

Crop Chain Building

Reassemble the “Food Supply Chain” building typology dedicated to food

TU Delft _ Architectural Engineering _ Graduation Studio
Daniele Tanzi

Crop Chain Market

Reassemble the “Food Supply Chain”

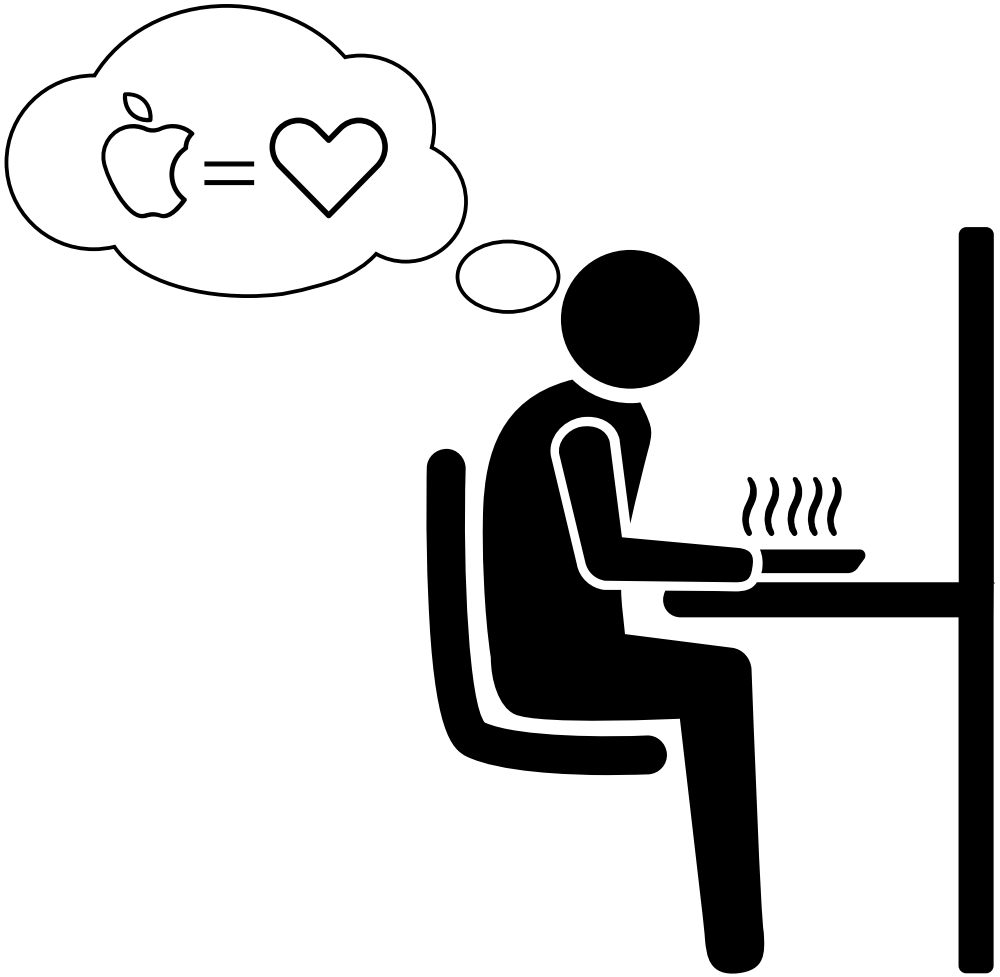
in an experimental space dedicated to food

P5 _ presentation

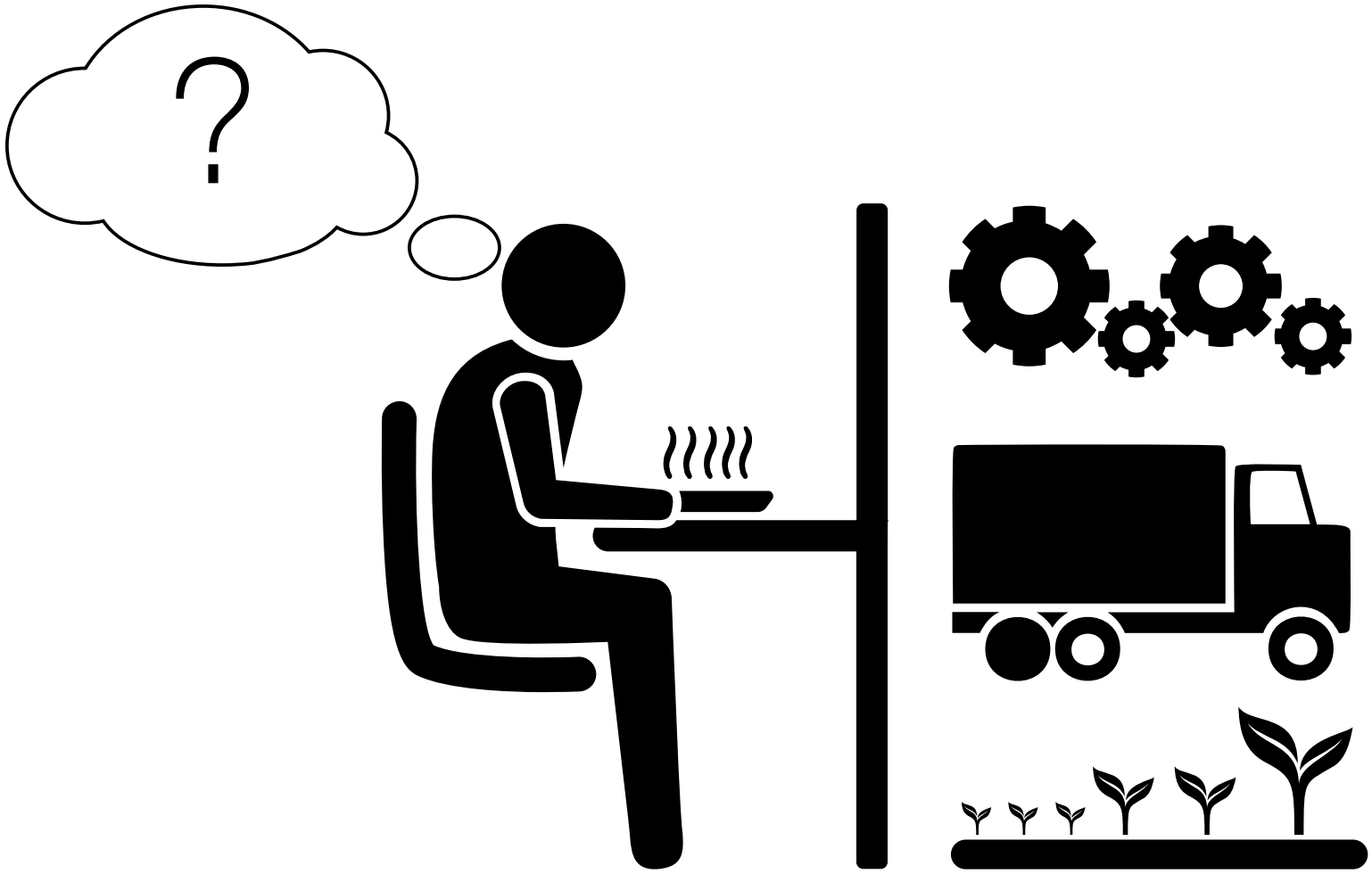
TU Delft _ Architectural Engineering _ Graduation Studio
Daniele Tanzi

Design mentor: **M. J. Smit** Research mentor: **J. Jongert** BT mentor: **P. Tomesen** External mentor: **J.R.T. van der Velde**

