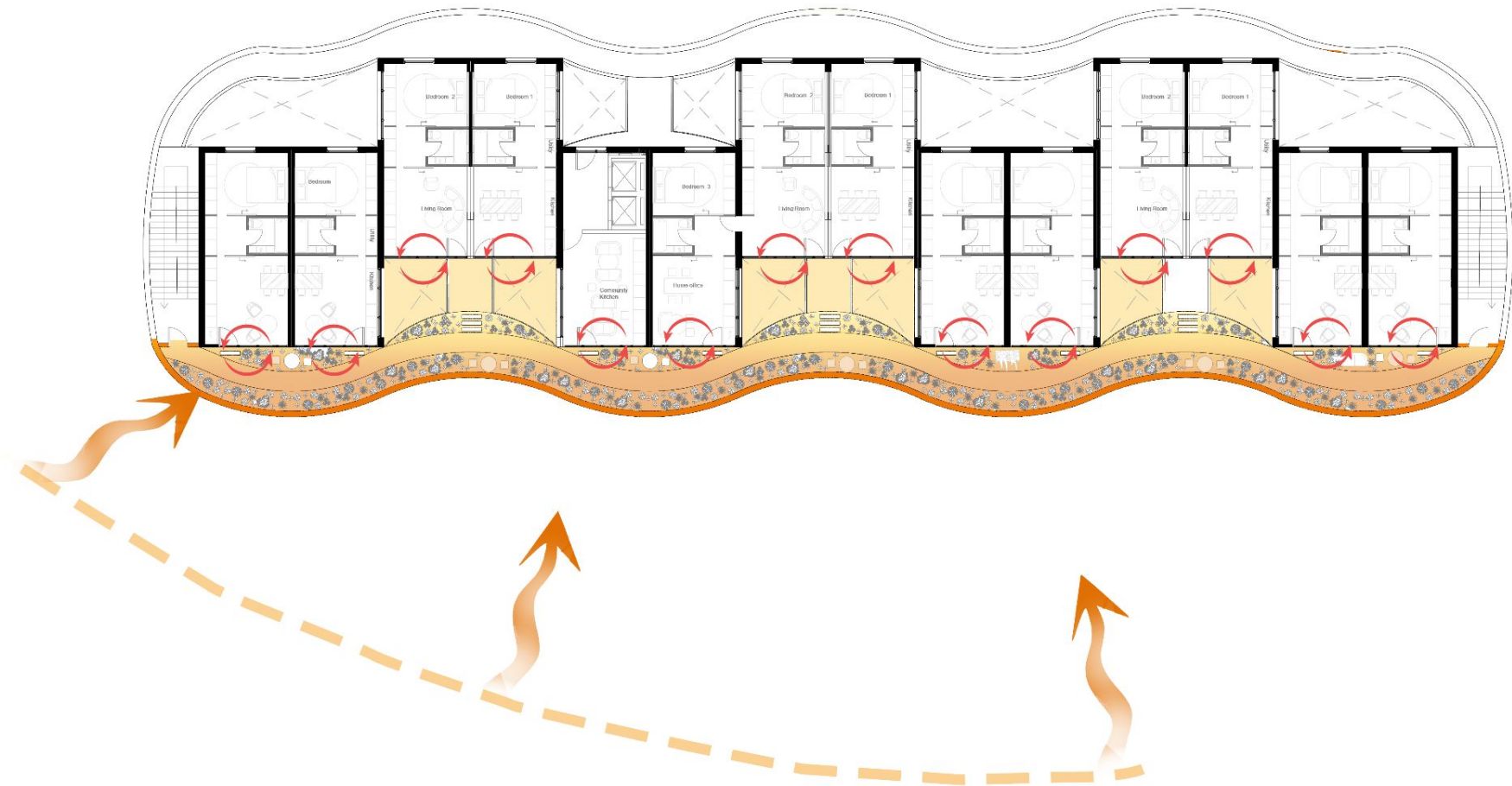
Winter Season

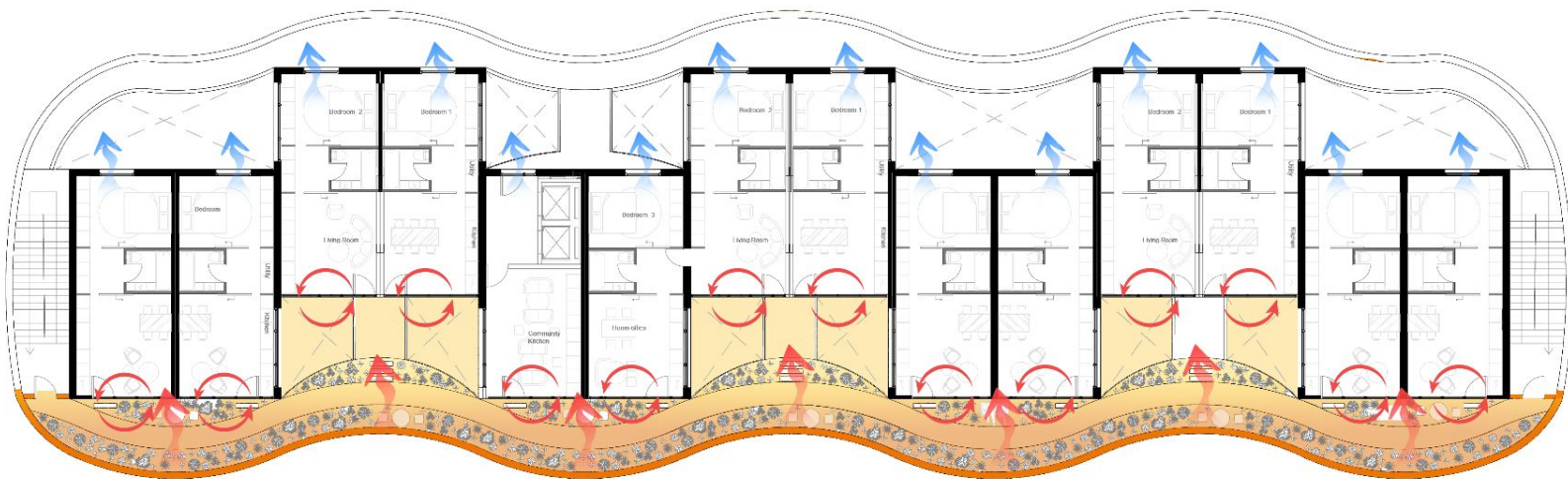
heating demand

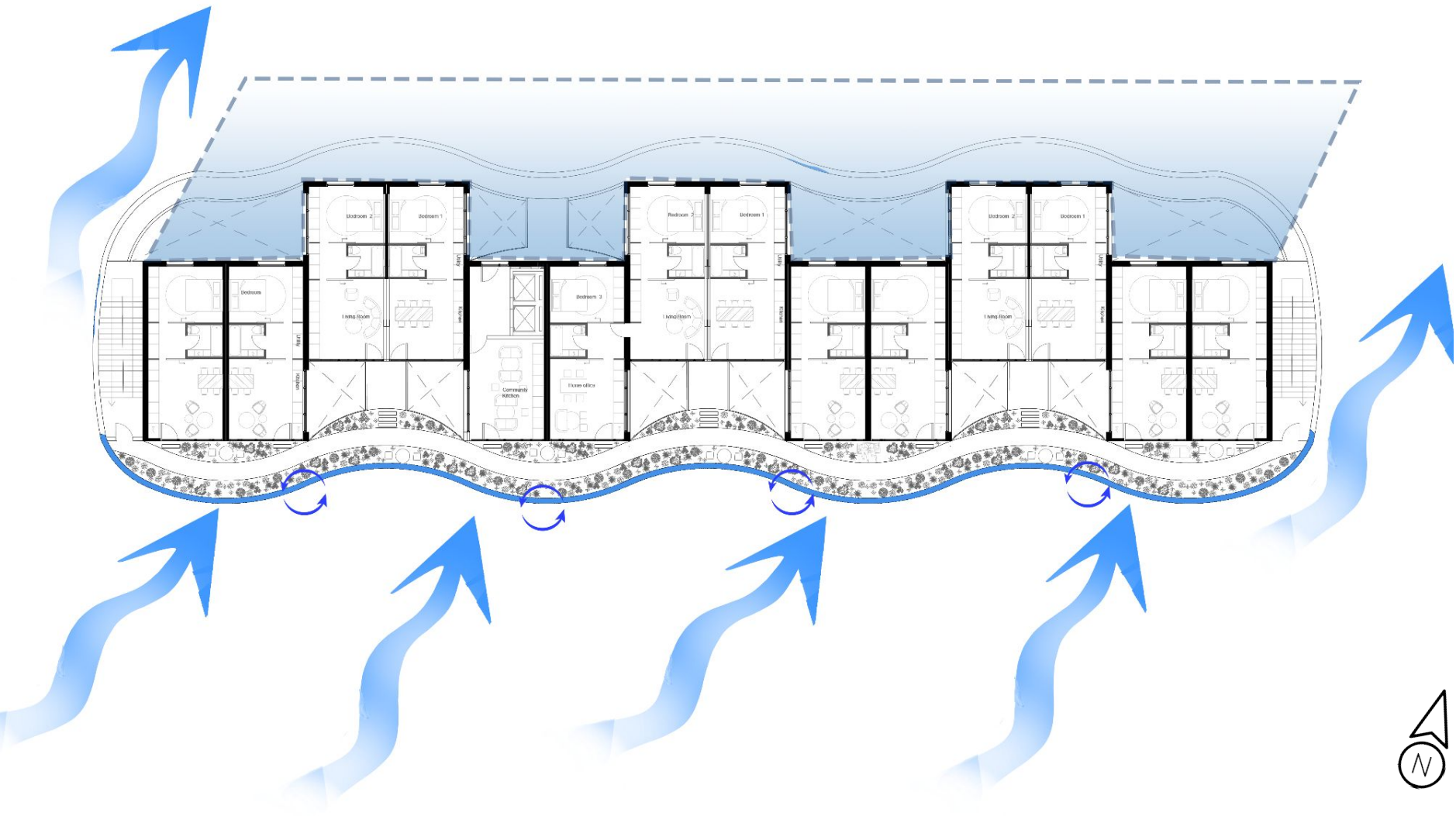
1st priority : Capture Solar Heat

2nd priority: Protect from Cold Wind







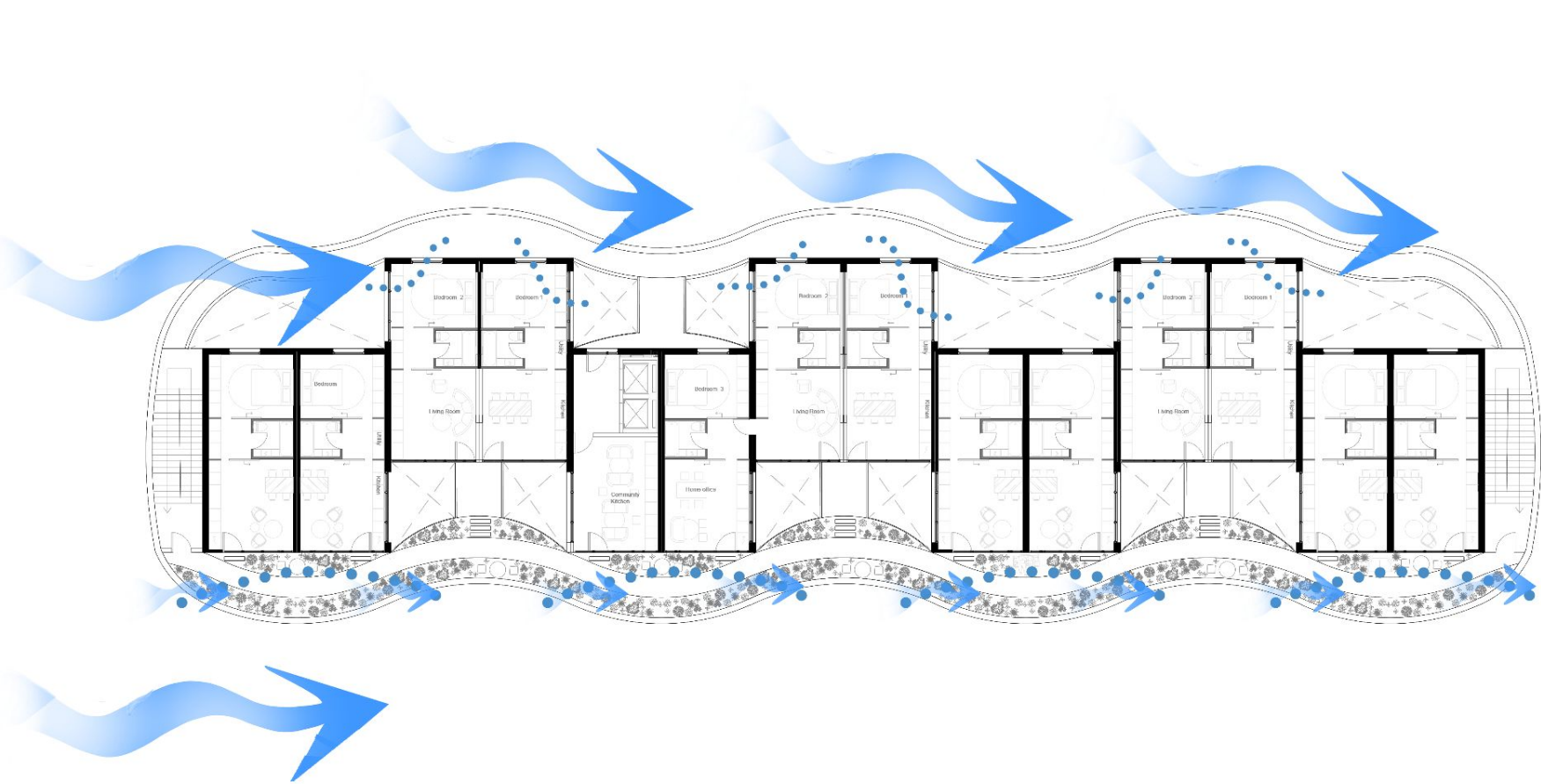


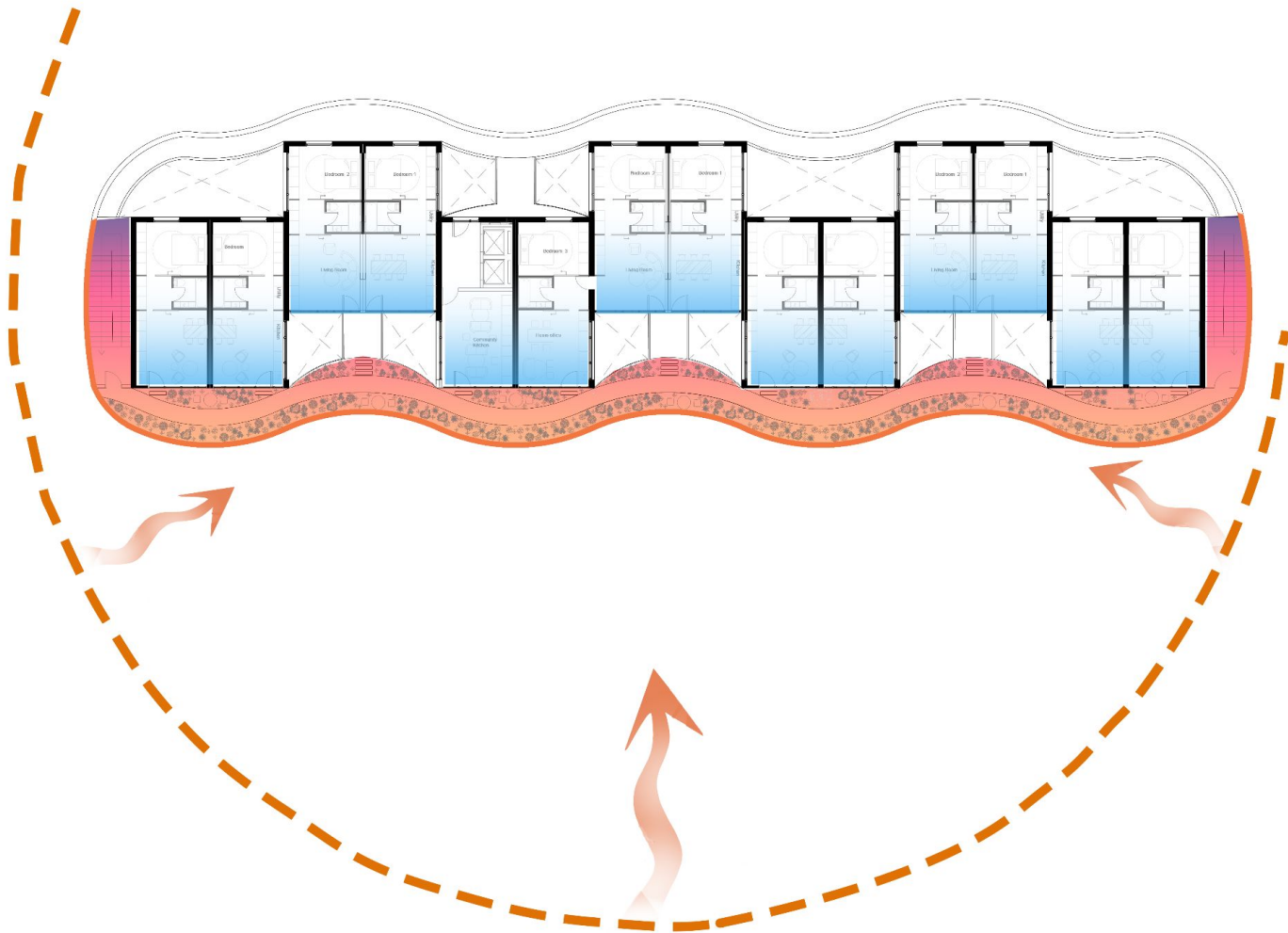
Summer Season

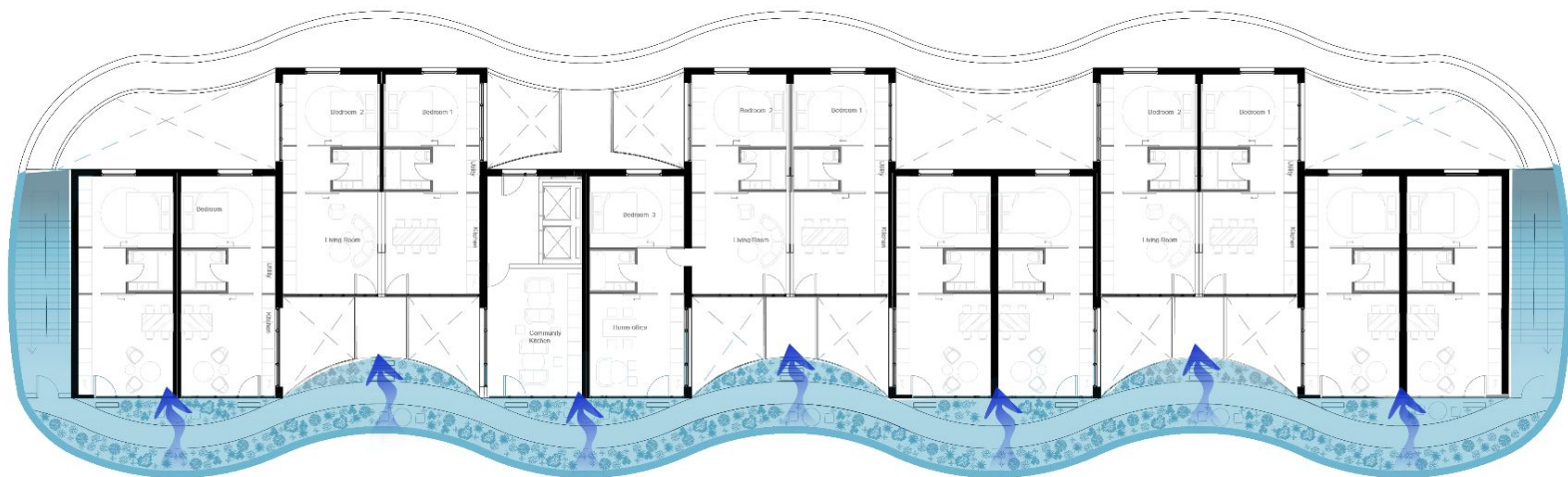
cooling demand

1st priority : Capture Breezy Wind

2nd priority: Protect from Sun







All Seasons

Additional value and health

1st priority : Wellbeing

2nd priority: Healthy Food

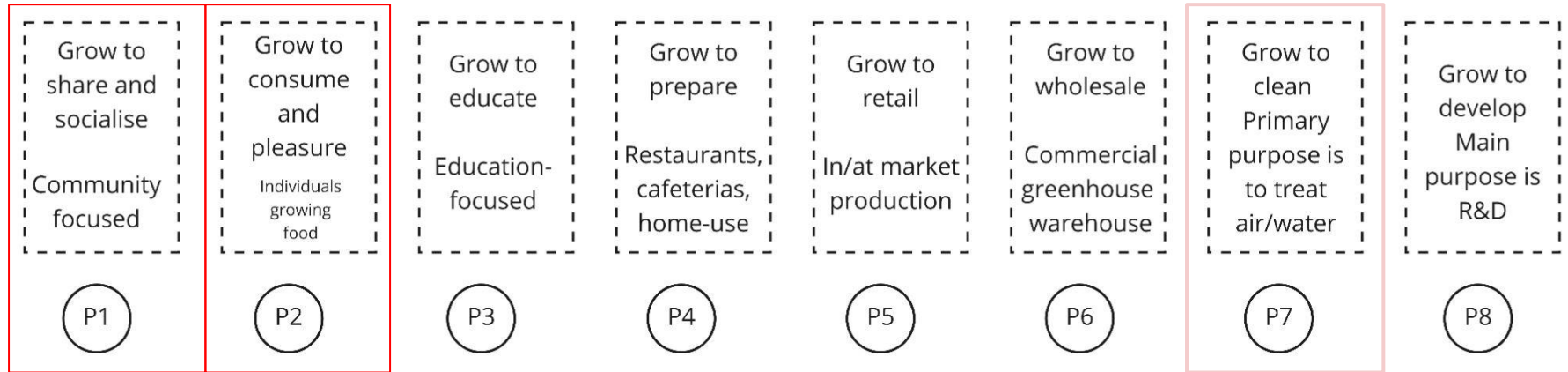
Vertical
food walls
(public)