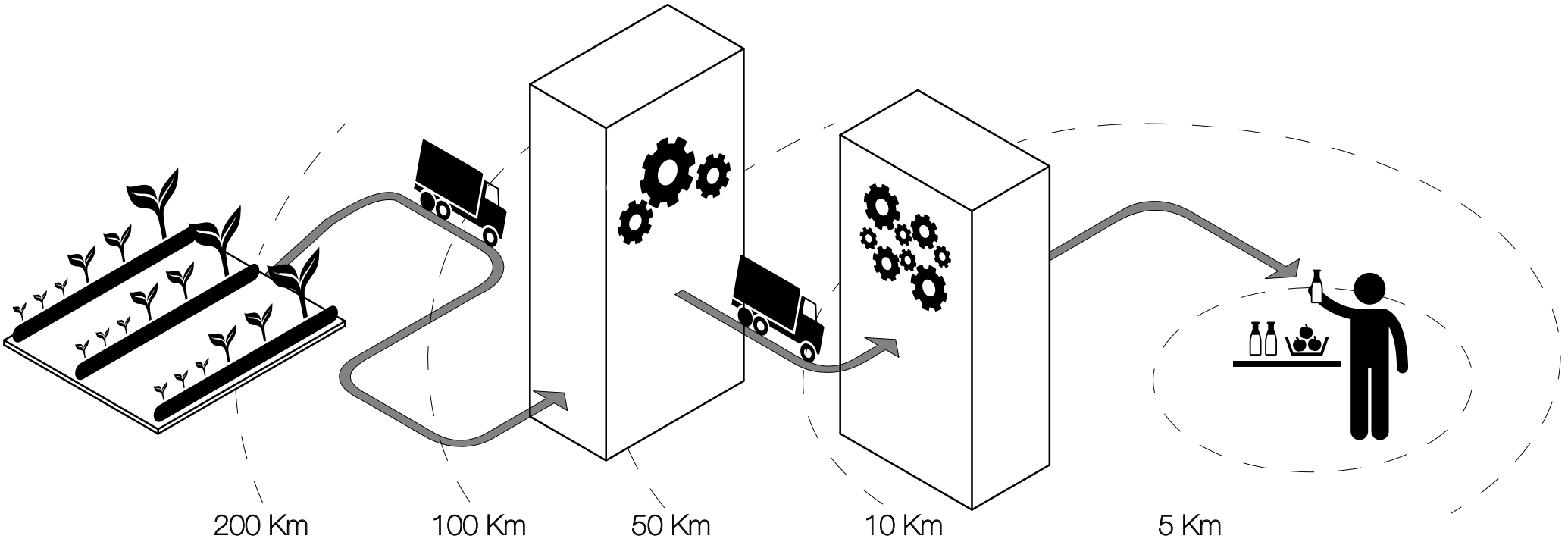
People



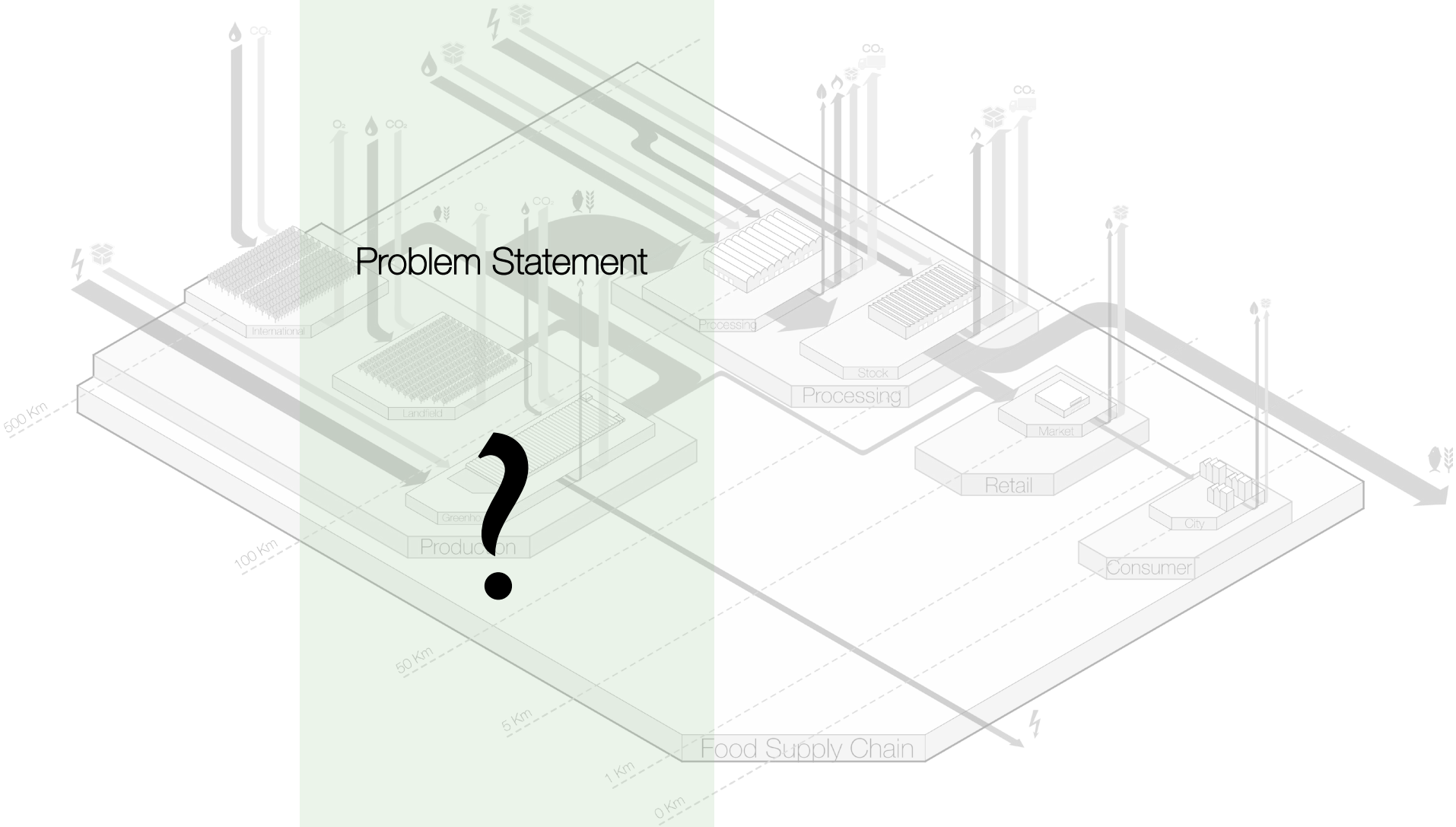
People



Food Network



Problem Statement



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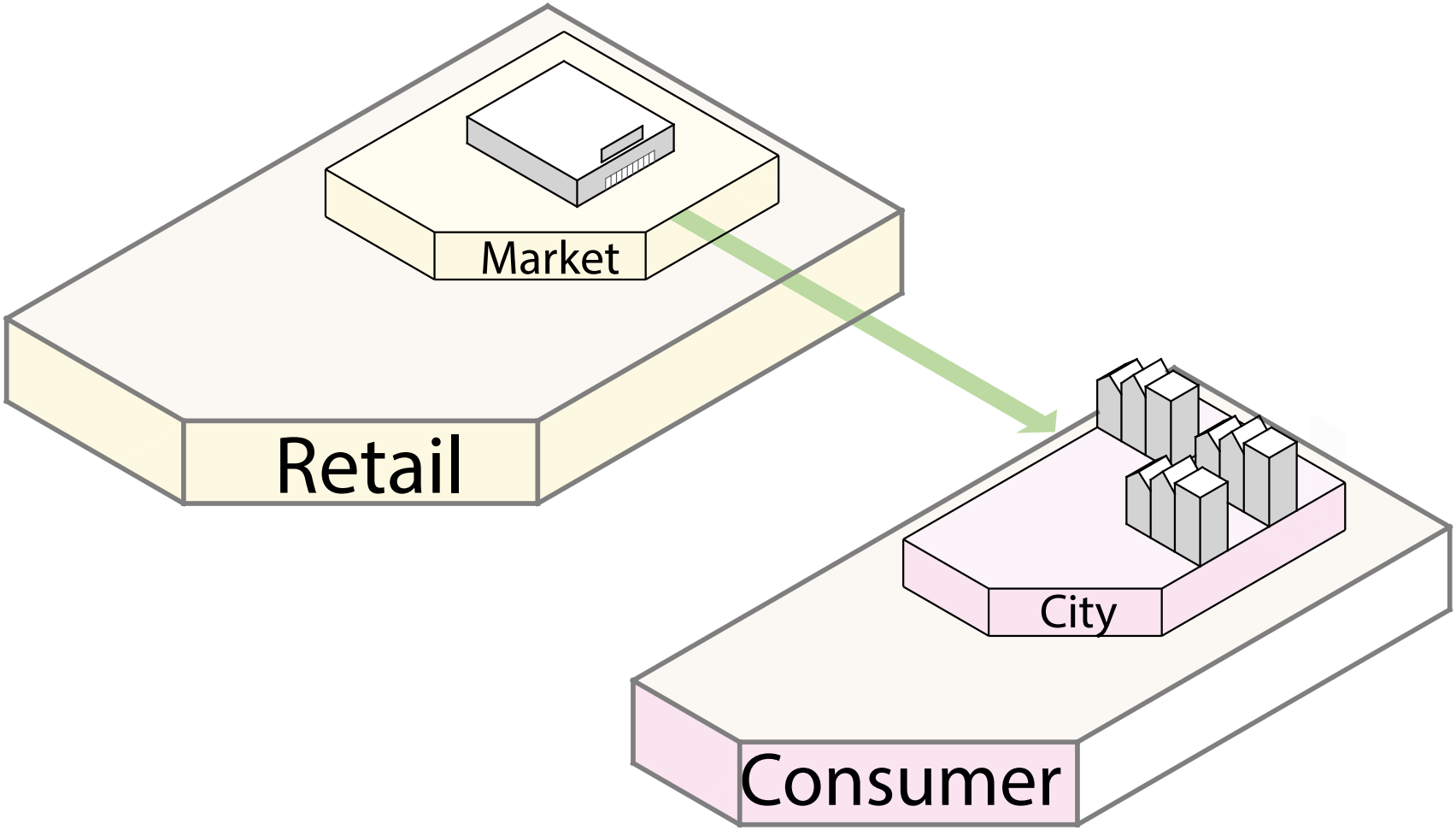
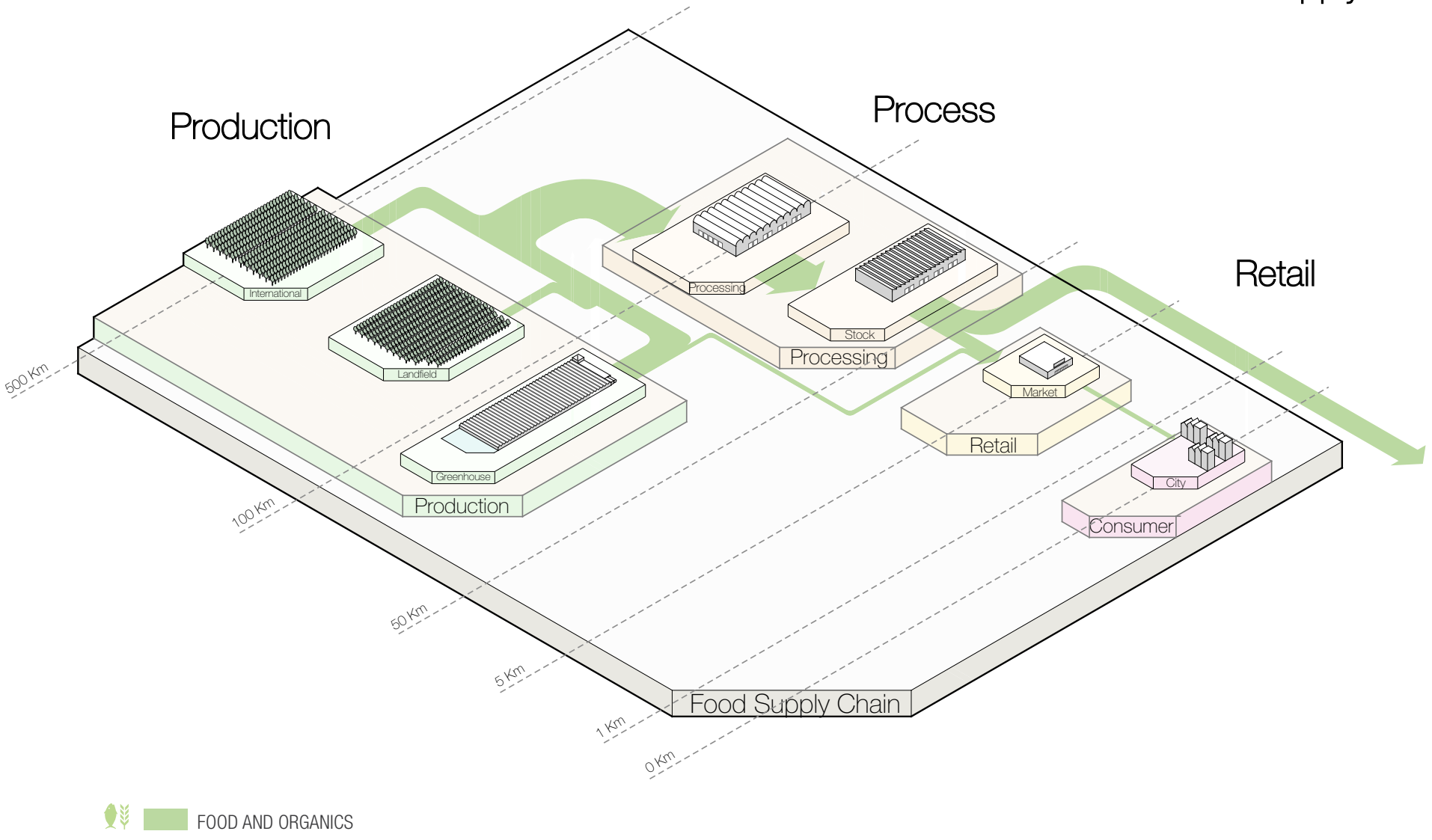
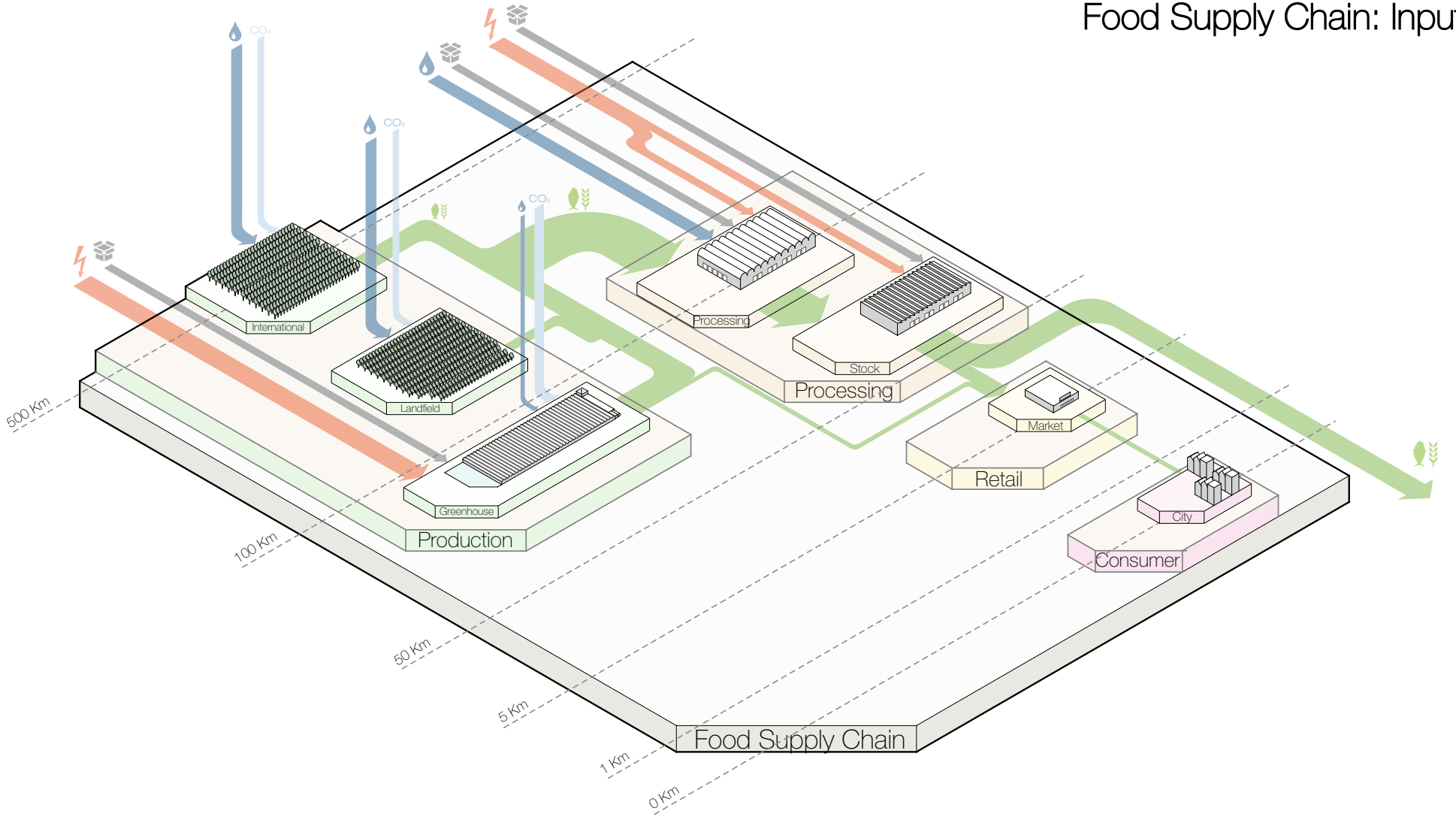