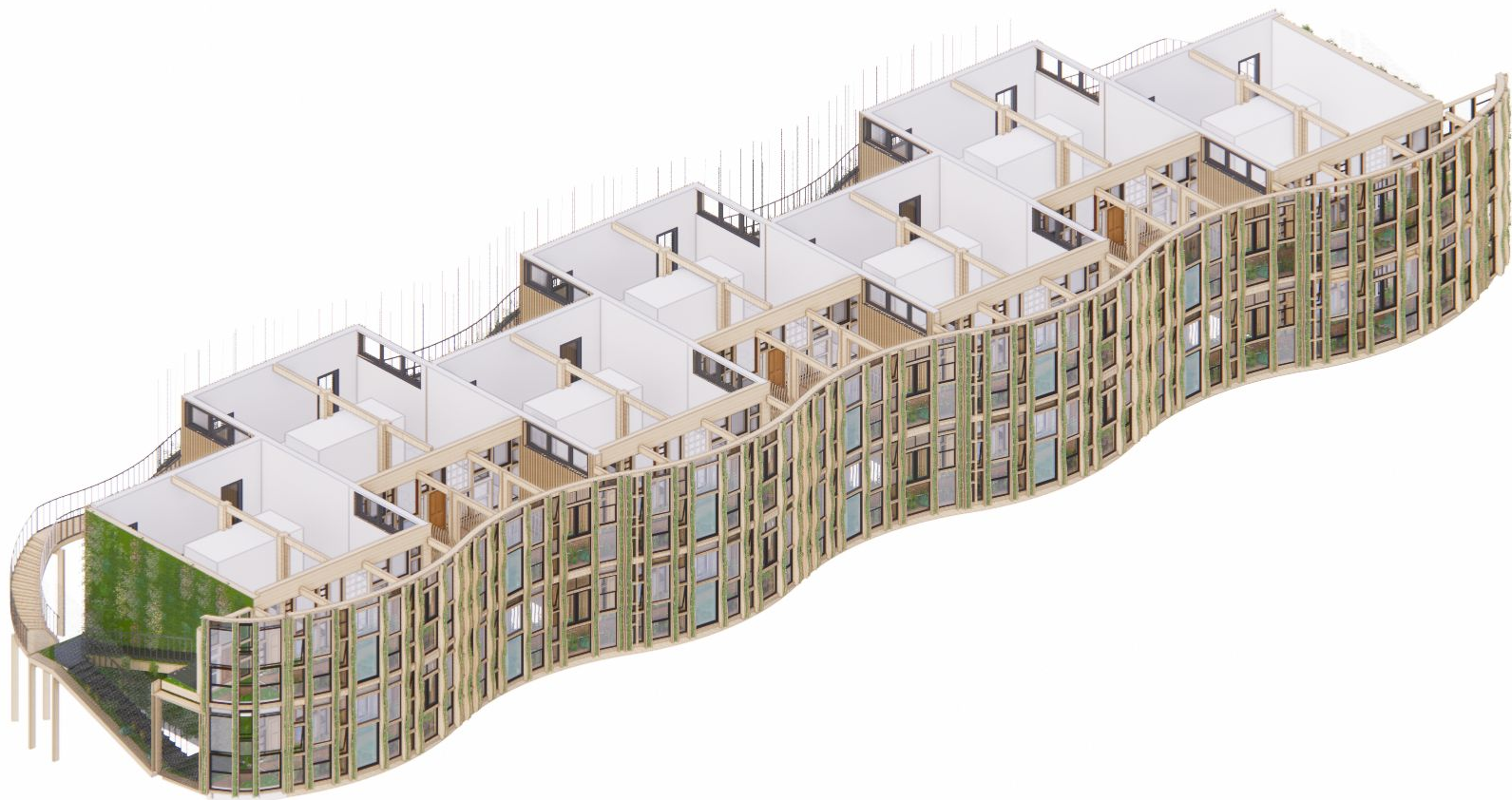


Community gardens

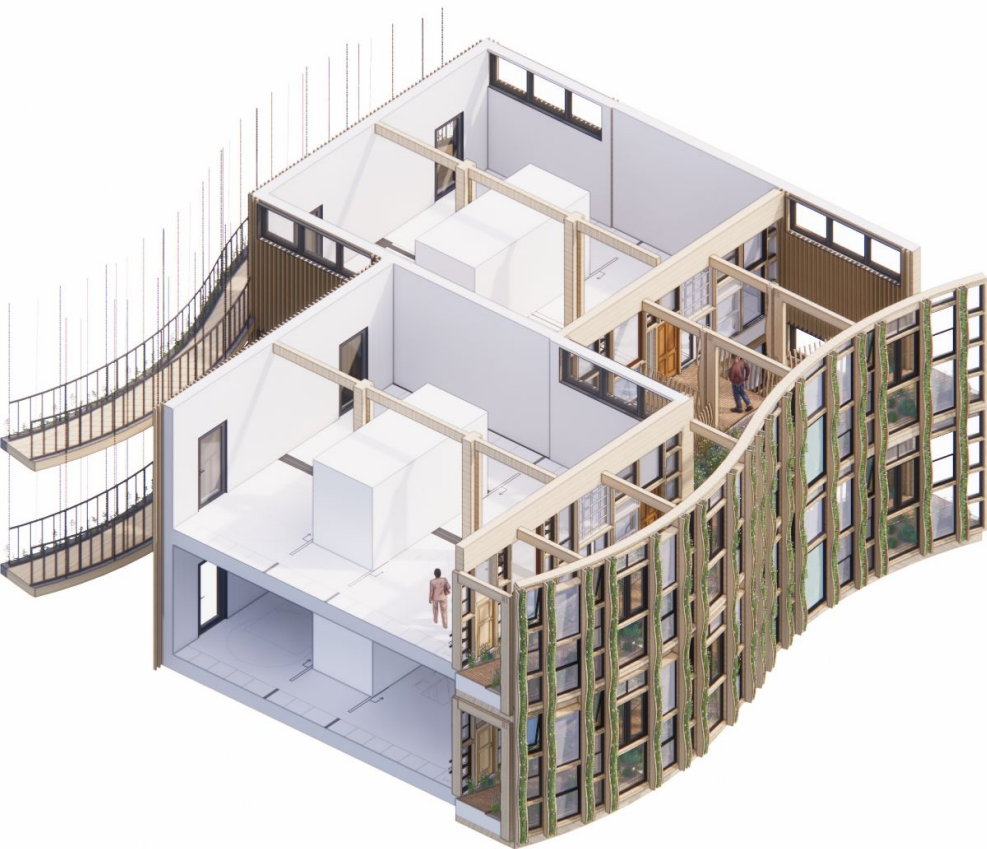


Production Purpose





The Fragment



curtain facade

drainage

facade connection
plates to floor

ing height

Reused windows
varying dimensions
highest row:
windows that cannot be open

fans for air circulation
in-between connecting
horizontal frame for windows

vegetation growing
on felt beds

vertical beams-
timber frame

external vertical
beams

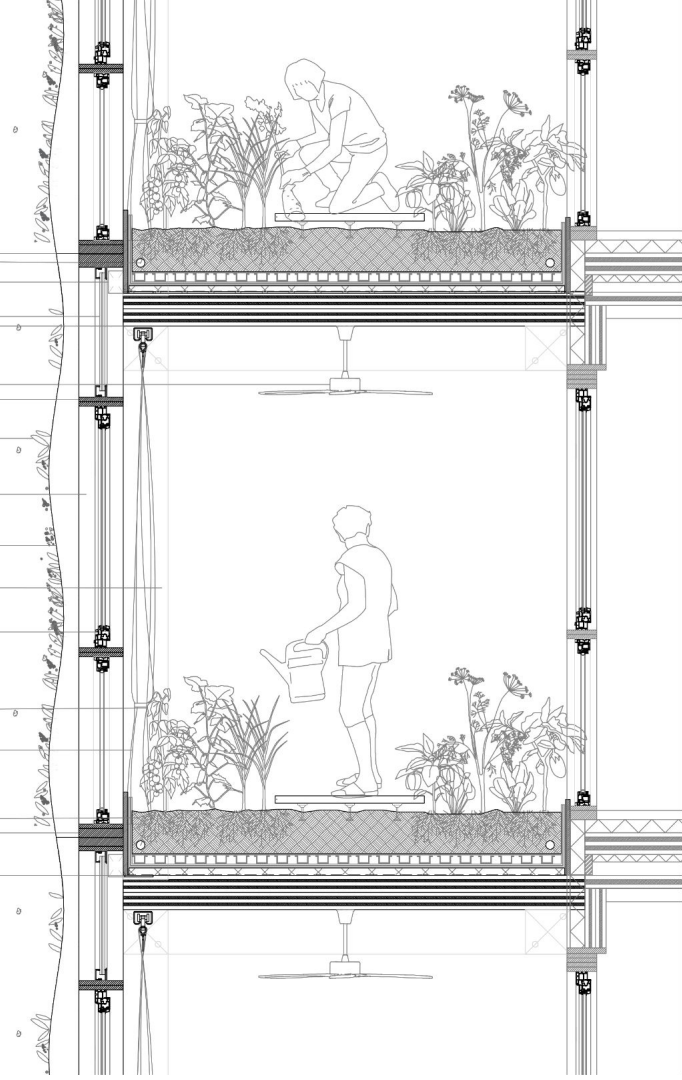
CLT columns supporting
load of balconies

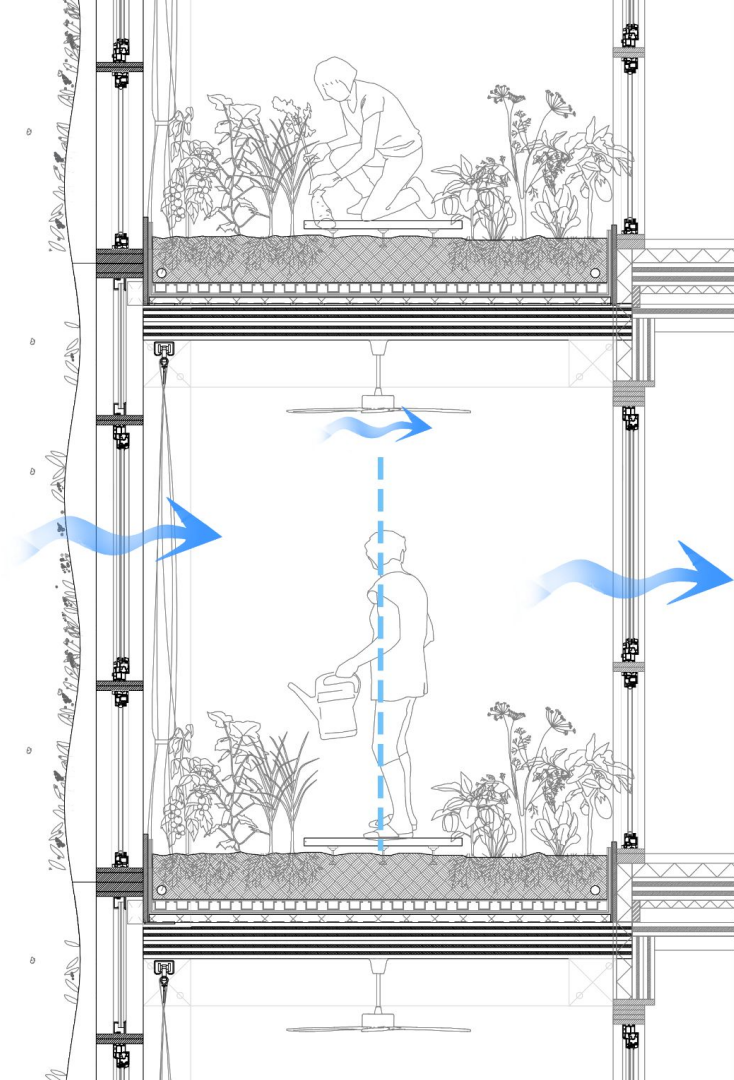
reused windows
varying dimensions
second row :
windows that can be opened

Vegetation

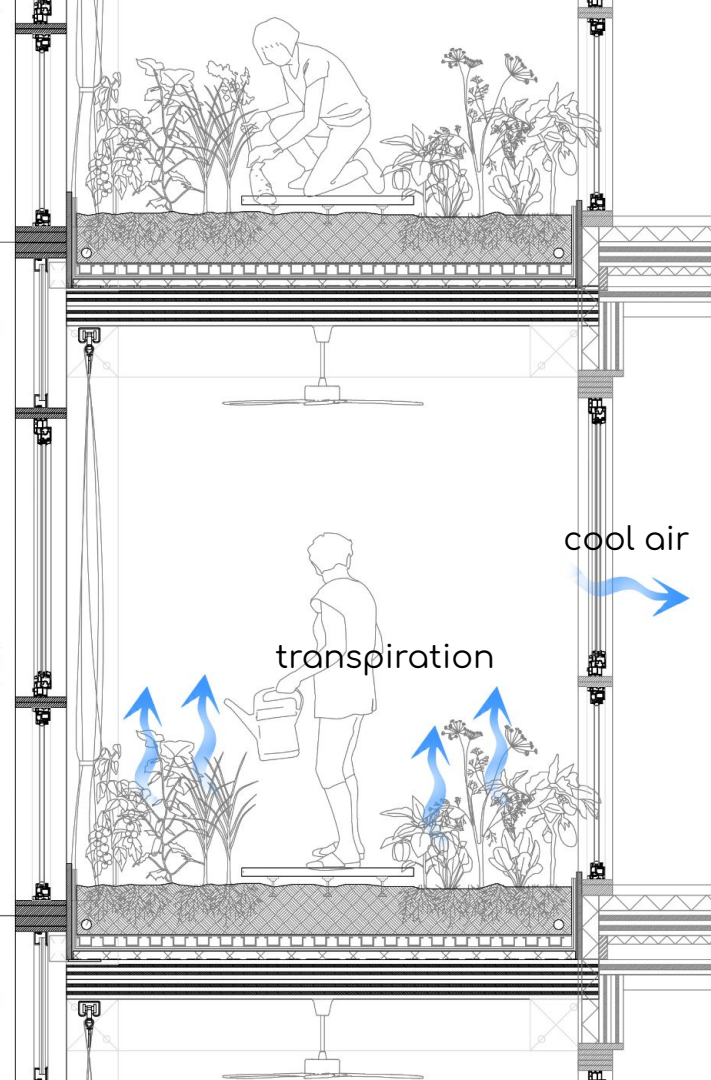
Curtains

Soil depth 300mm
radius plates of facade frame
2 plates of 30mm CLT
11m radius
firing piece-
waterproofing
Visible CLT slab 230mm
fire retardant treatment