Market
Retail
City
Consumer

Food Supply Chain



Food Supply Chain: Input



FOOD AND ORGANICS

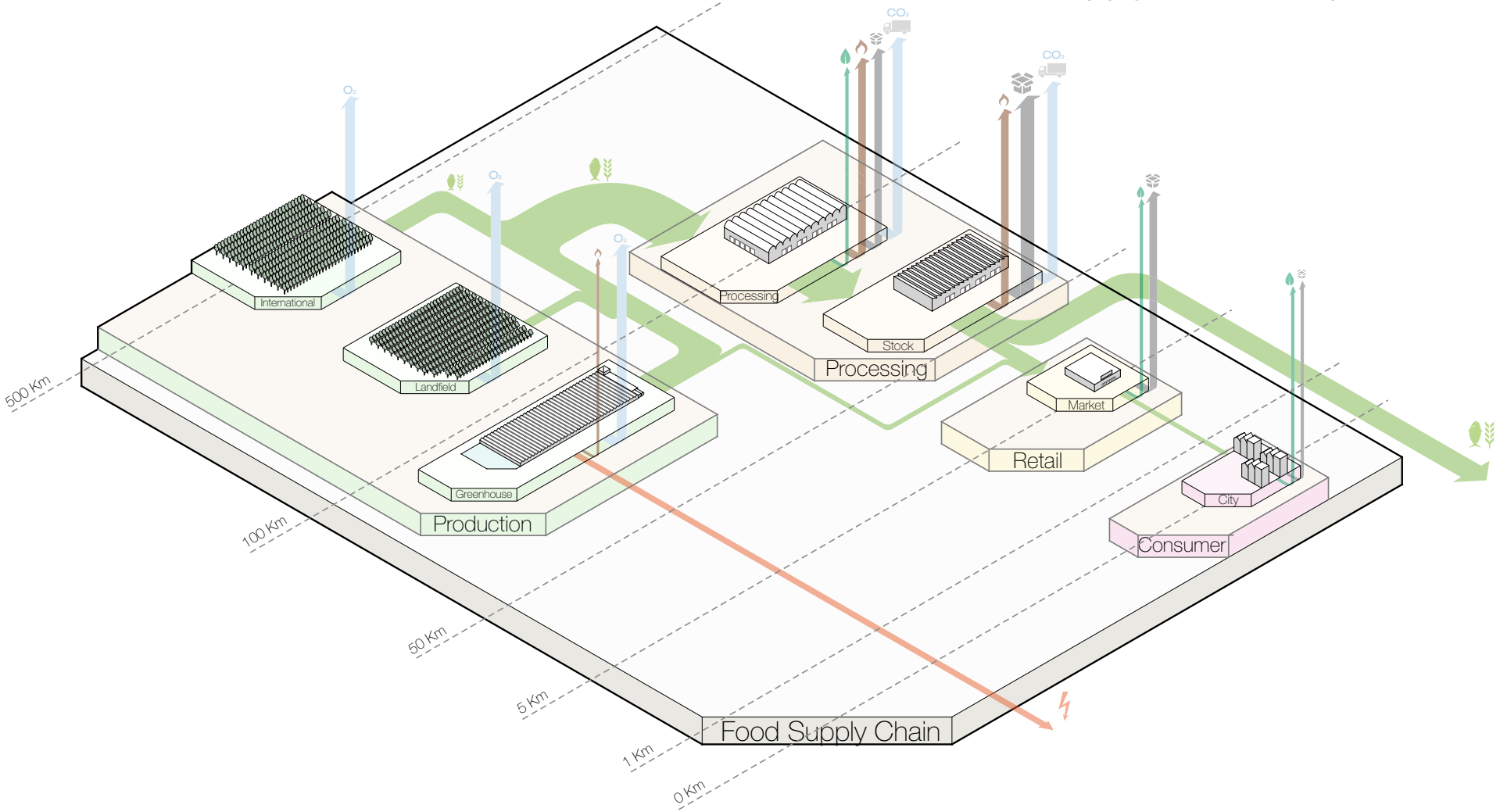
WATER AND LIQUIDS

CO_2 AIR AND GASES

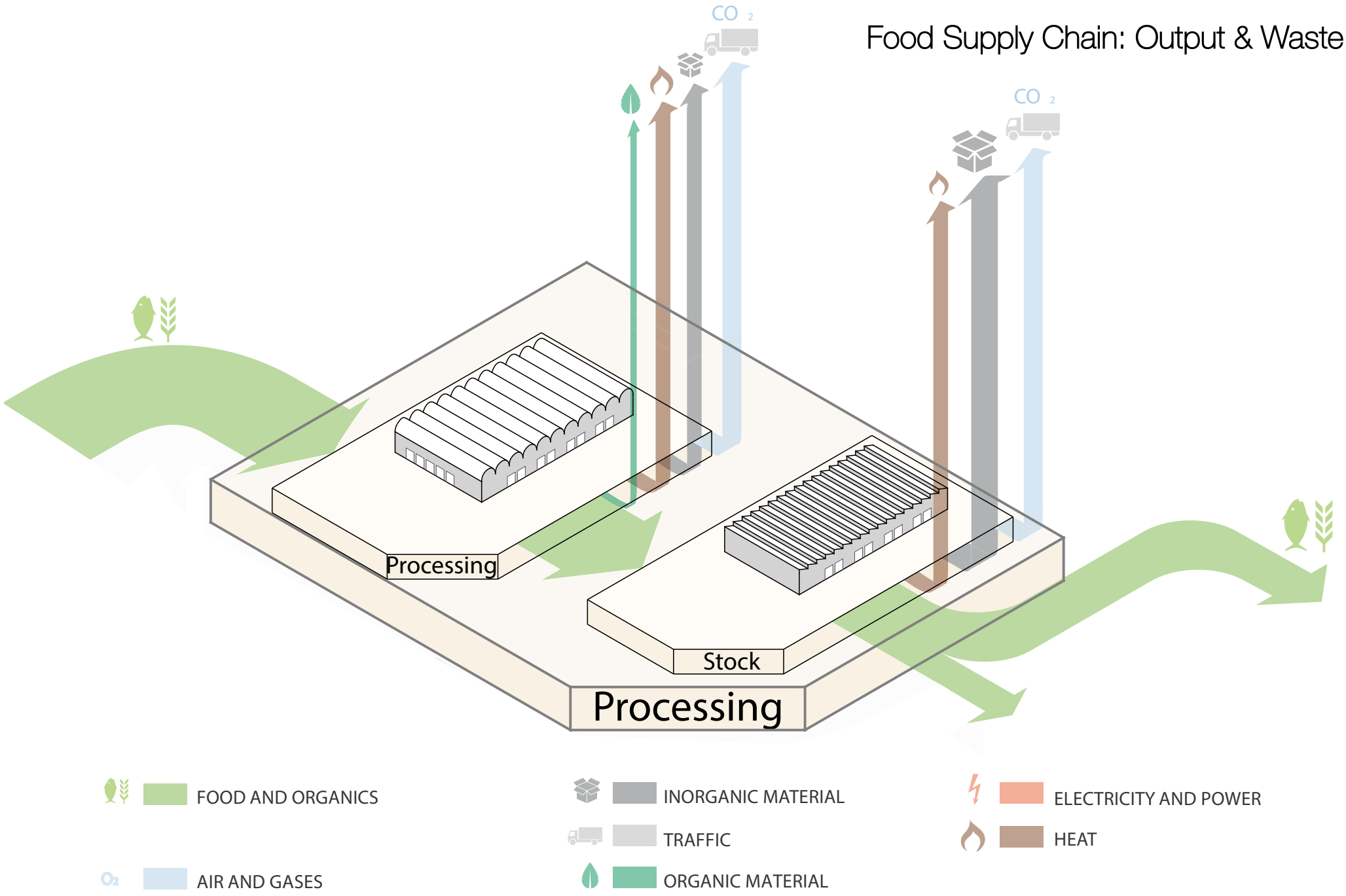
INORGANIC MATERIAL

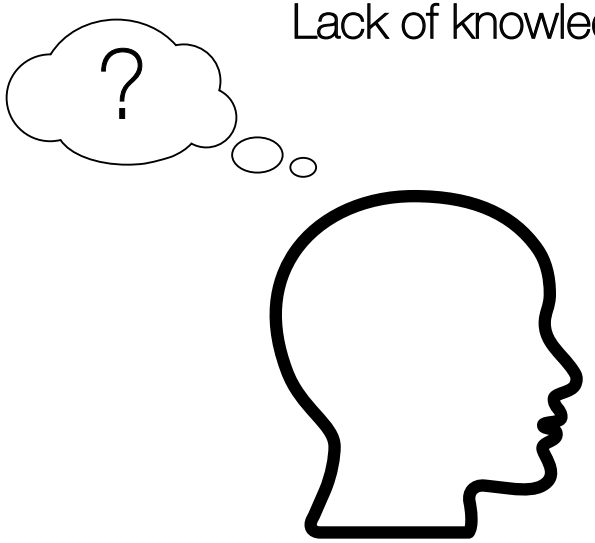
ELECTRICITY AND POWER

Food Supply Chain: Output & Waste



Food Supply Chain: Output & Waste



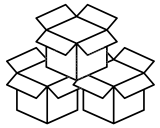


Lack of knowledge

+



Transportation emissions



Packaging abuses



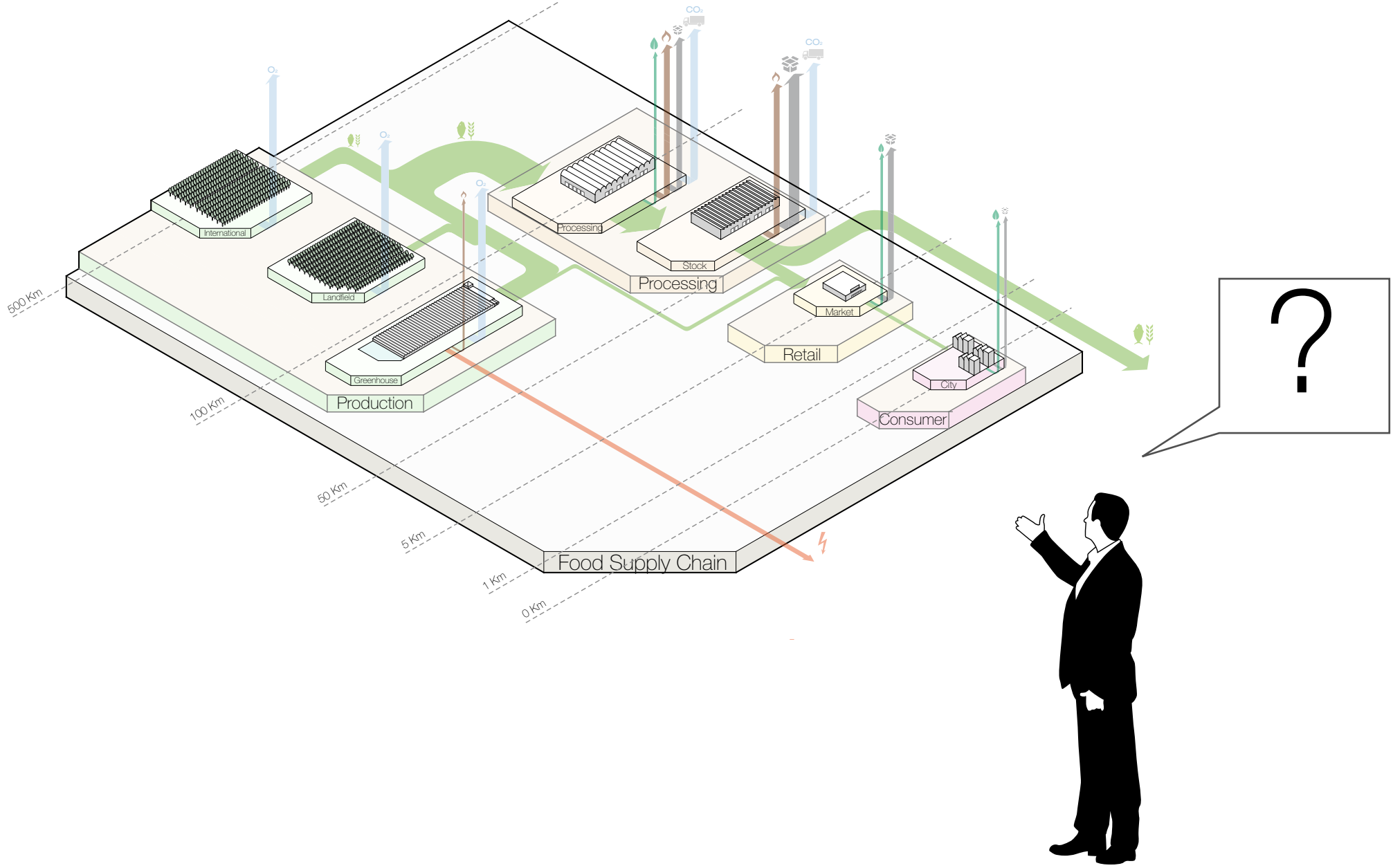
Time spent



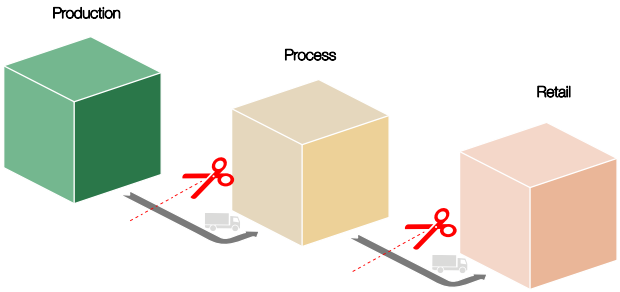
Less fresh

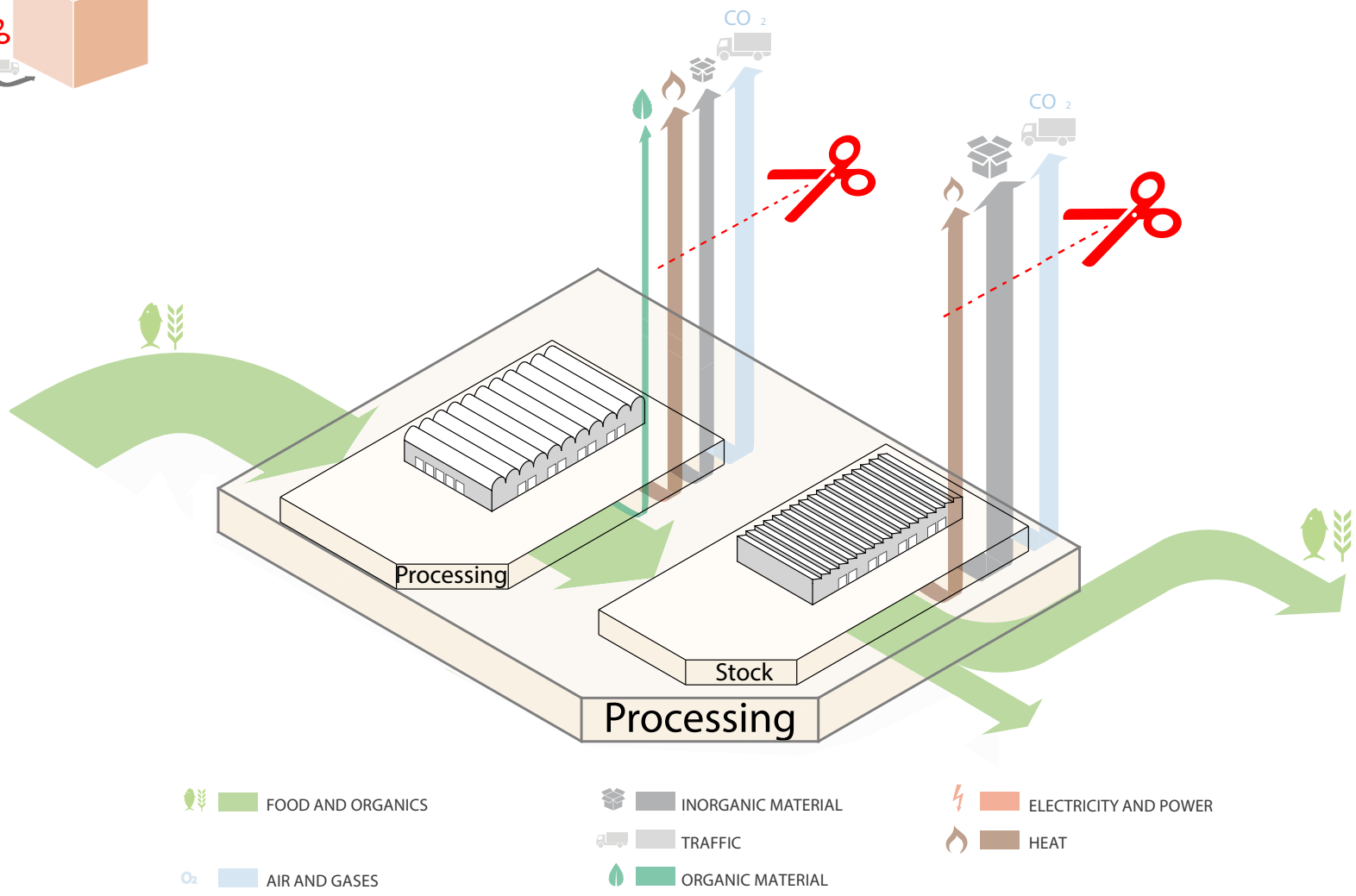


rise price

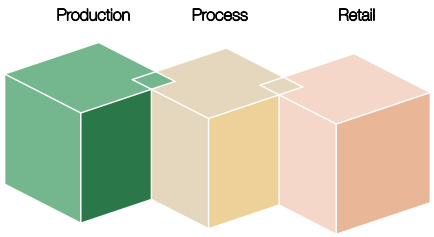

International
Landfield
Greenhouse
Production
Processing
Stock
Processing
Market
Retail
City
Consumer
Food Supply Chain
500 Km
100 Km
50 Km
5 Km
1 Km
0 Km
?

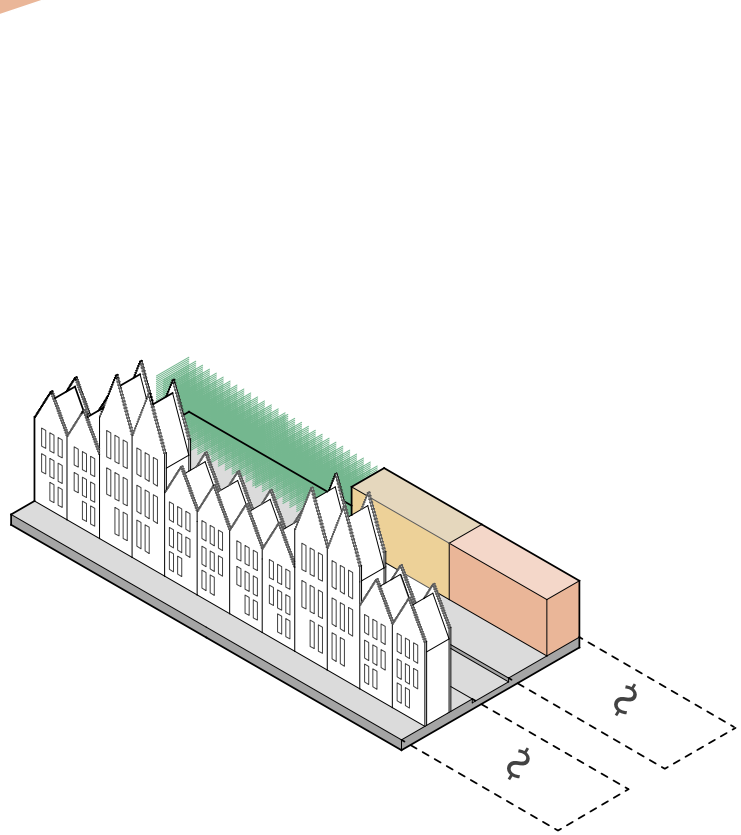
1_ Goal
Reduce use of resources



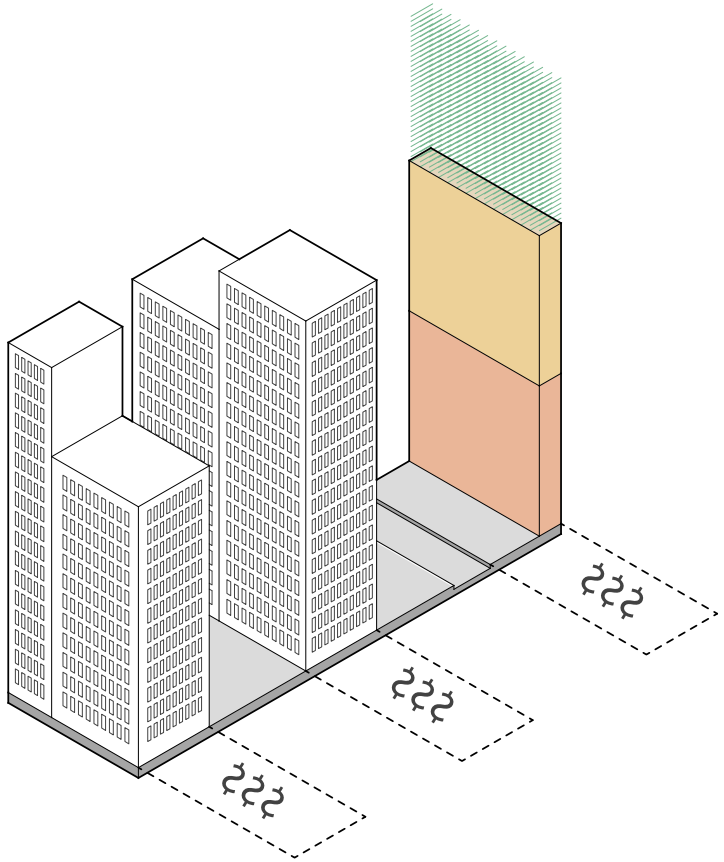


2 Goal
Reasseble the food phases

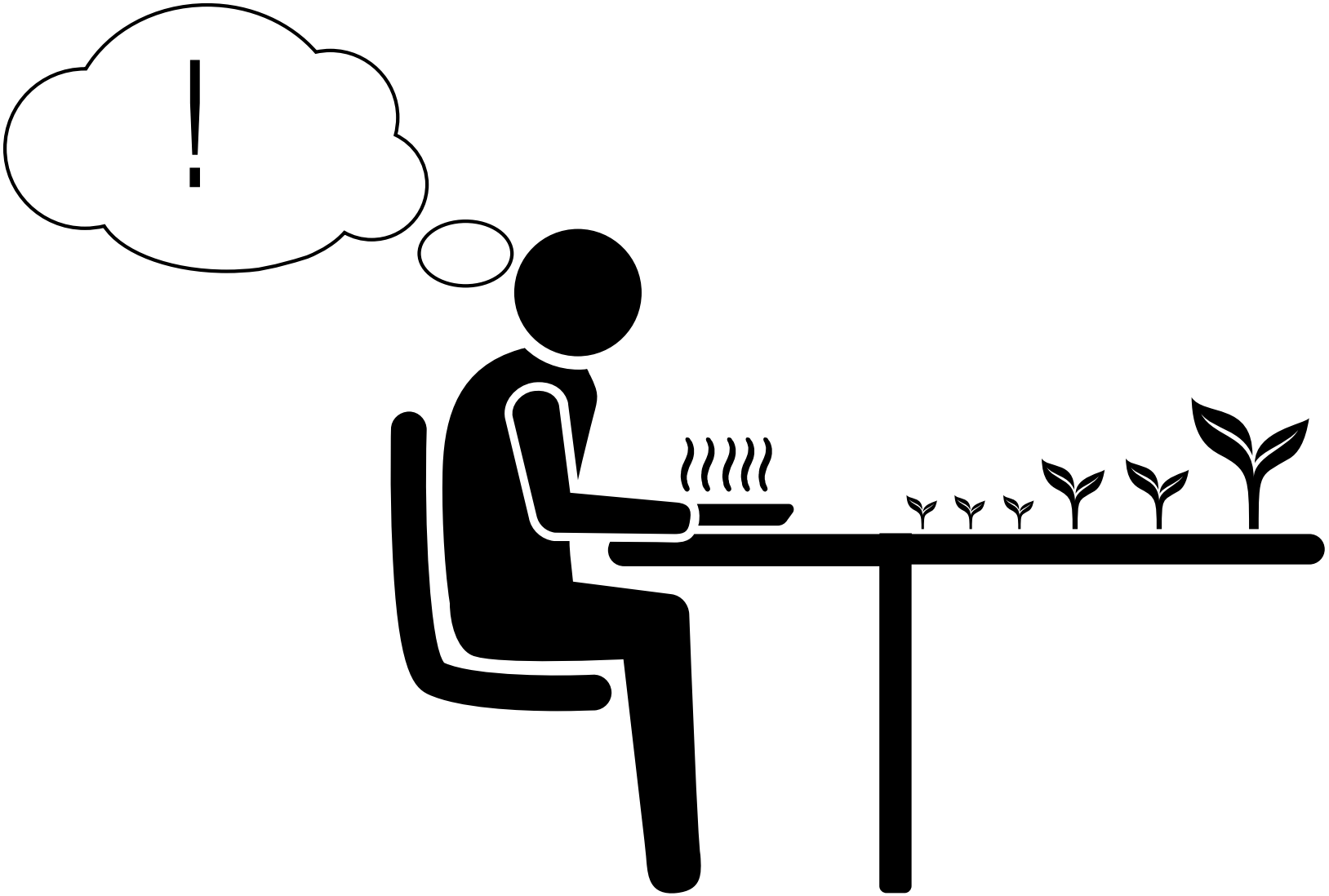




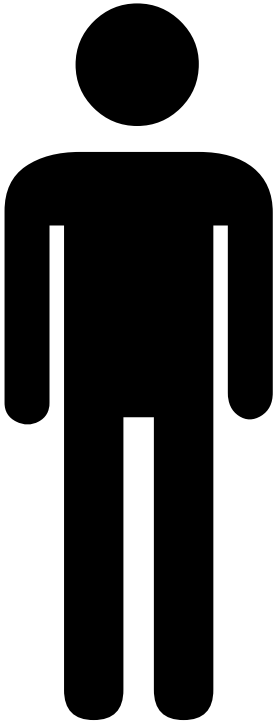
VILLAGE

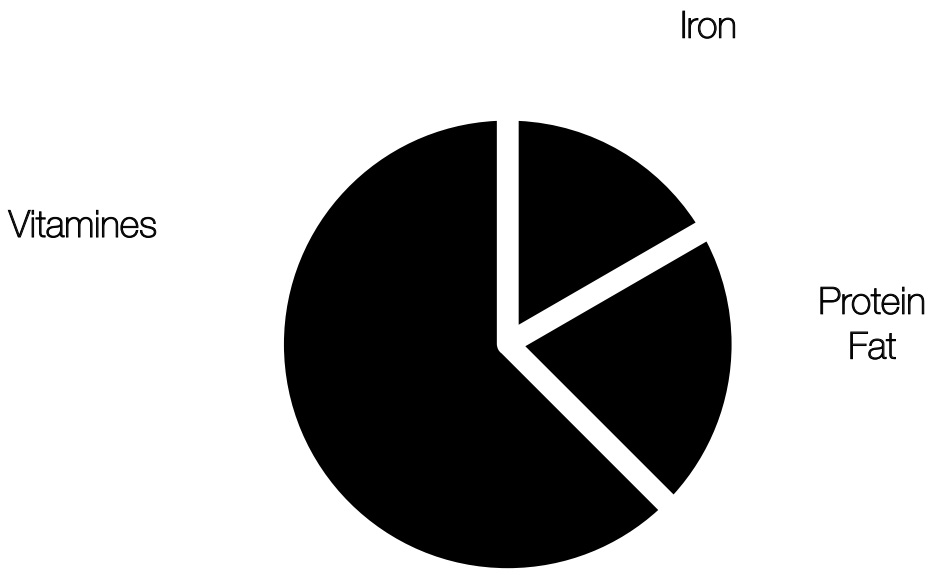


CITY



2500 kcal /day



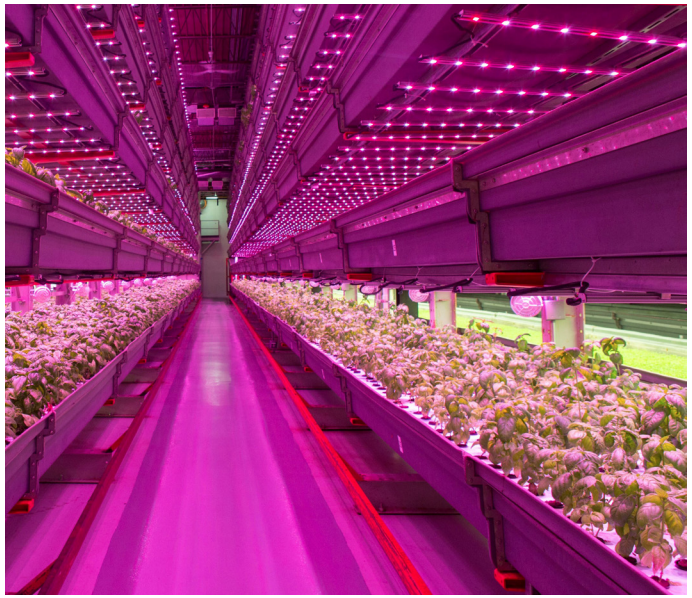




Traditional field production

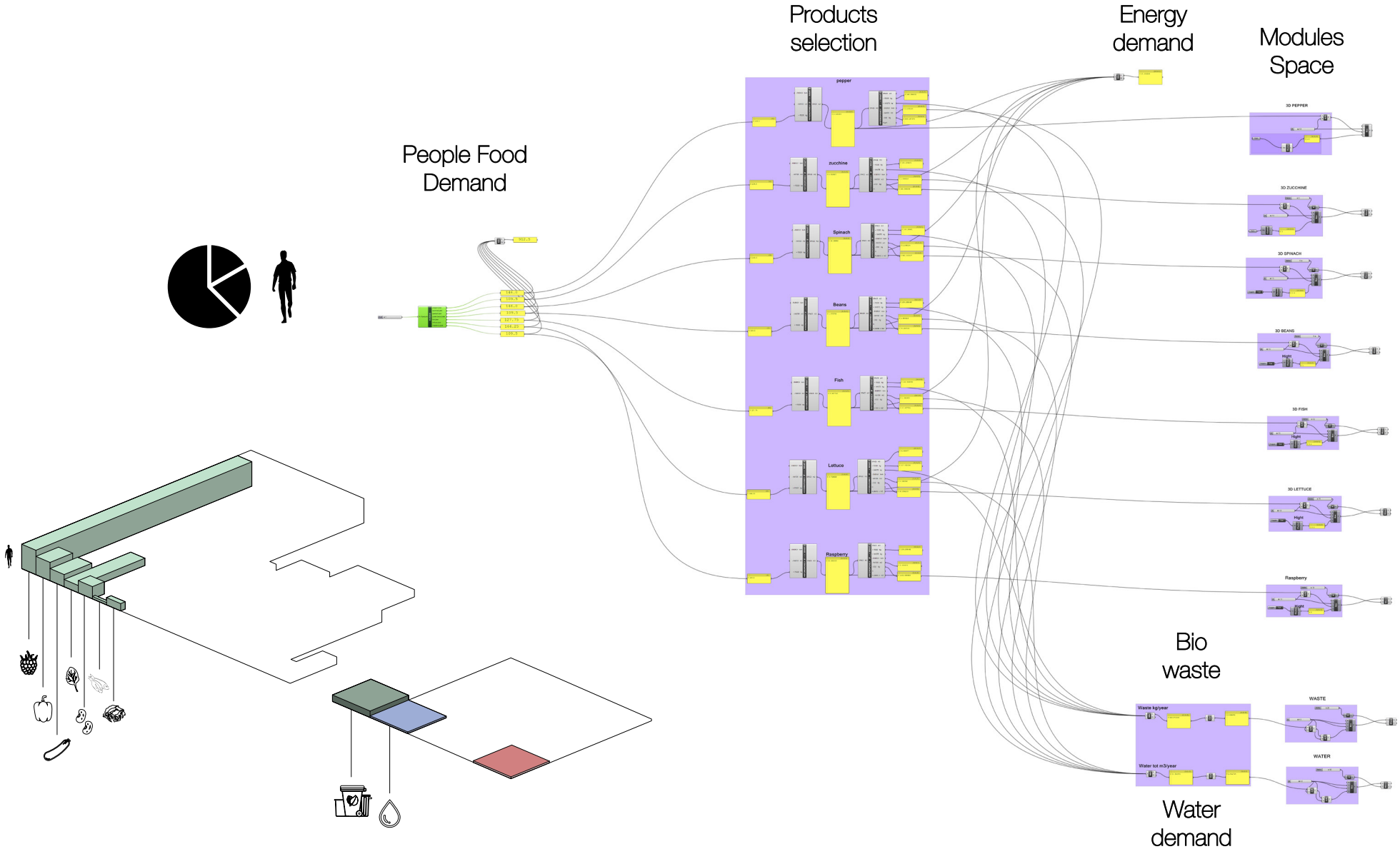