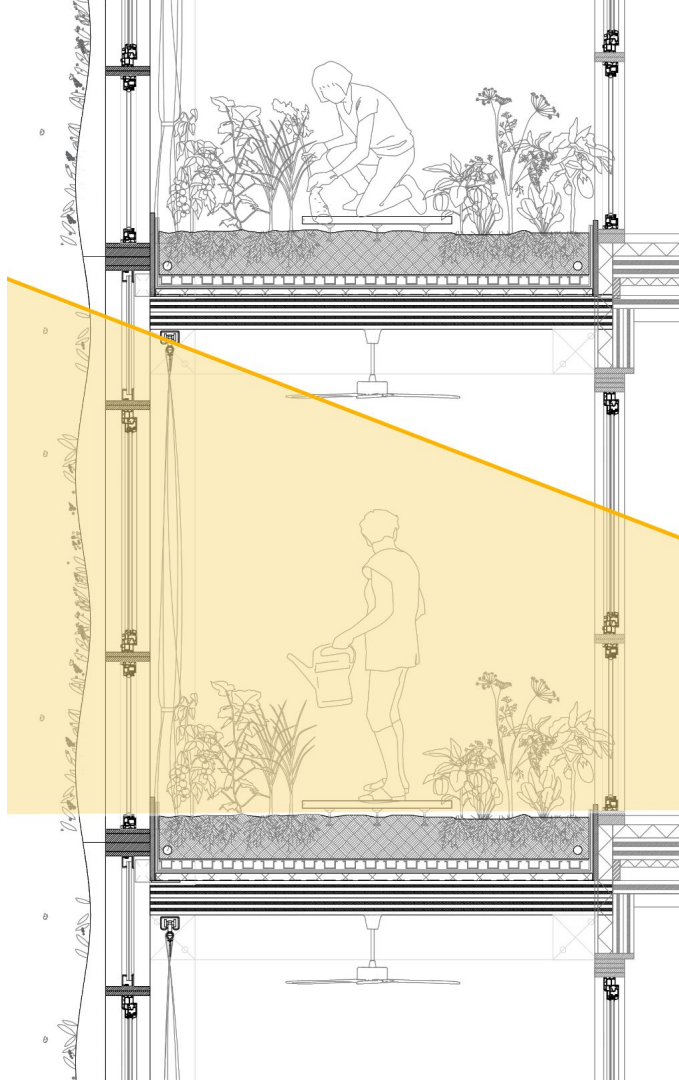




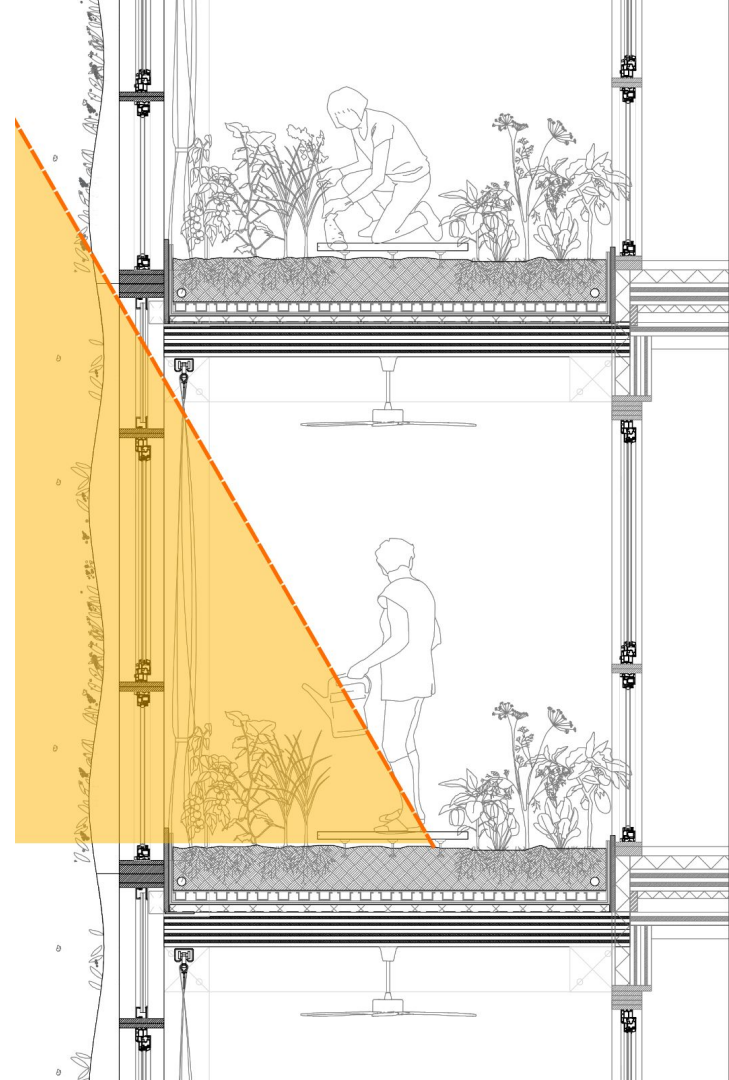
hot air

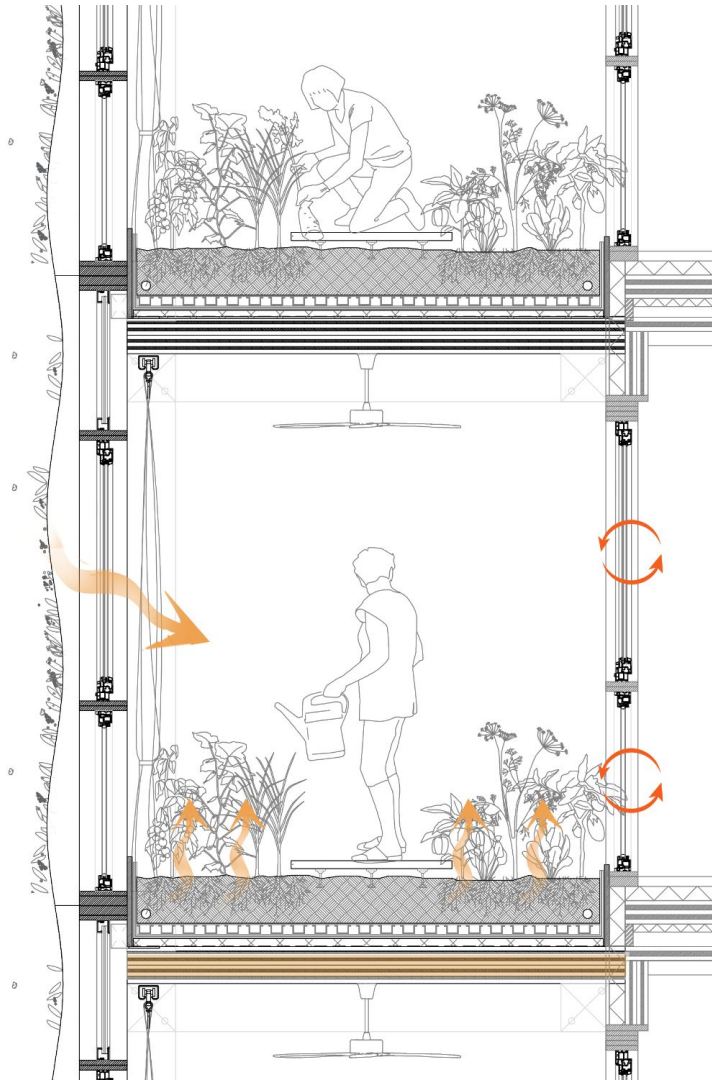


22 December

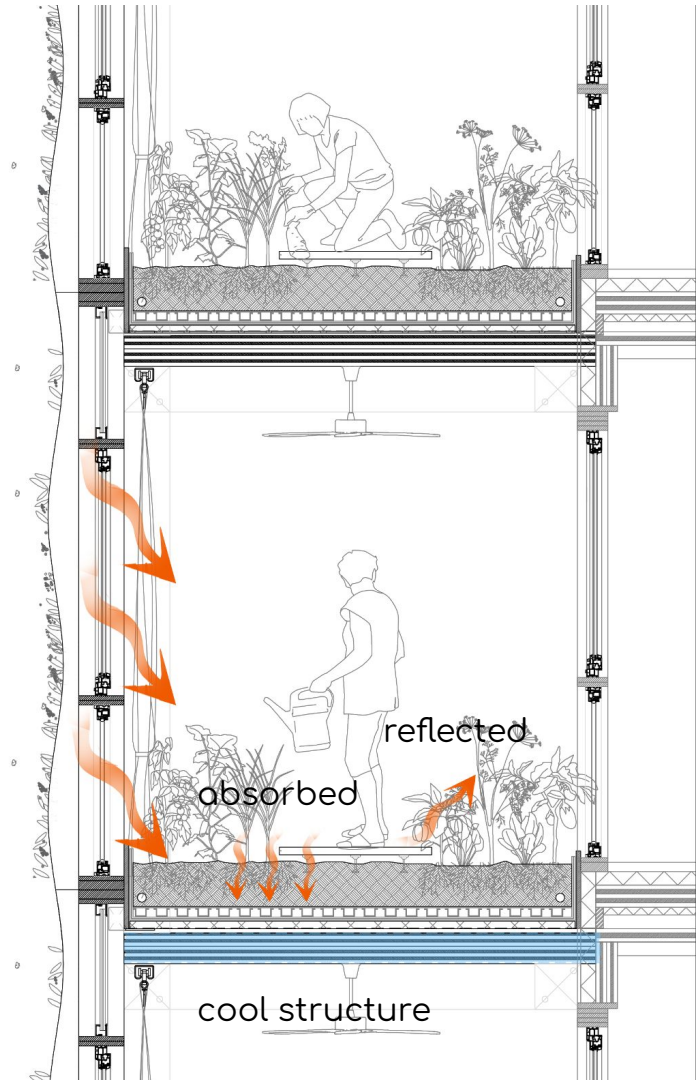


21 June





Solar
radiation







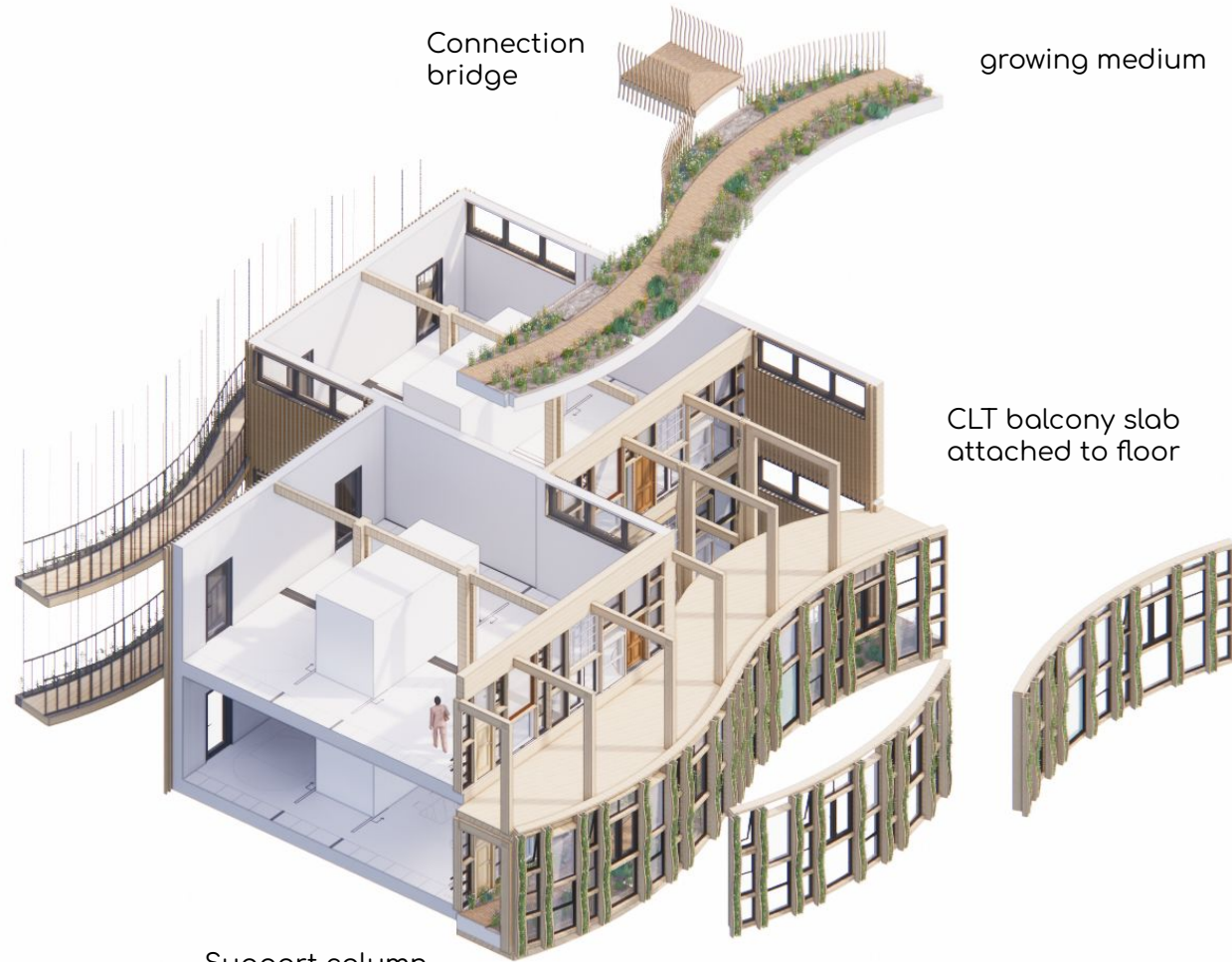
Connection
bridge

growing medium

CLT balcony slab
attached to floor

Prefabricated
Facade
panel