Hydroponic Greenhouse production



Hydroponic LEDFarm production

Modular Script



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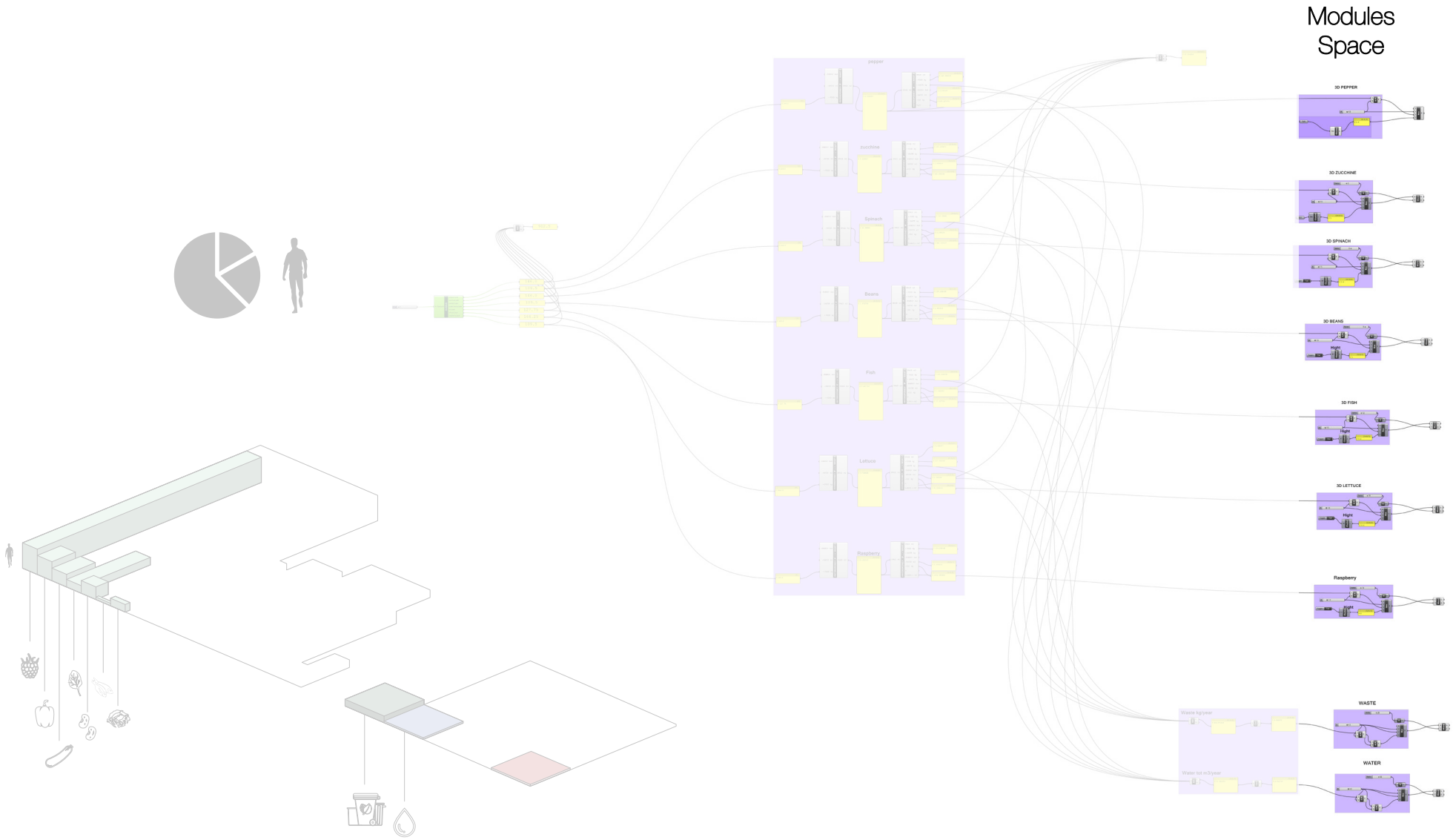
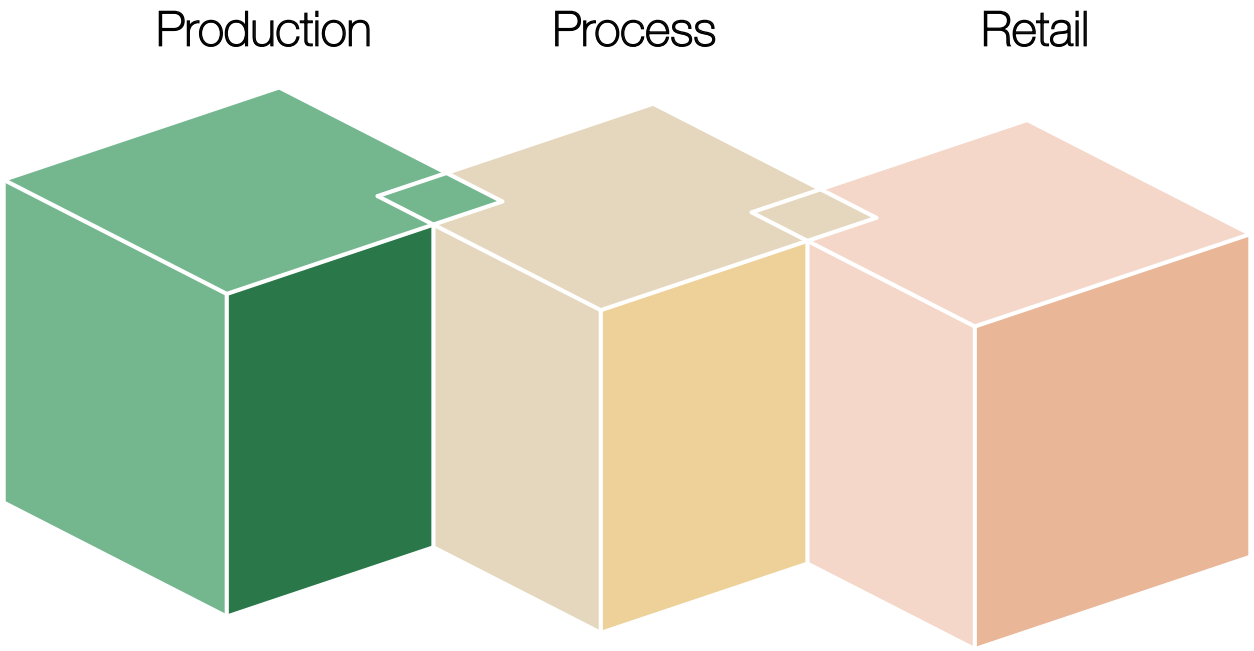
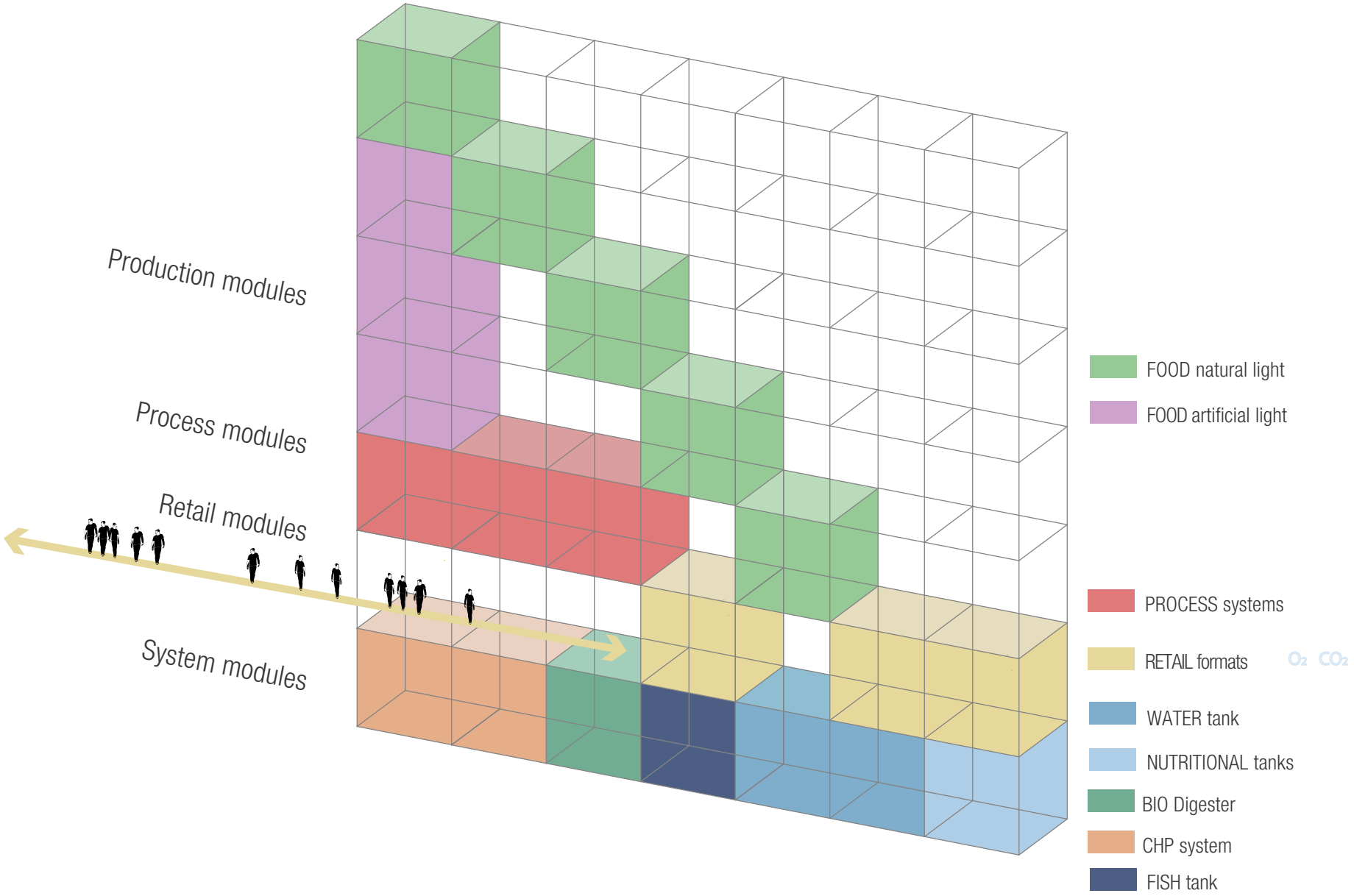



Production
Process
Retail

Program modules



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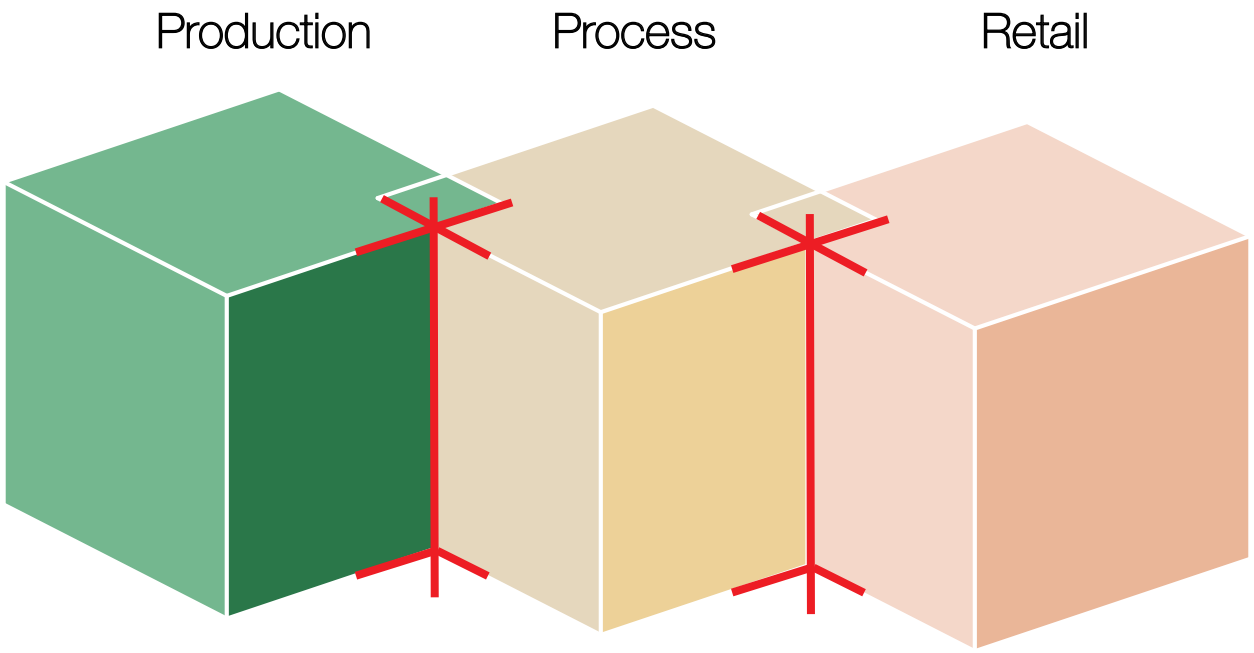
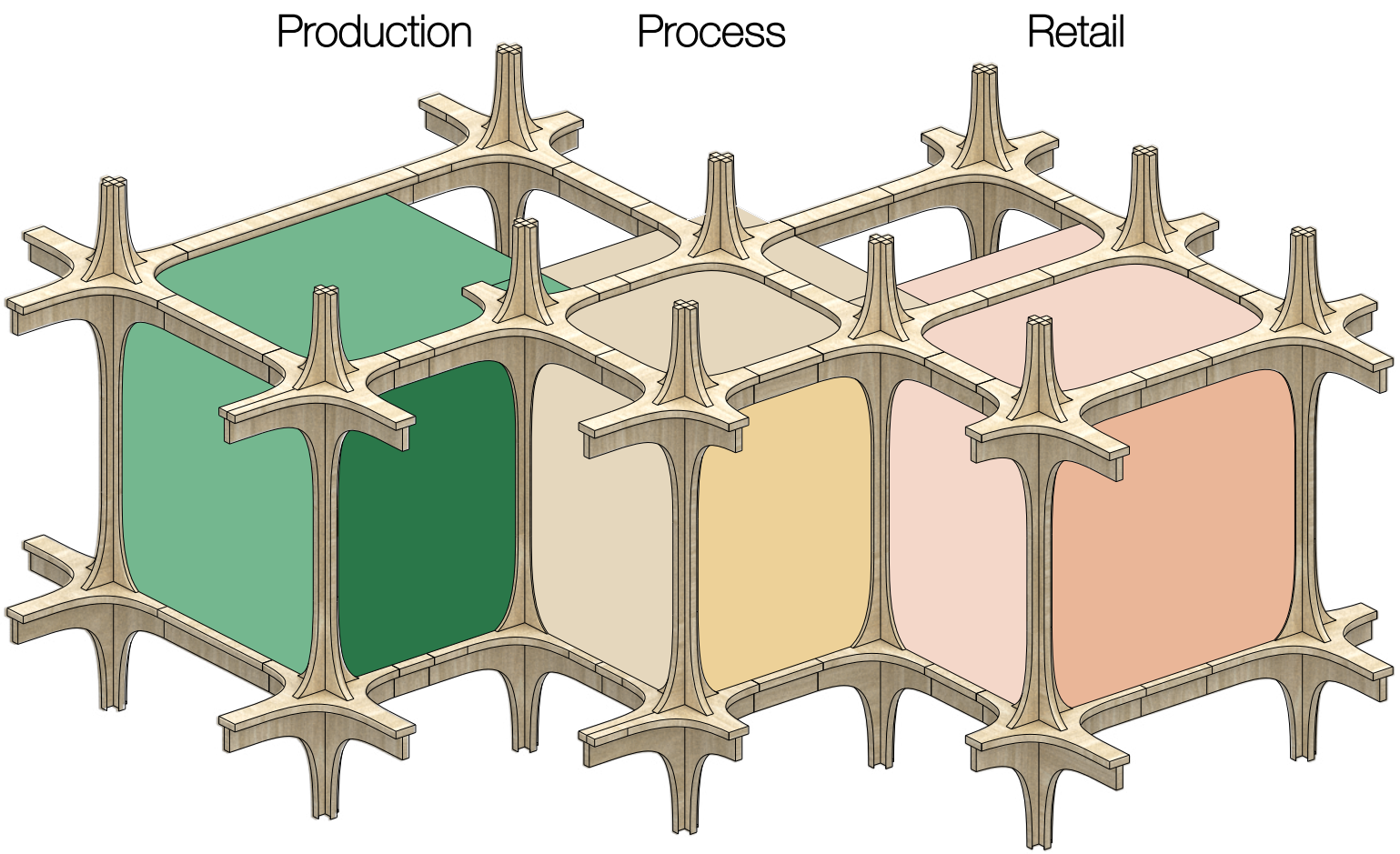


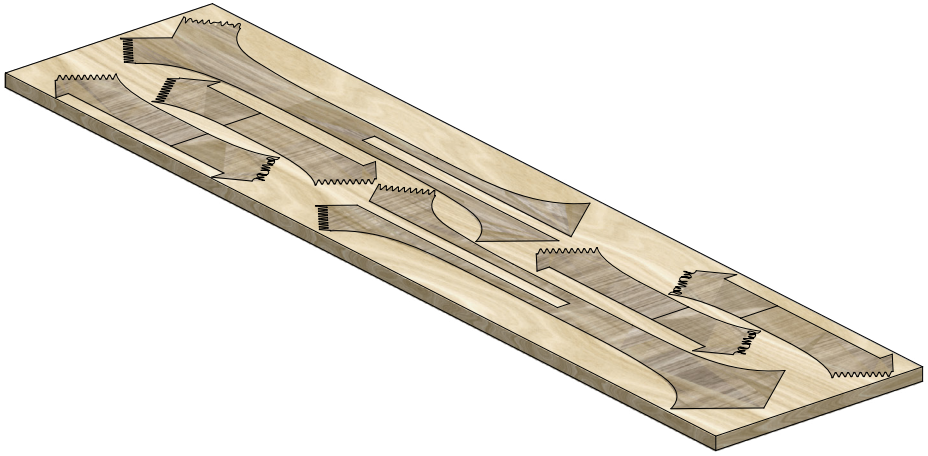


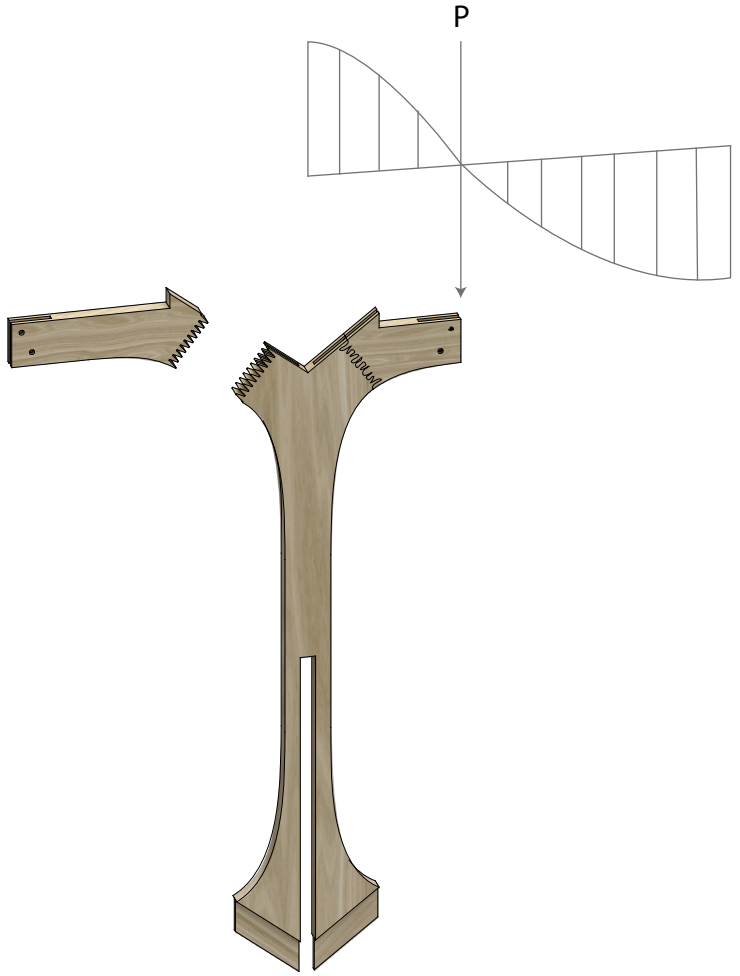

Production
Process
Retail

Modular structure

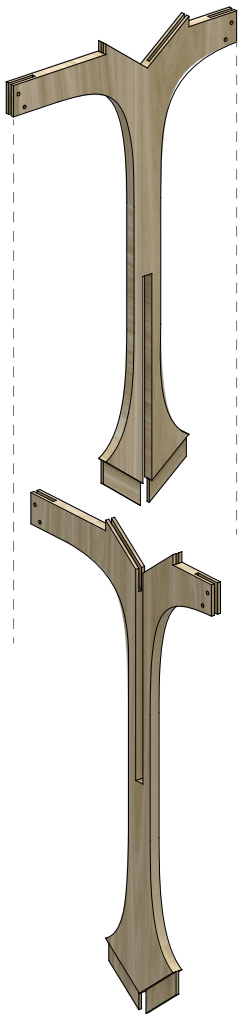
Shape & fabrication

CNC Milling

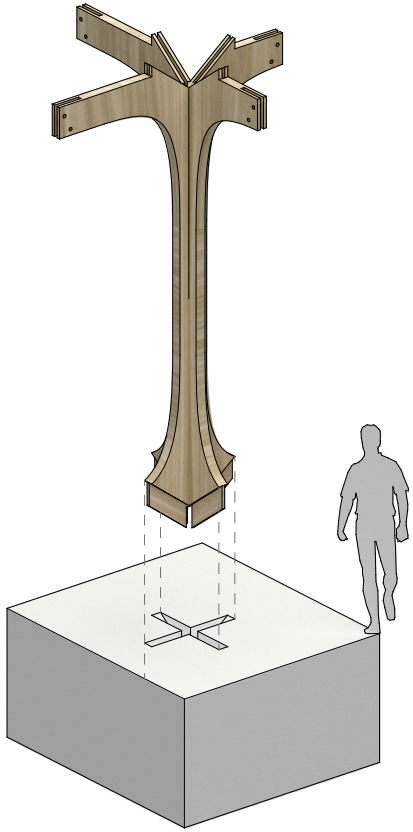




Beam - Column
Finger joint

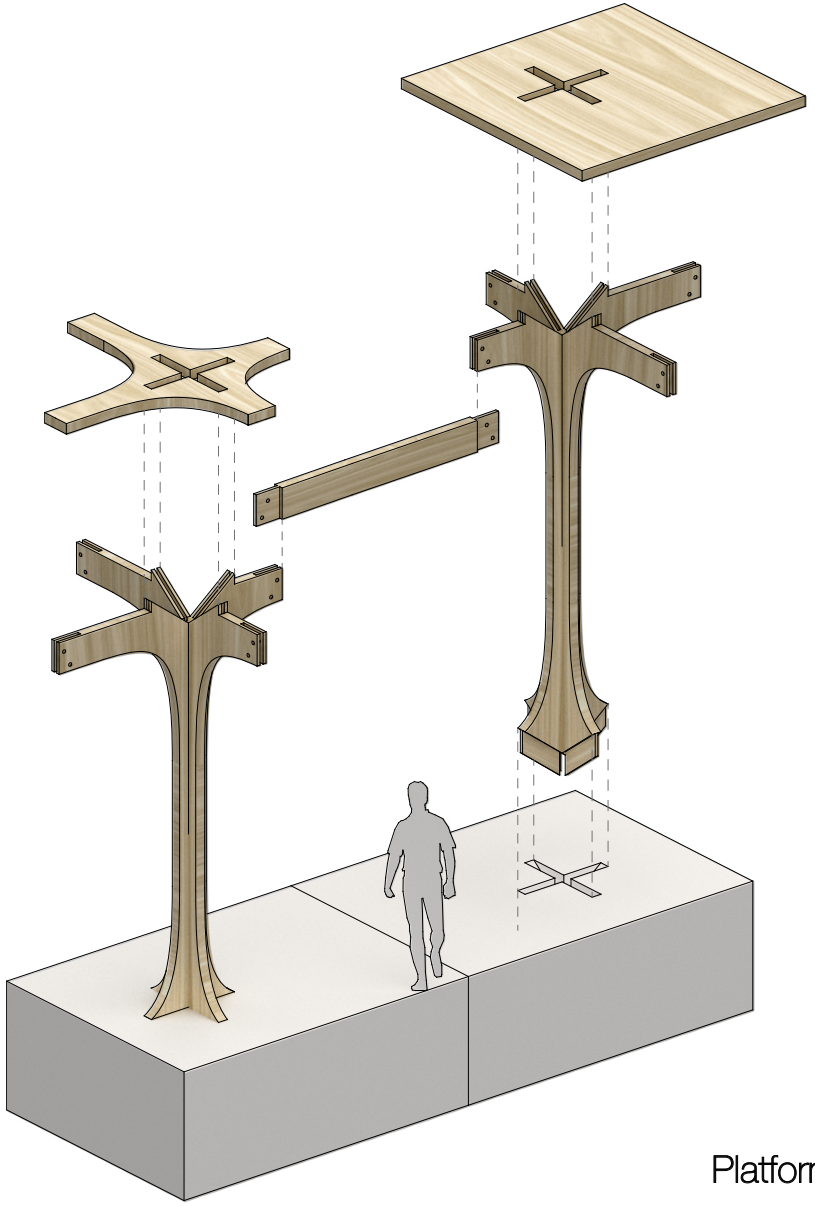


Cross joint



Foundation joint

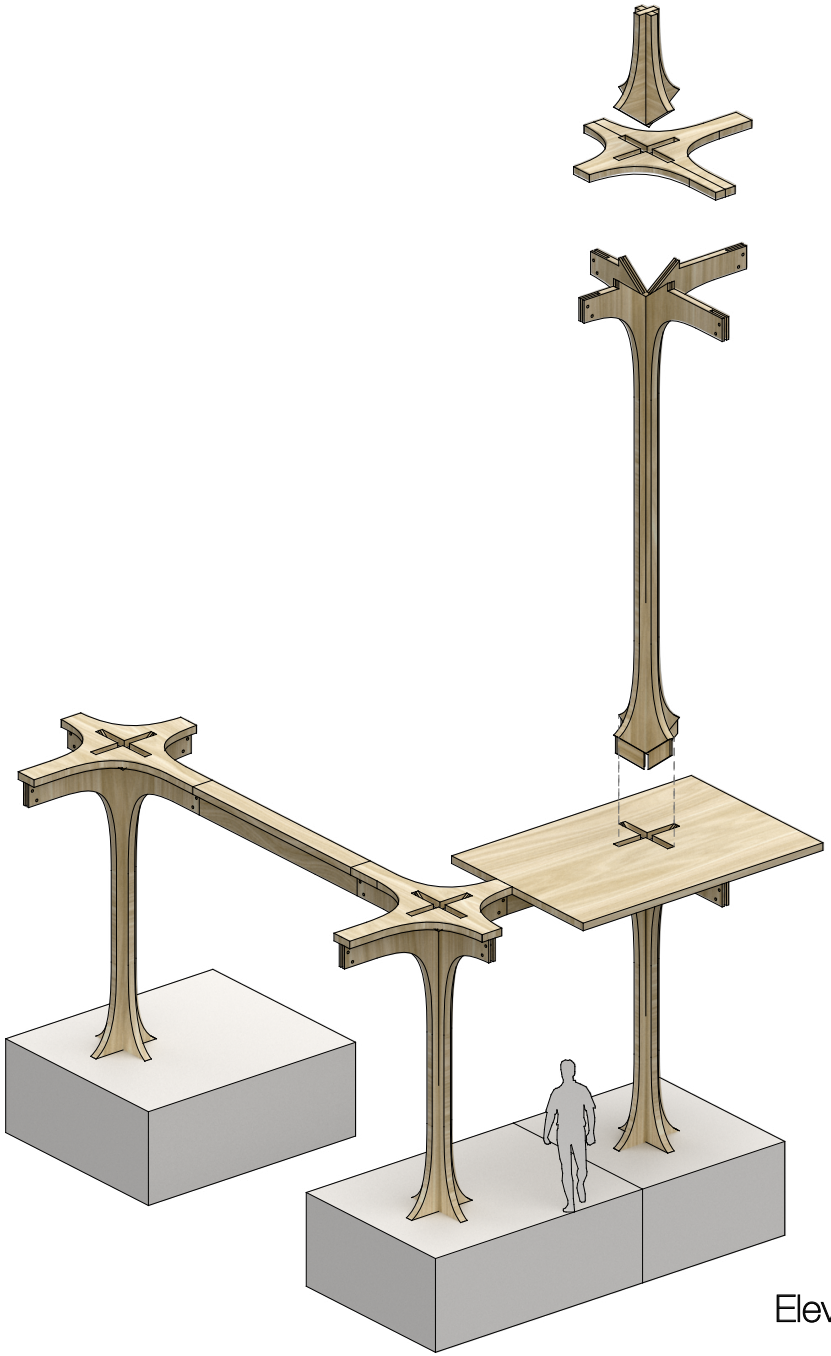