Support column
and beams



Connection
bridge

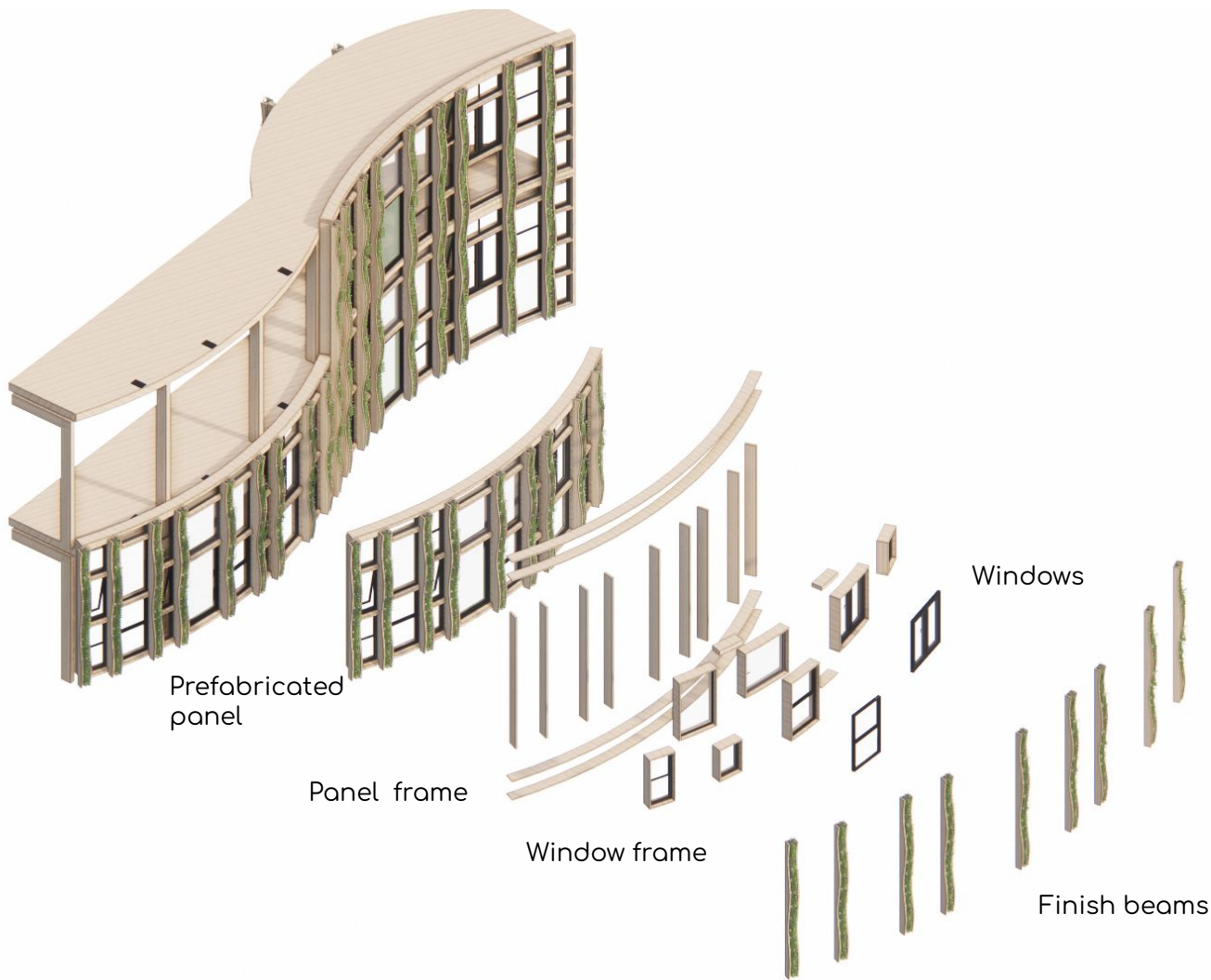
Prefabricated
panel

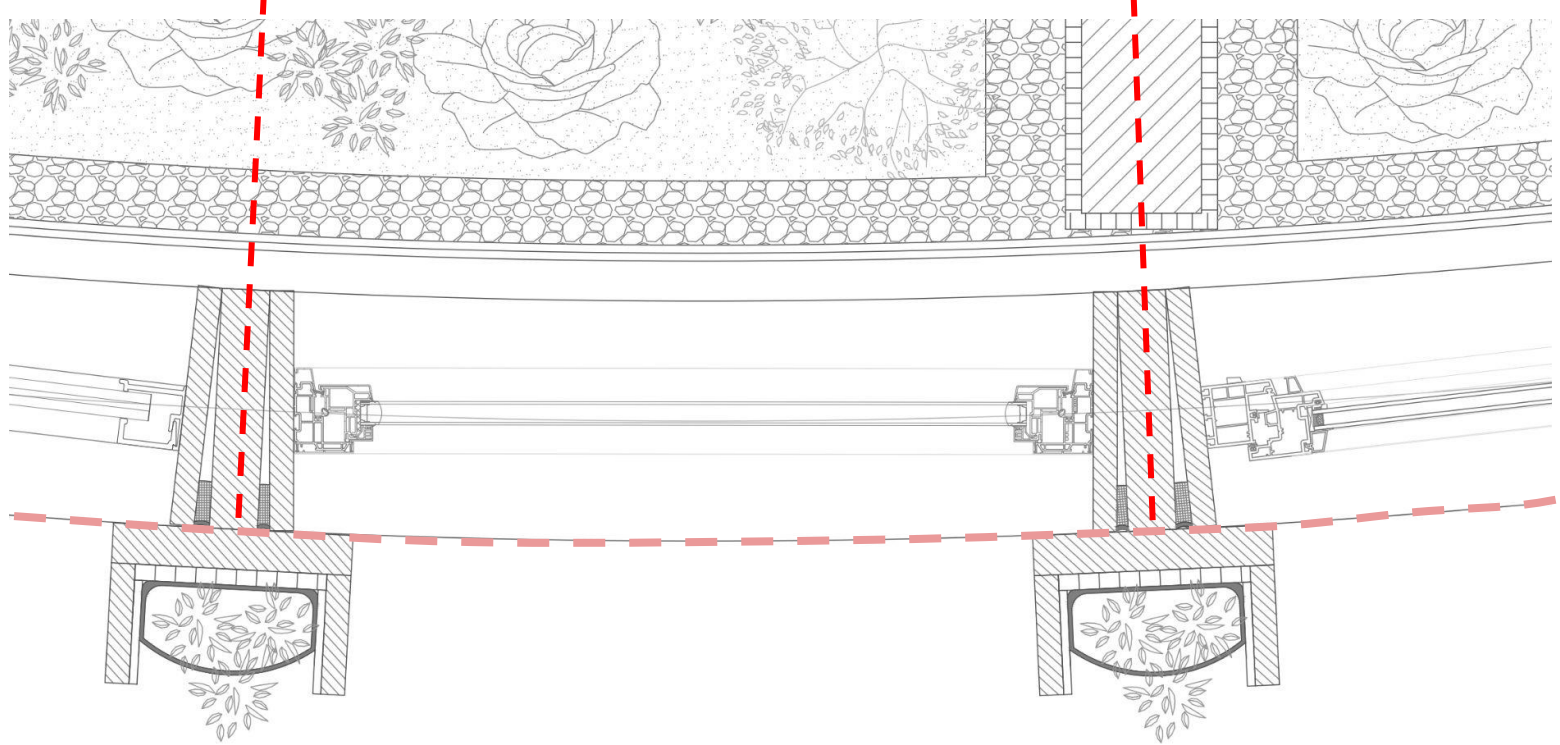
Panel frame

Window frame

Windows

Finish beams



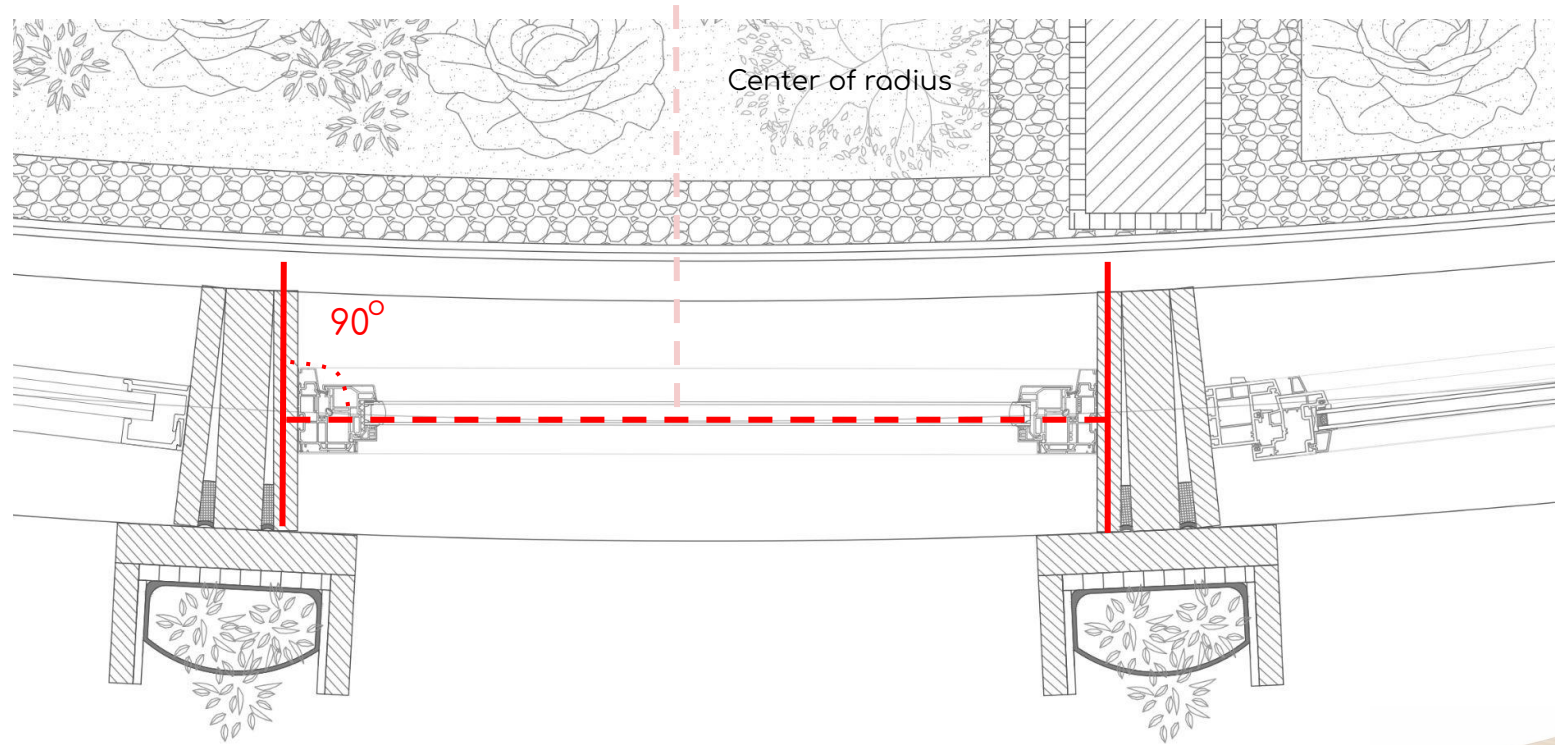


Regular radial studs

Following outer perimeter of the curve

External finish studs

Following outer perimeter of the curve