Modular structure
assemblage



Platform joint

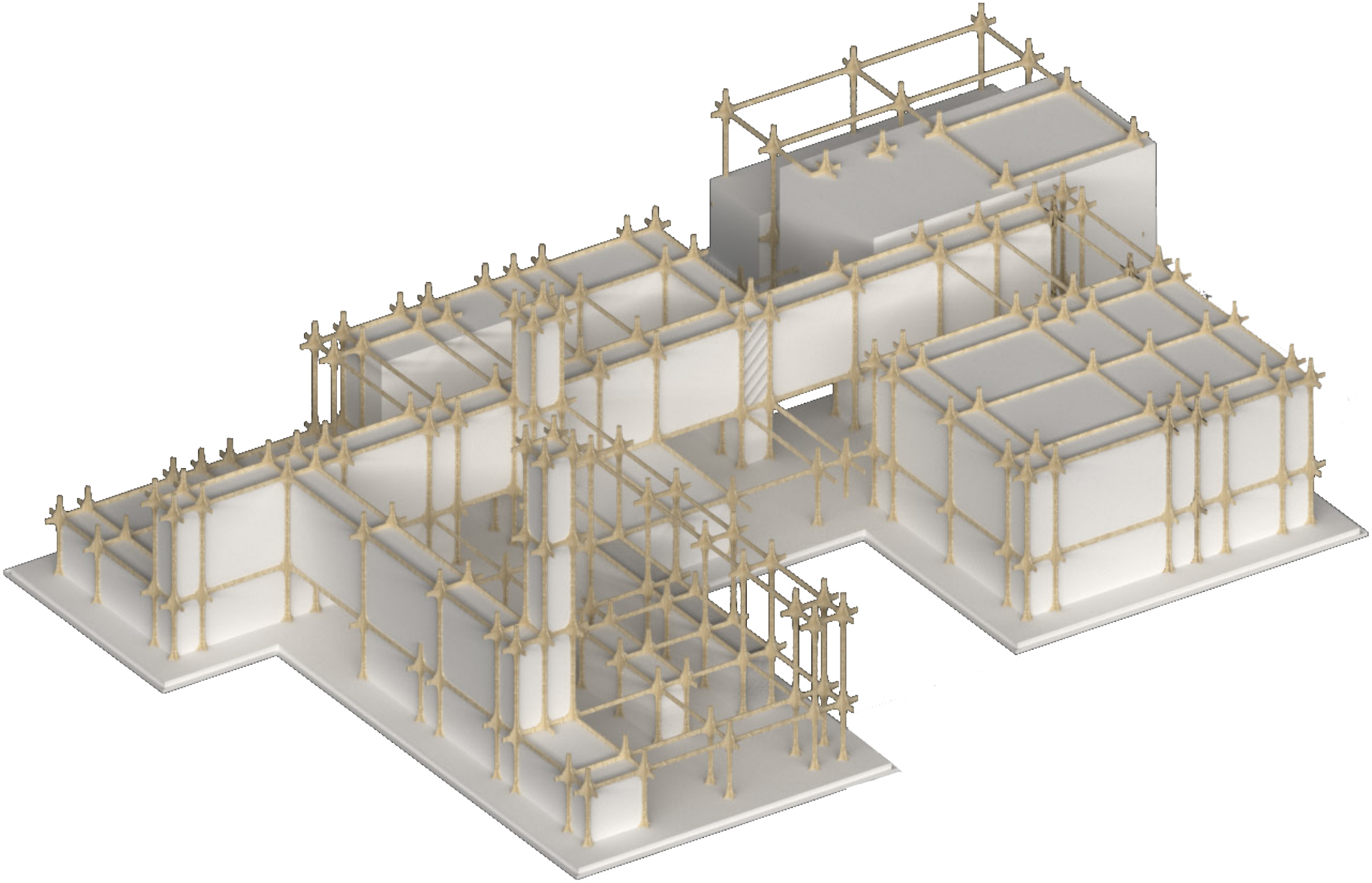
Modular structure

assemblage

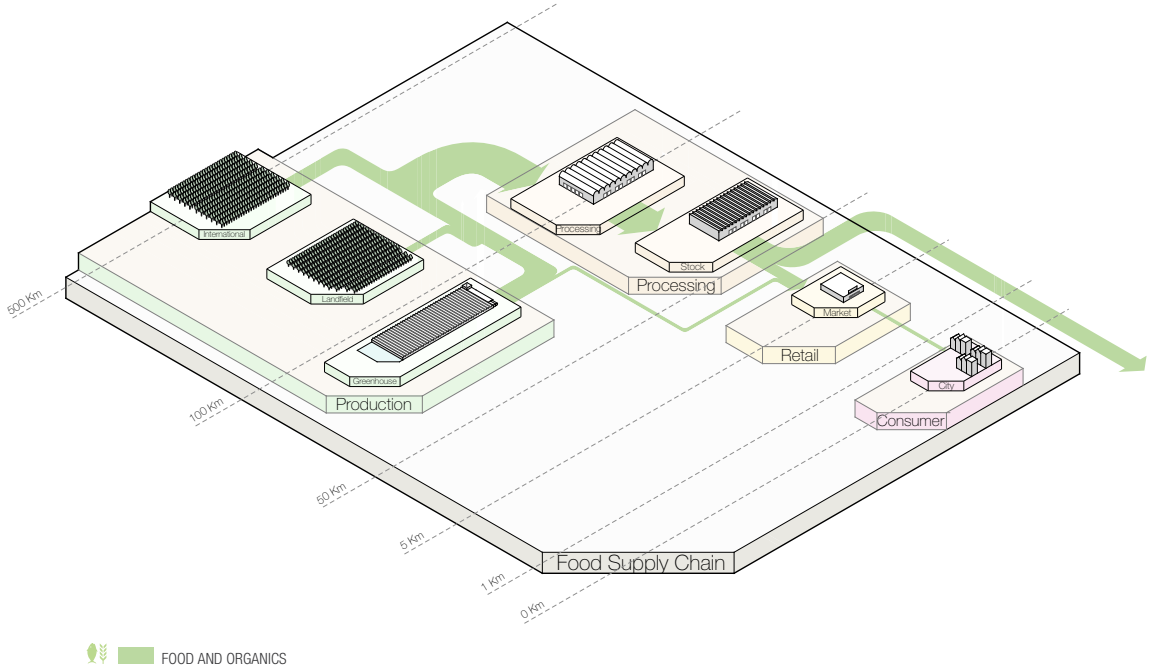


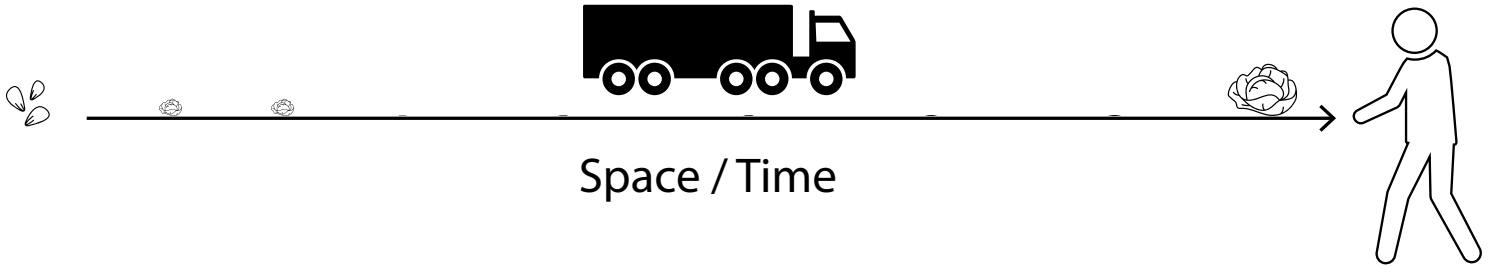
Elevation joint

Modular structure
assemblage

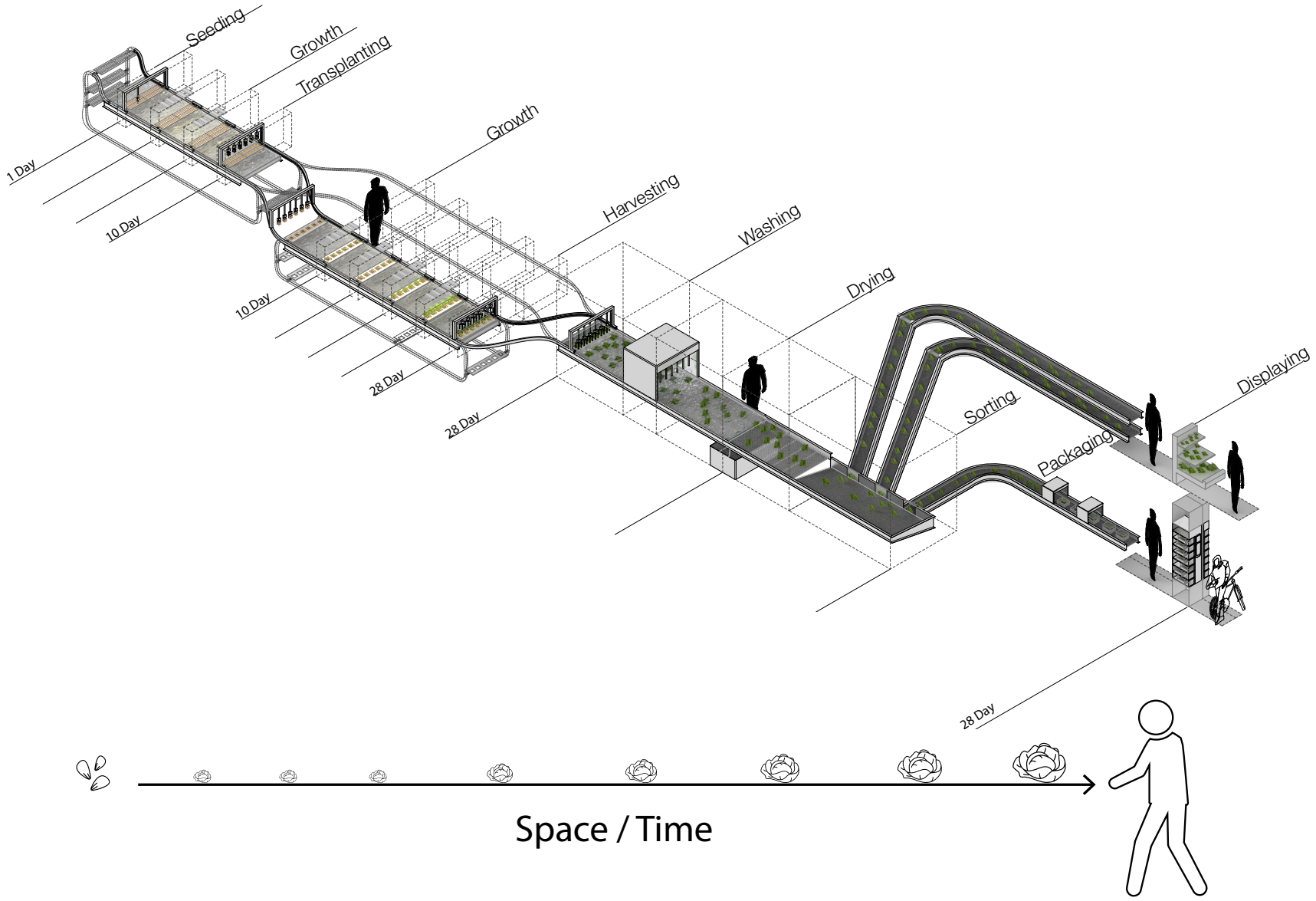


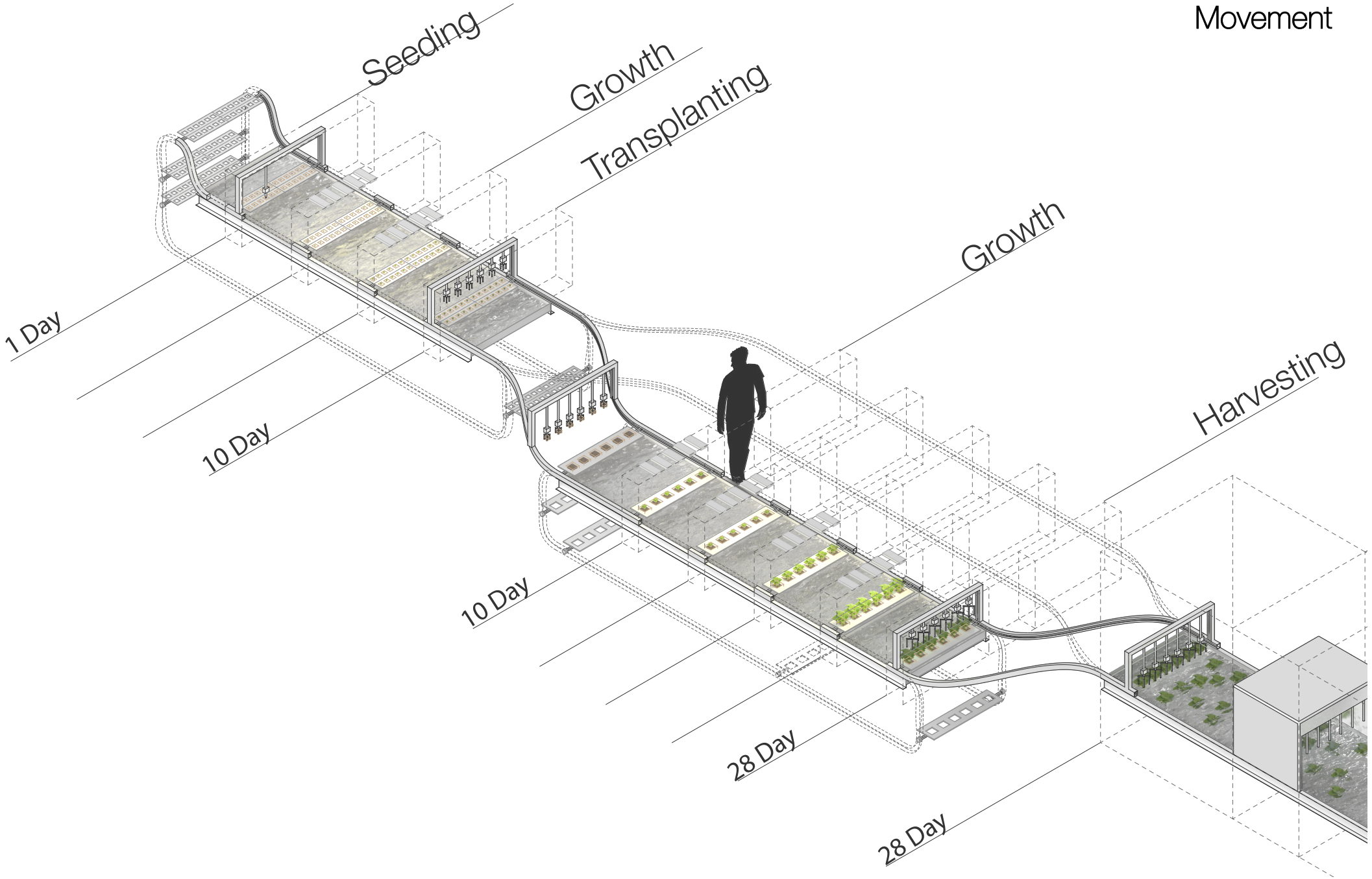
Product transportation
“Food Supply Chain” layout