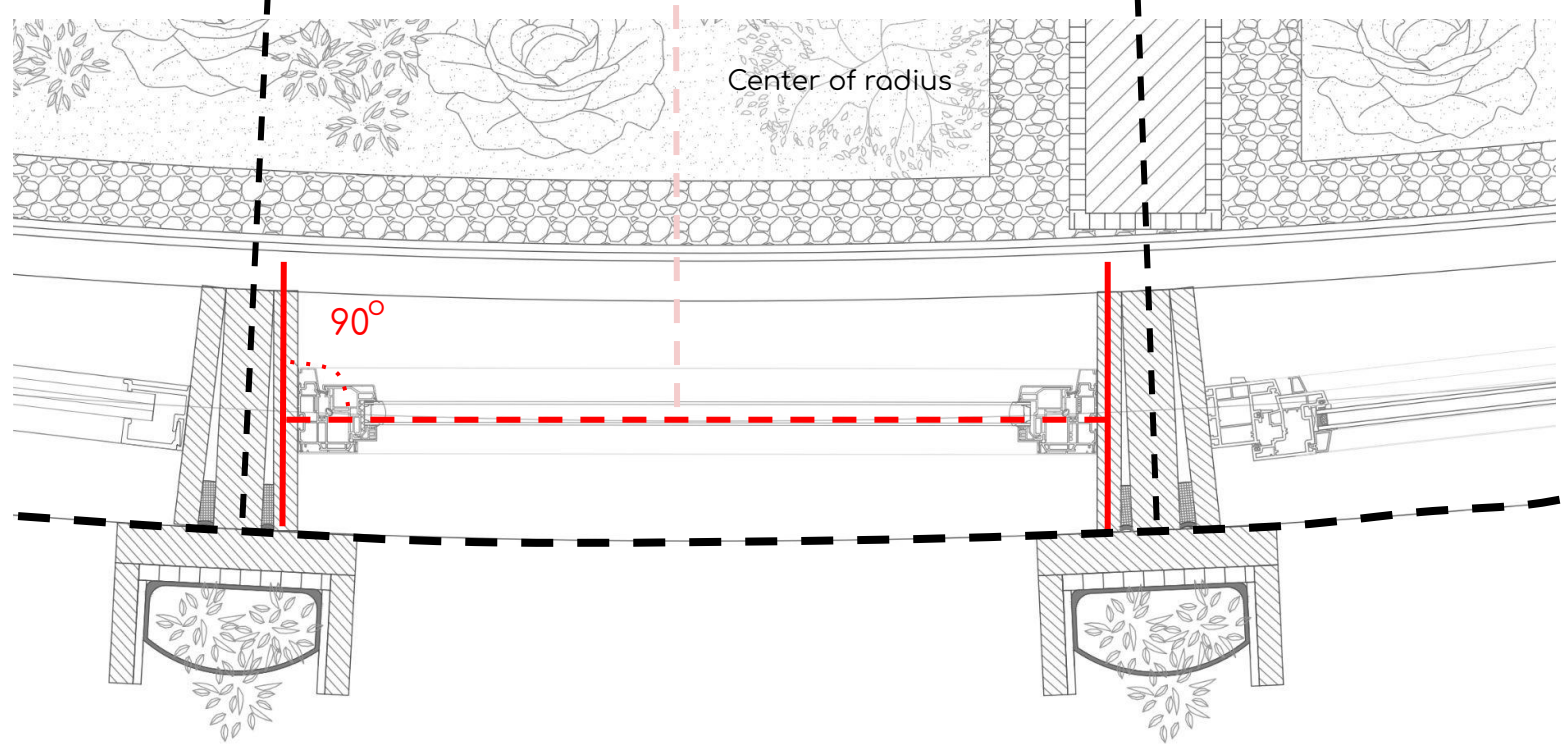
Window

Center of window aligned with center
of outer radius

Window frame

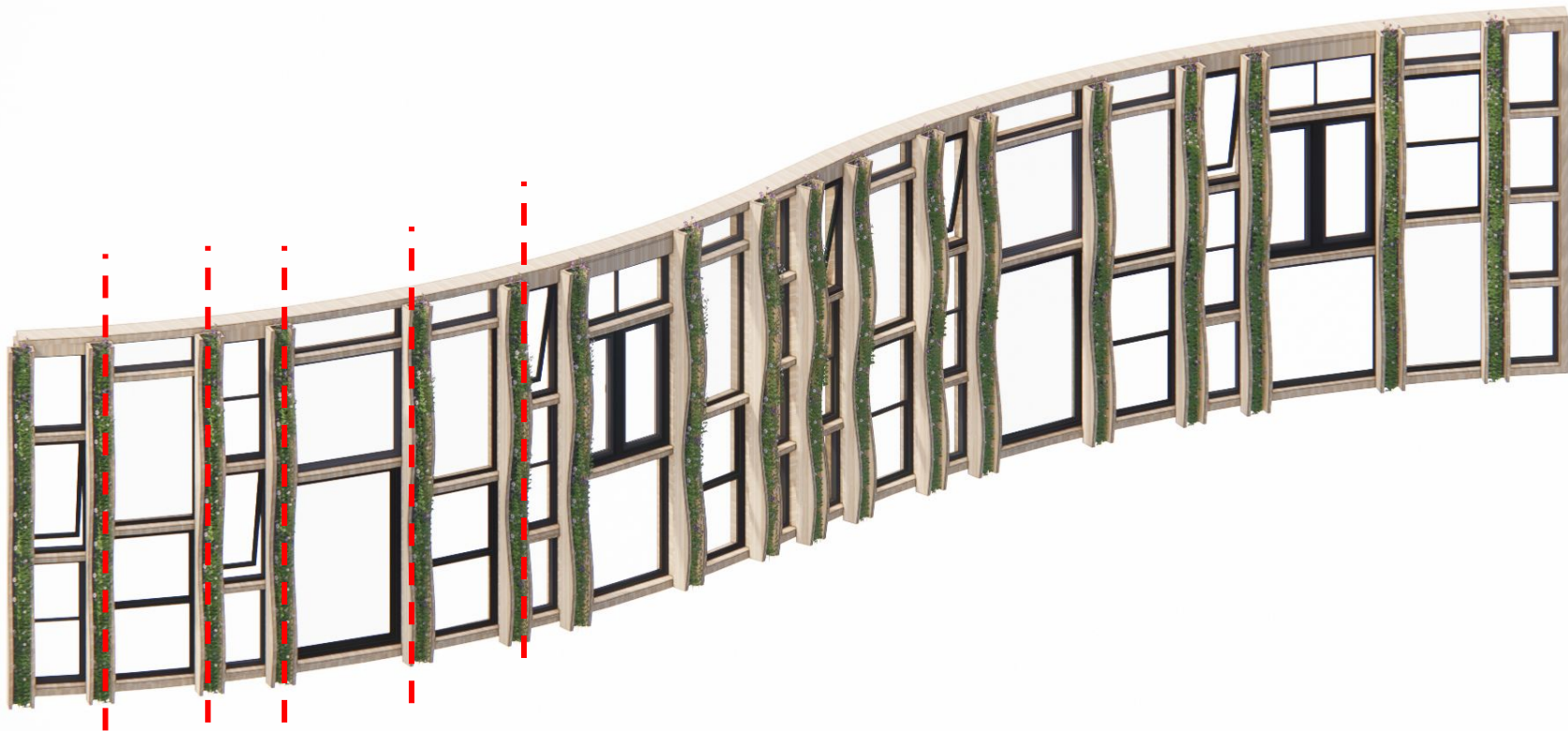
Perpendicular to window





Window Frame dimension

Dictates spacing between radial studs



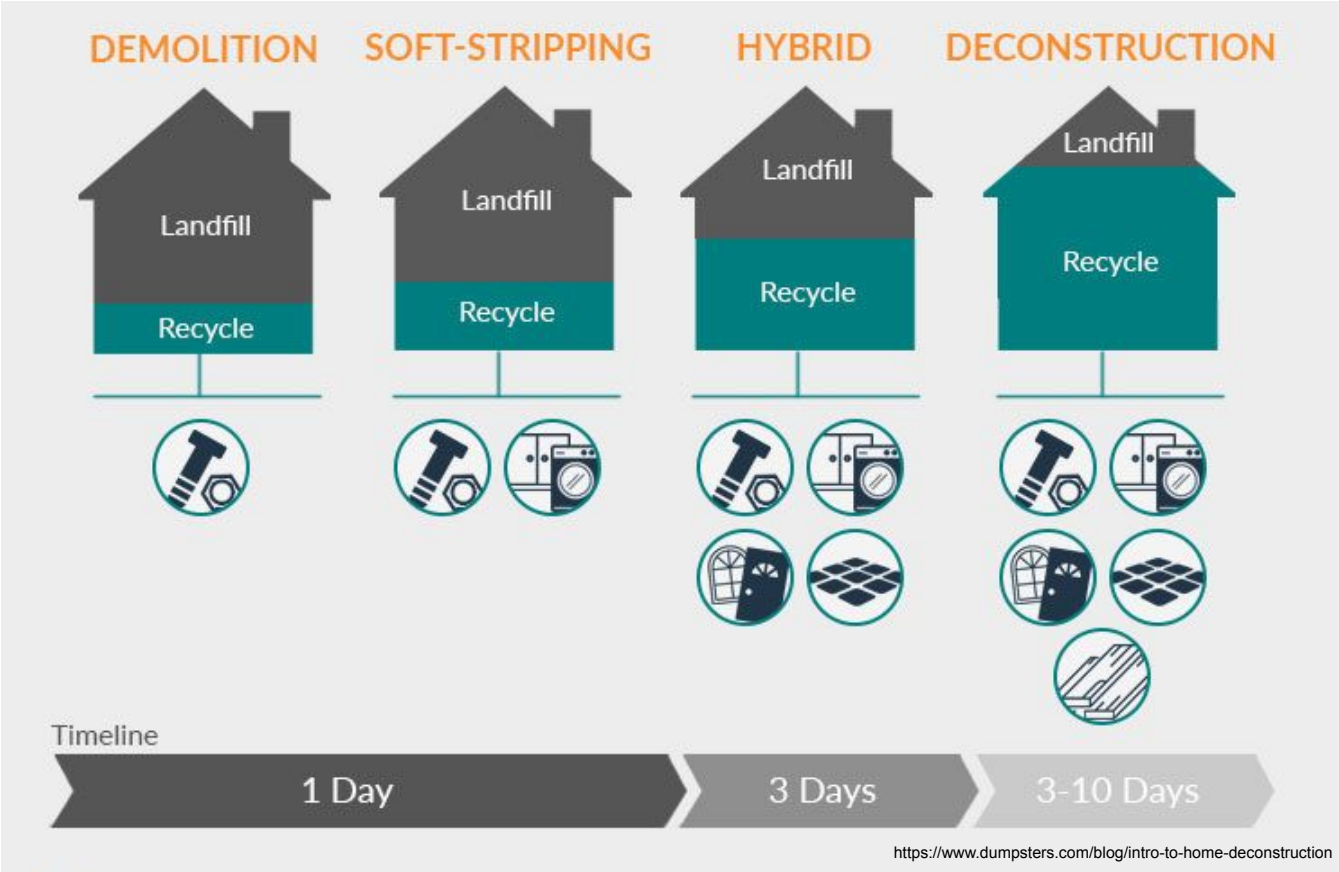
Align windows vertically
based on similar width



How do we harvest the technical nutrients?

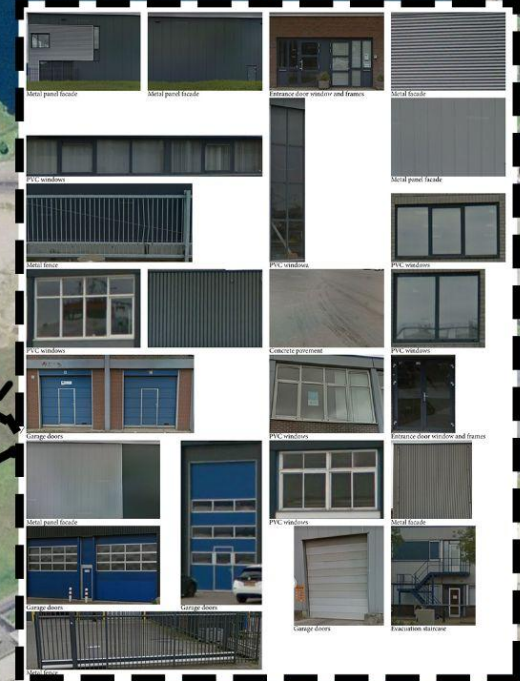
Deconstruction vs Demolition

Investment and Return





MATERIAL BANK



Materials Passport Platform **Prototype**

ProductsBuildingsInstances?Logout

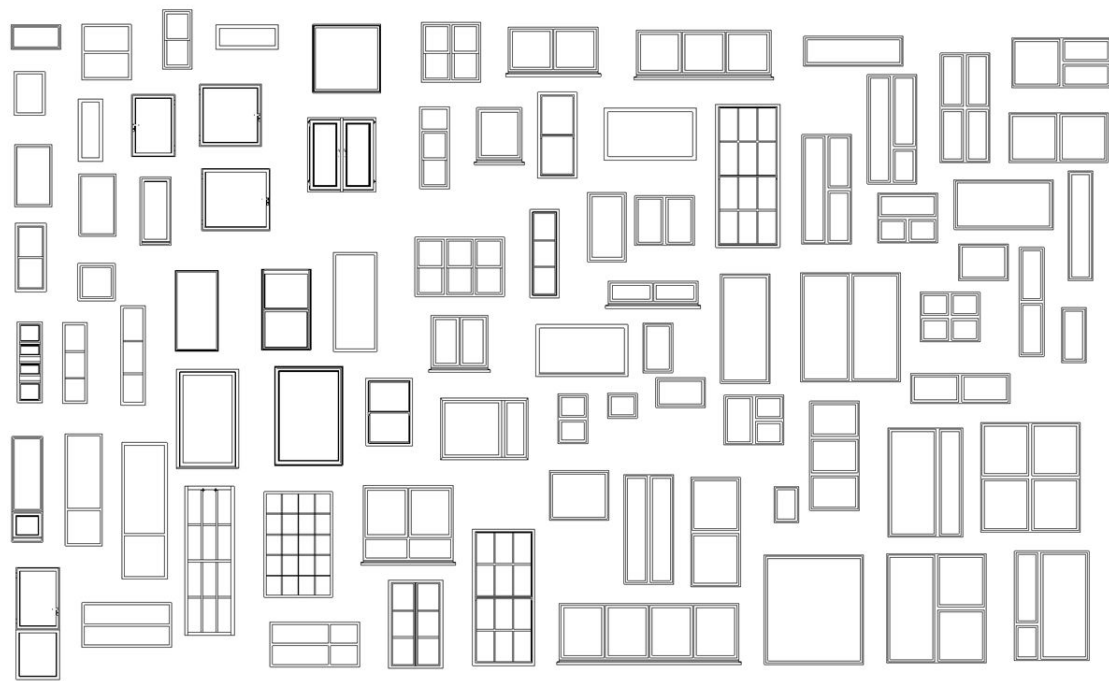


+ Add Product

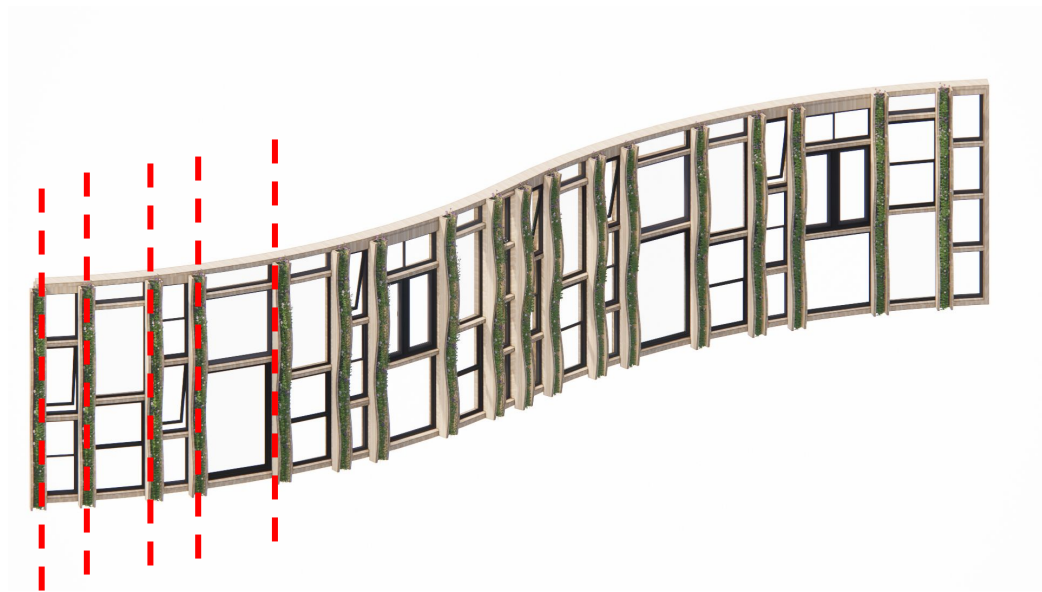
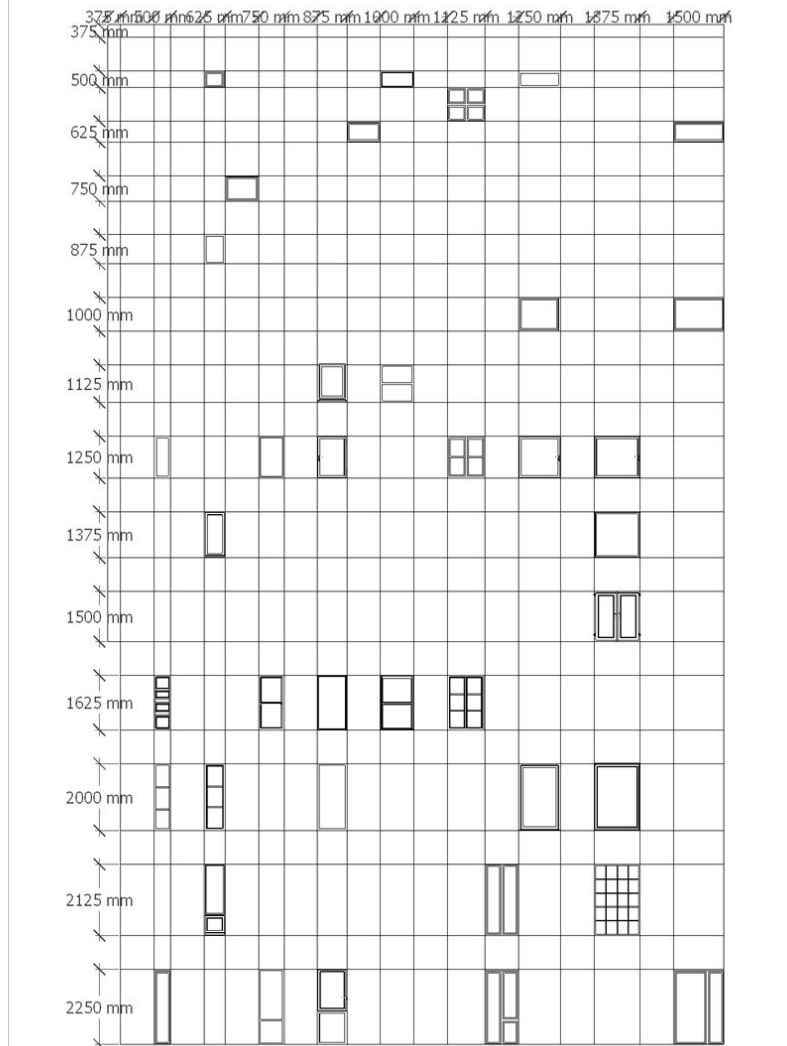
Products

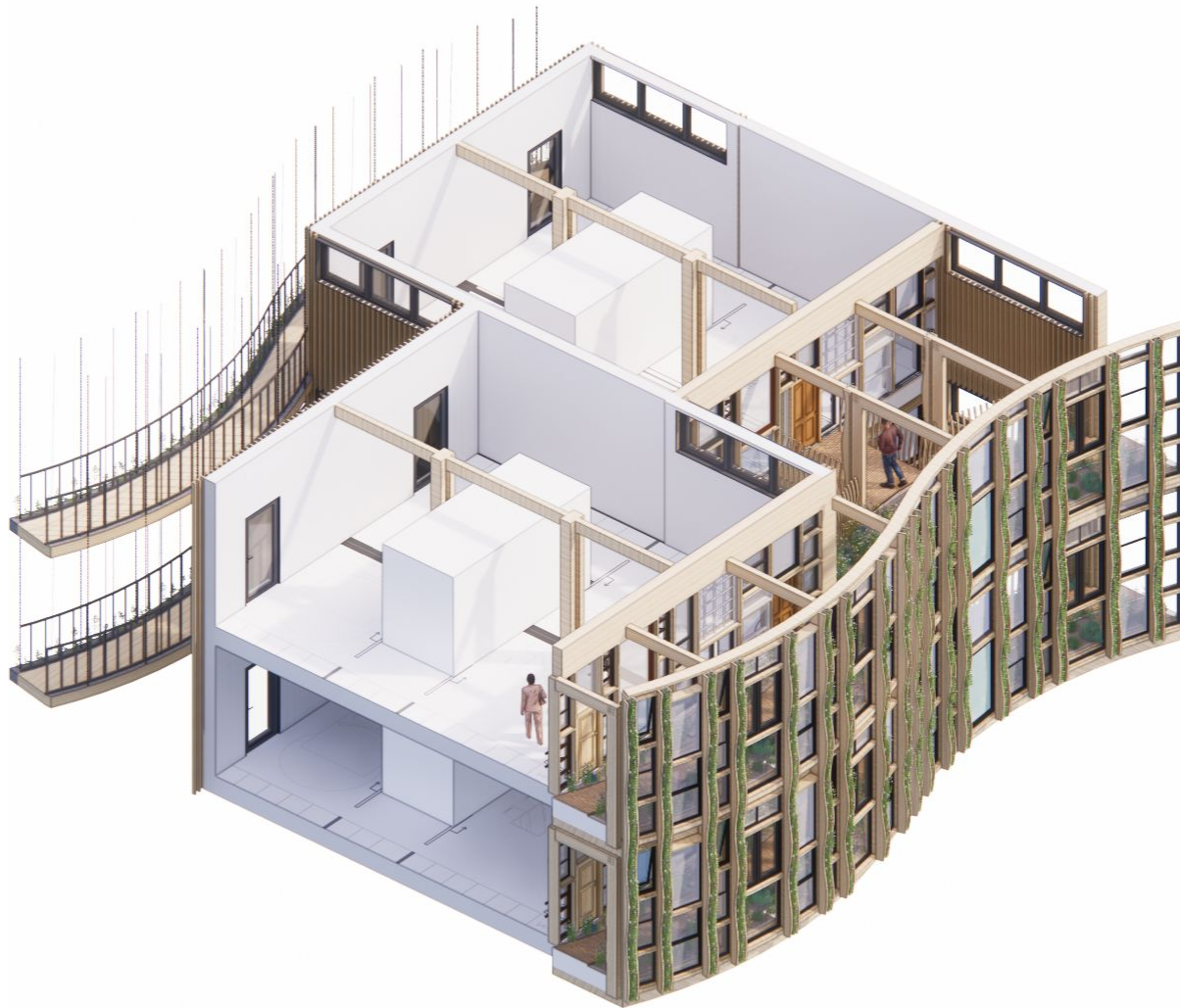
Search

Name 	Brand Name	Manufacturer	GTIN/EAN
Accoya® Wood	Accsys Technologies	Accsys Technologies	Unknown
Acrovyn® 4000	Acrovyn® 4000	Construction Specialties Inc.	Unknown
Ahrend Balance Desk	Ahrend	Ahrend	Unknown
AirMaster®	Desso	Tarkett	Unknown
Aluminium Door Furniture	AMI BV	AMI bv	Unknown
Armstrong Ultima+	Armstrong	Armstrong World Industries Limited	0888264102735
Axia 2.0 Office Chair	BMA Ergonomics	Flokk	

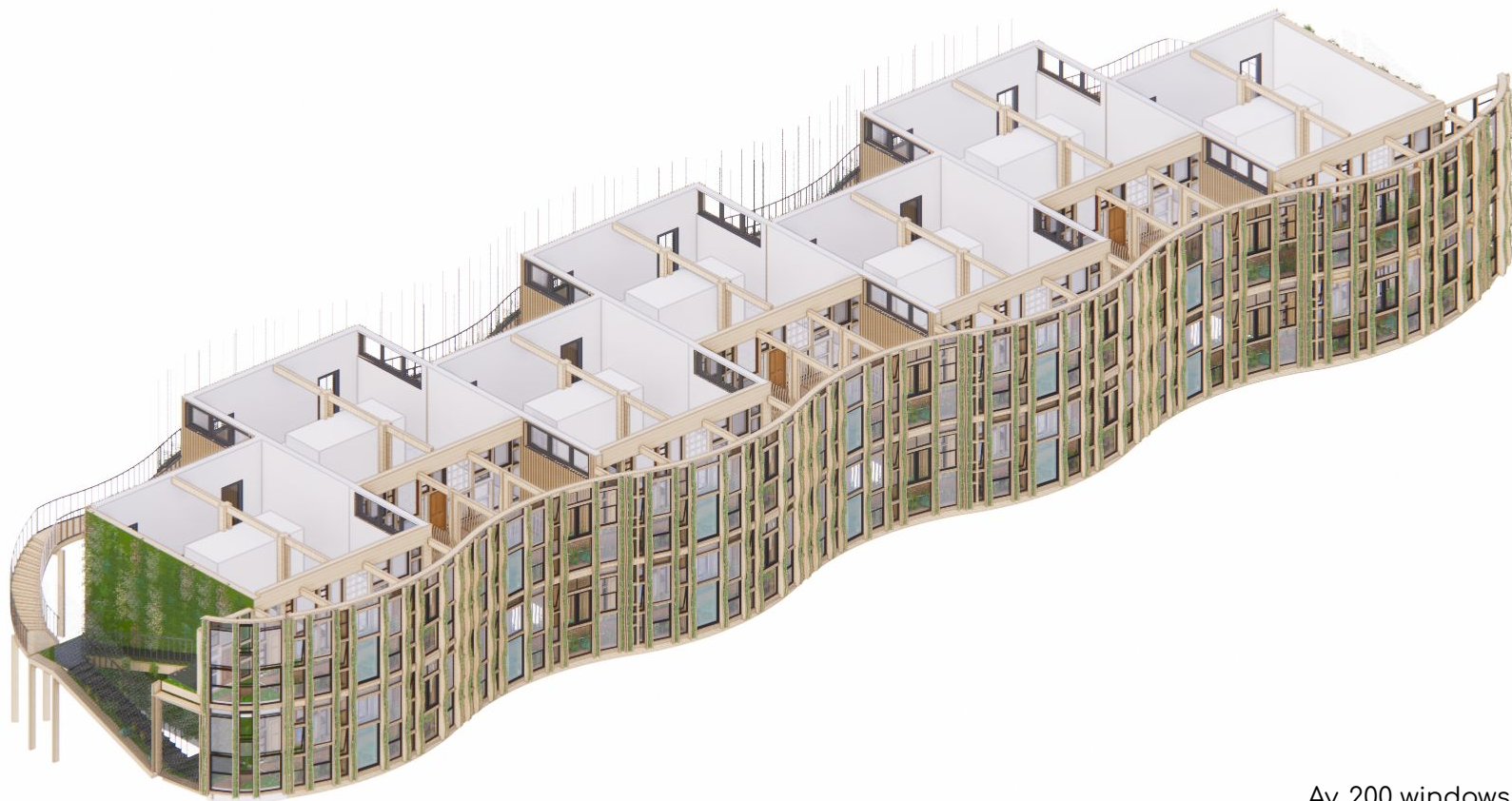


~3346 windows
~ Total area: 2 100 m²





Av. 25-30 windows per
dwelling



Av. 200 windows per floor



Av. 1600 windows reused

HARVEST

Deconstruction

Material
Passport

Storage in
Material Bank

DESIGN

Materials
selection

Materials
Puzzle

Flexible
frame

FINAL
PHASE

Material
deconstruction

Particles reused

Window

Window glass



asphalt

fiberglass

road paint

Window glass



Window frame

PVC



timber

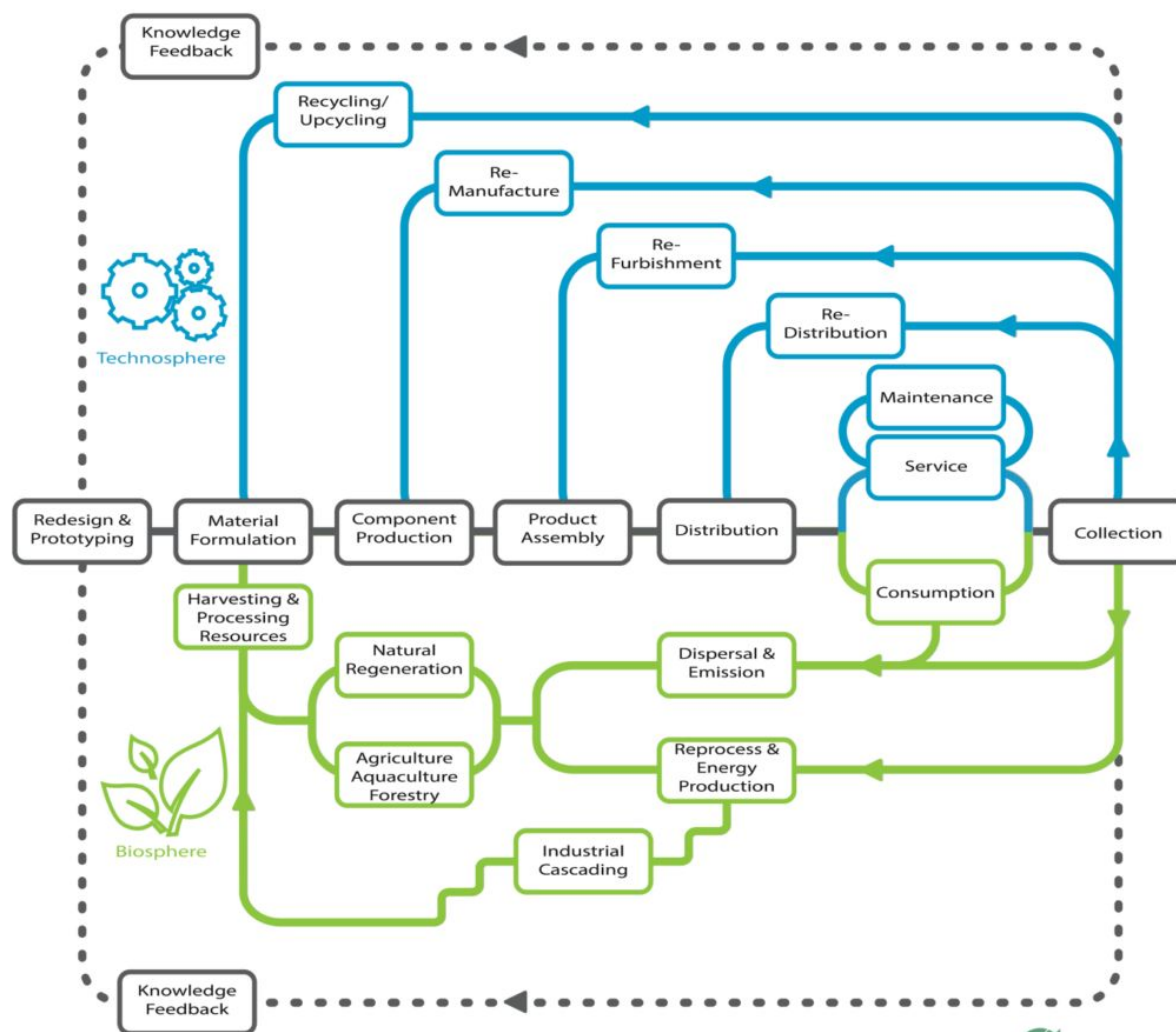


wood chip/ compost
sawdust

aluminium

aluminium

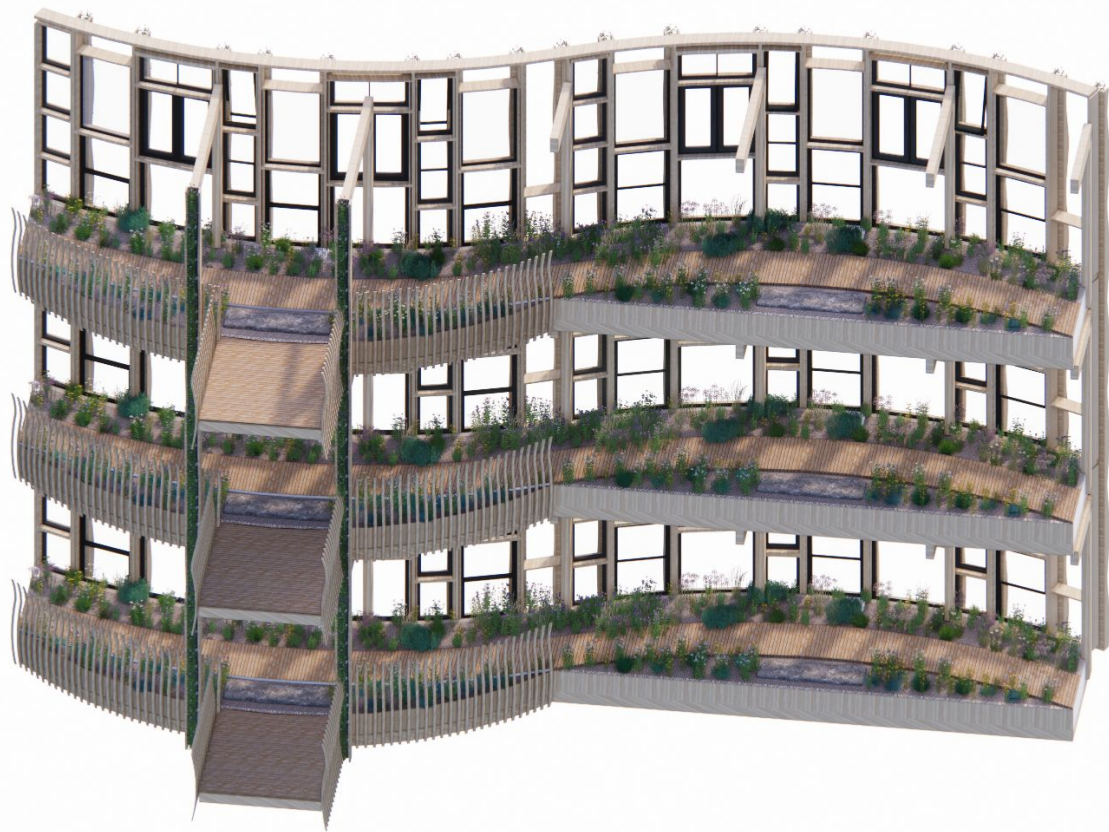




THANK YOU!







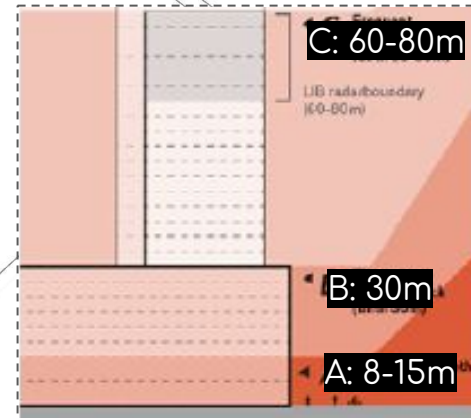


Building Skyline

WIND
SUN

Building Skyline

WIND
SUN



Green Economical Activity

Material Bank

Green (light) industries

Active dock and waterfront transport

Startups

5 Office space

Sustainable businesses in the food sector

Covered food market

Sport halls

2

4