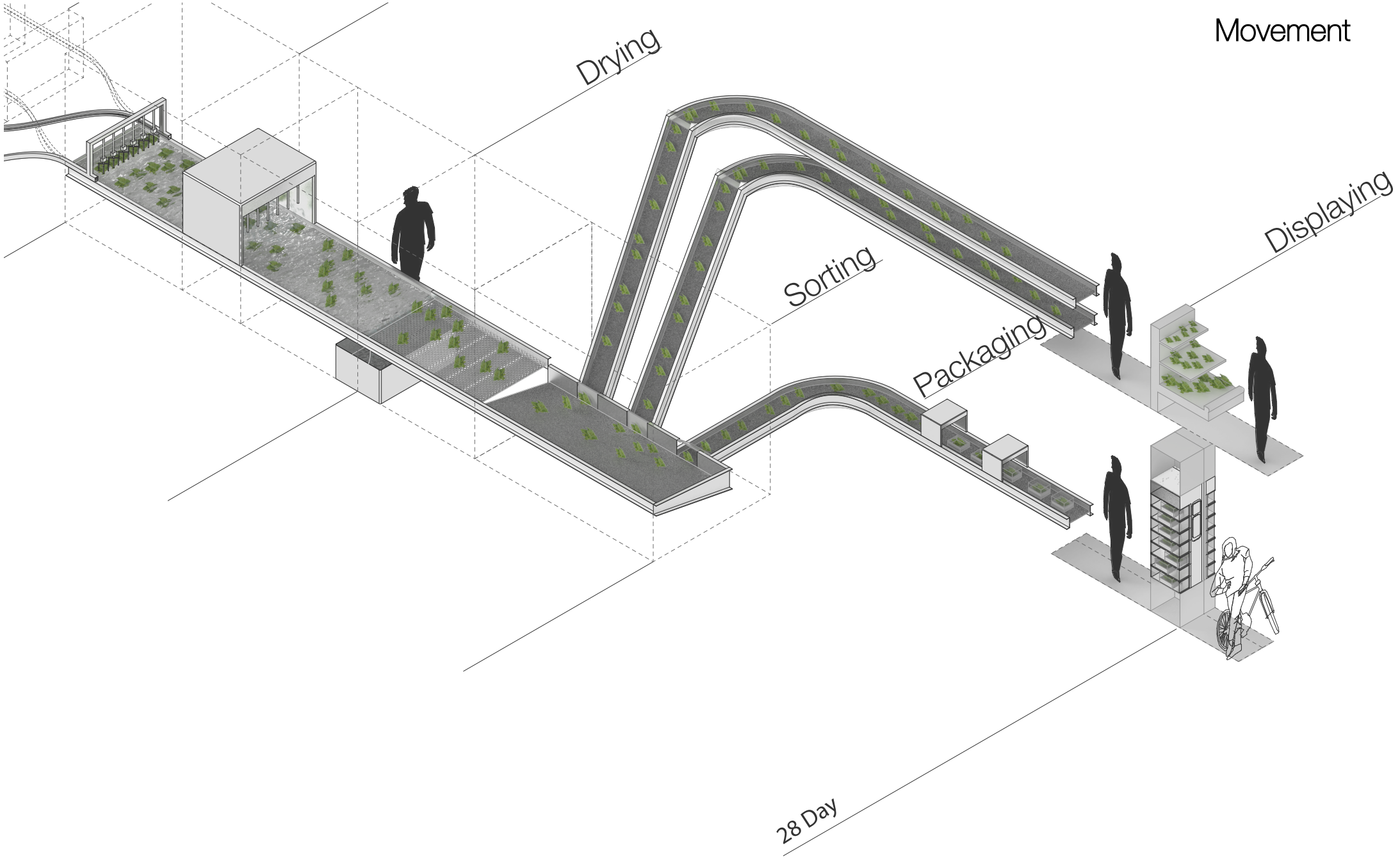




Product transportation
Rail system layout

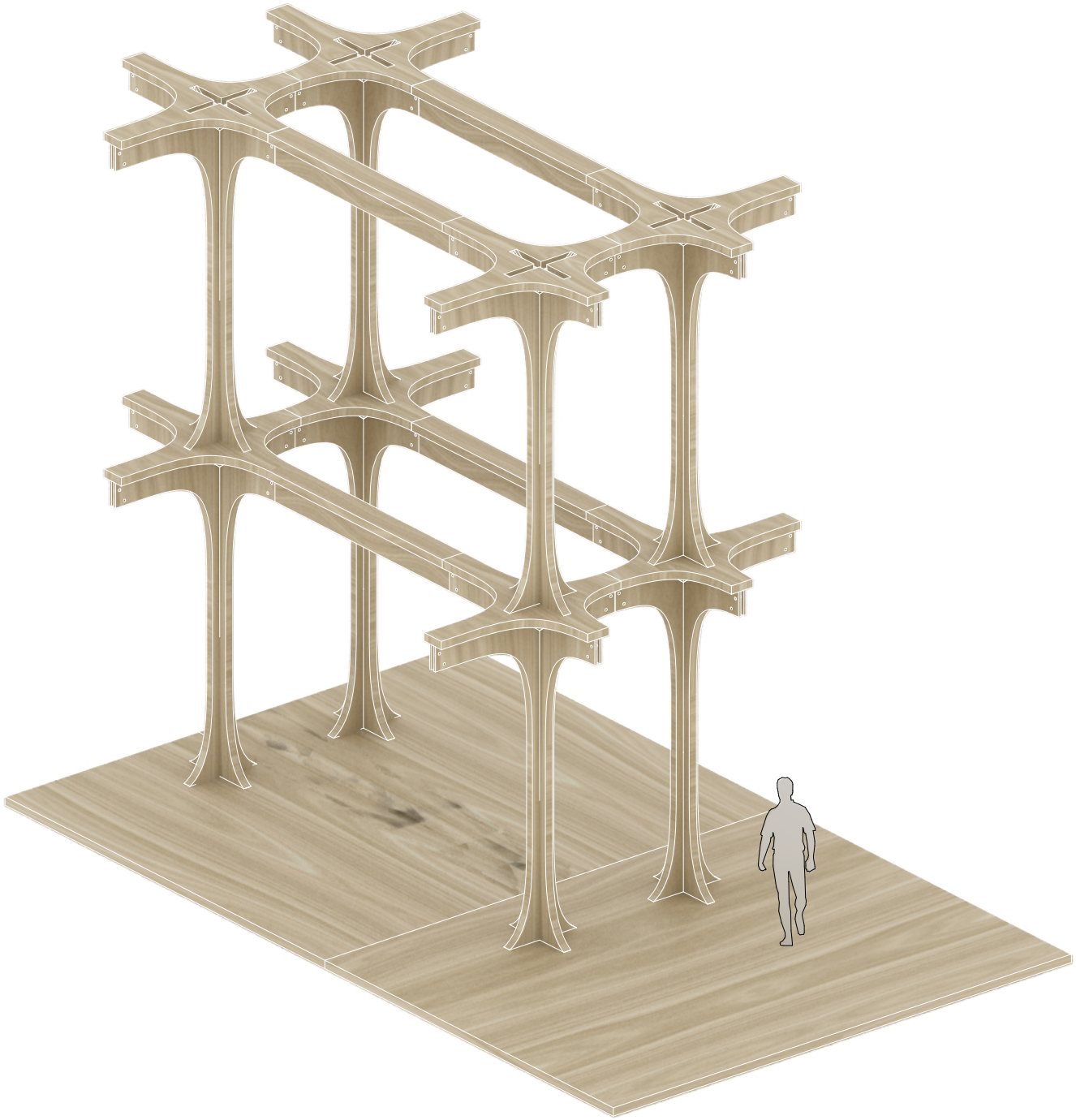


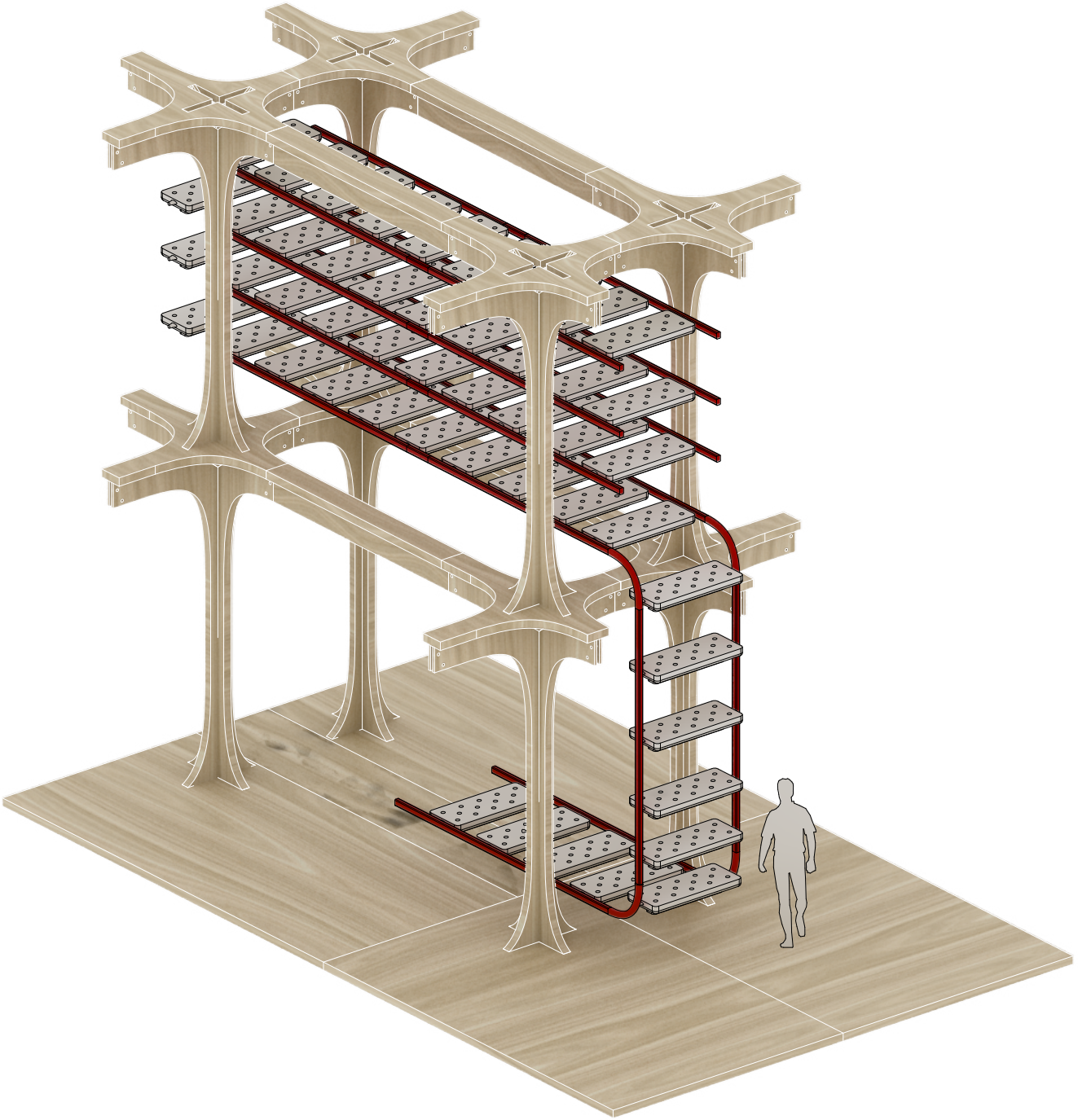

Seeding
Growth
Transplanting
Growth
Harvesting
1 Day
10 Day
10 Day
28 Day
28 Day


Movement
Drying
Sorting
Packaging
Displaying
28 Day

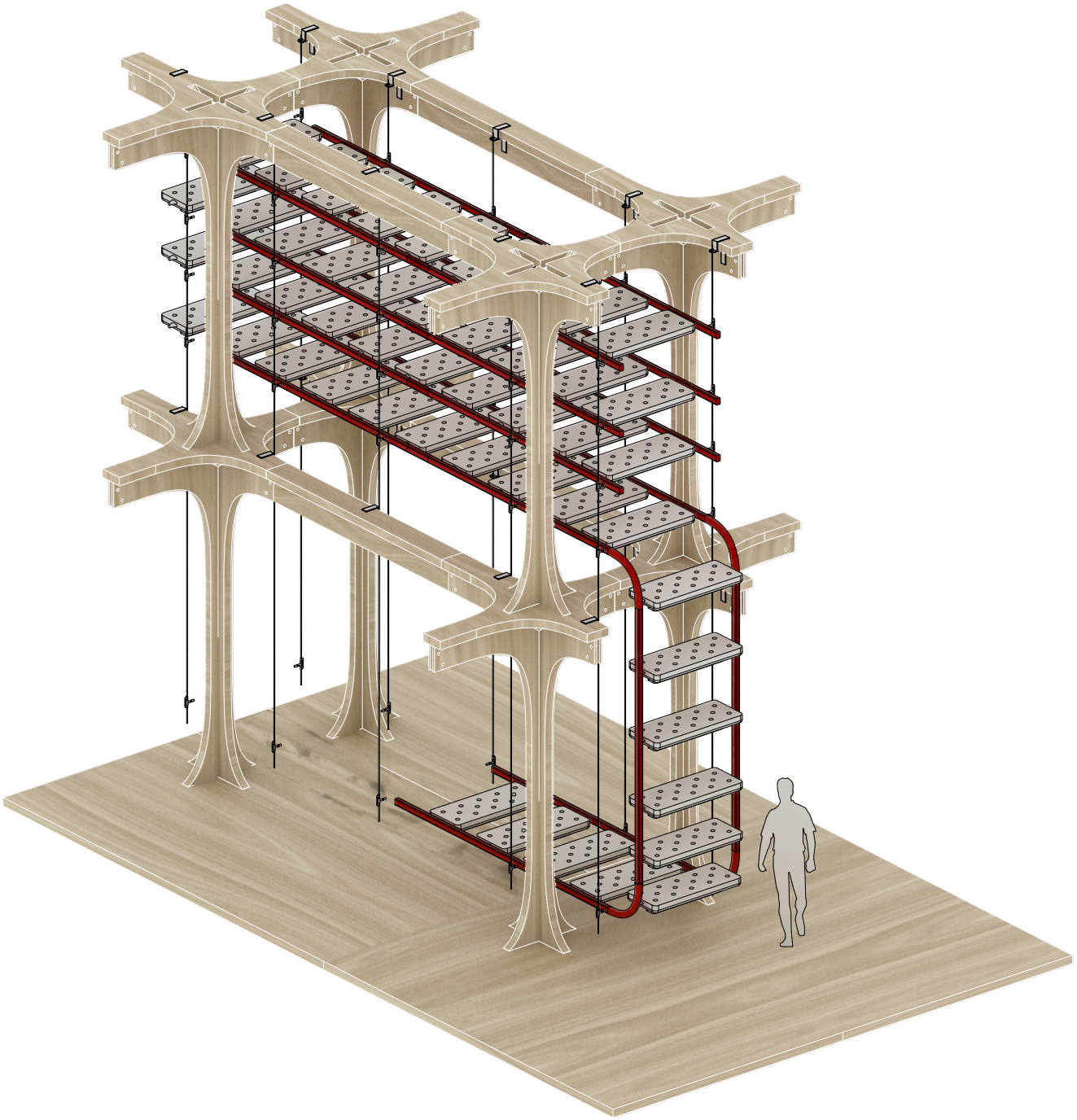
Movement

Structure integration





Movement
Structure integration

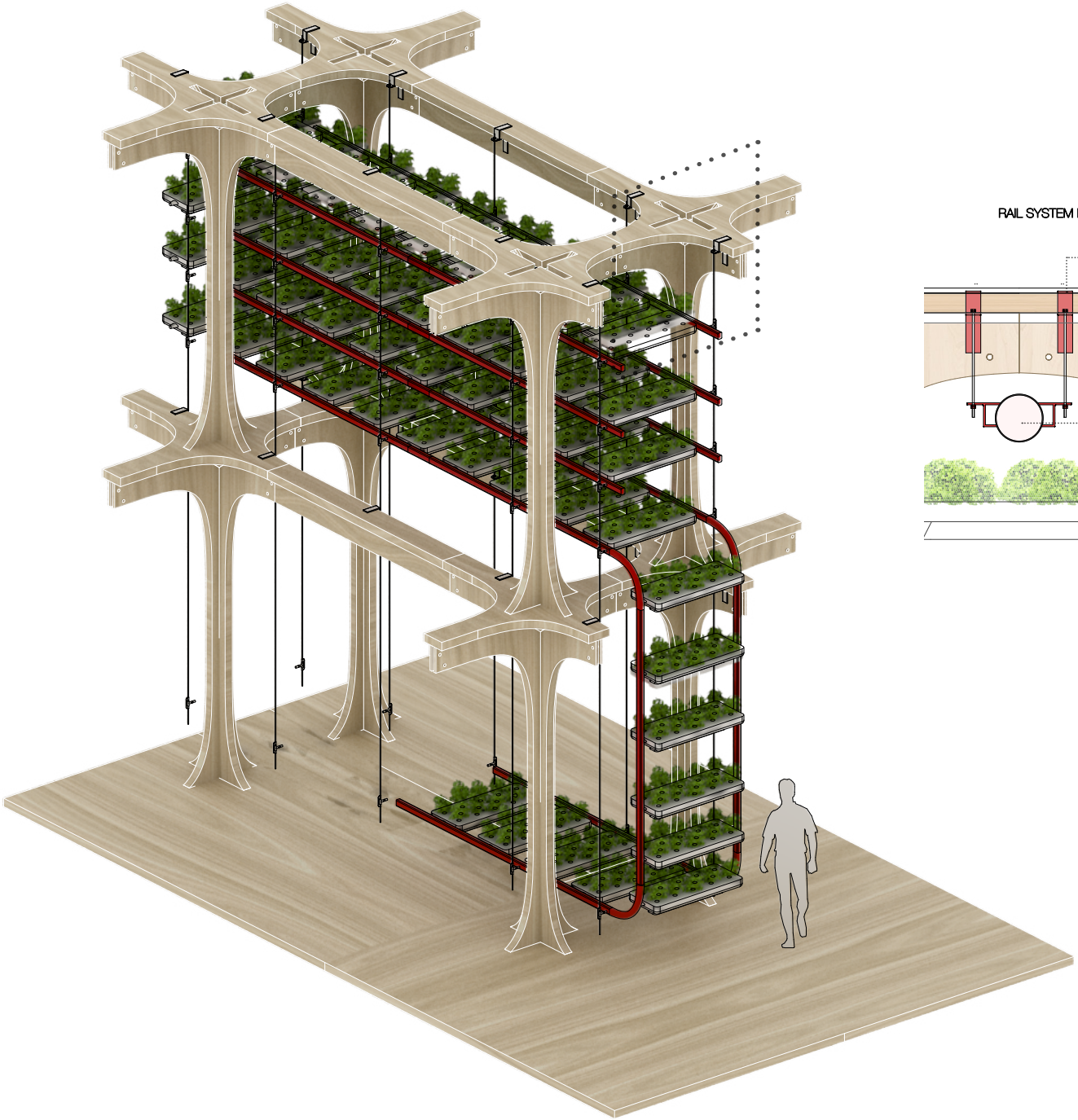


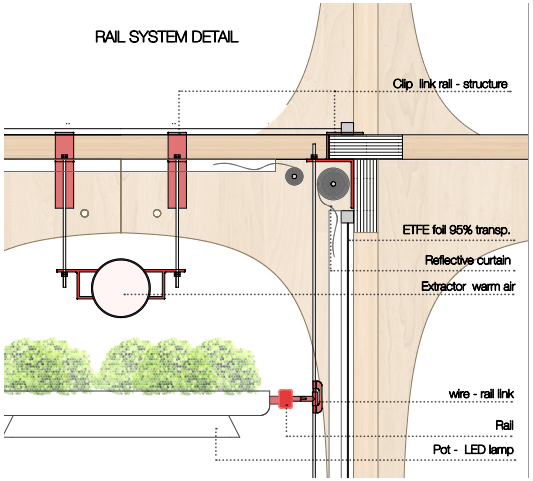
Movement

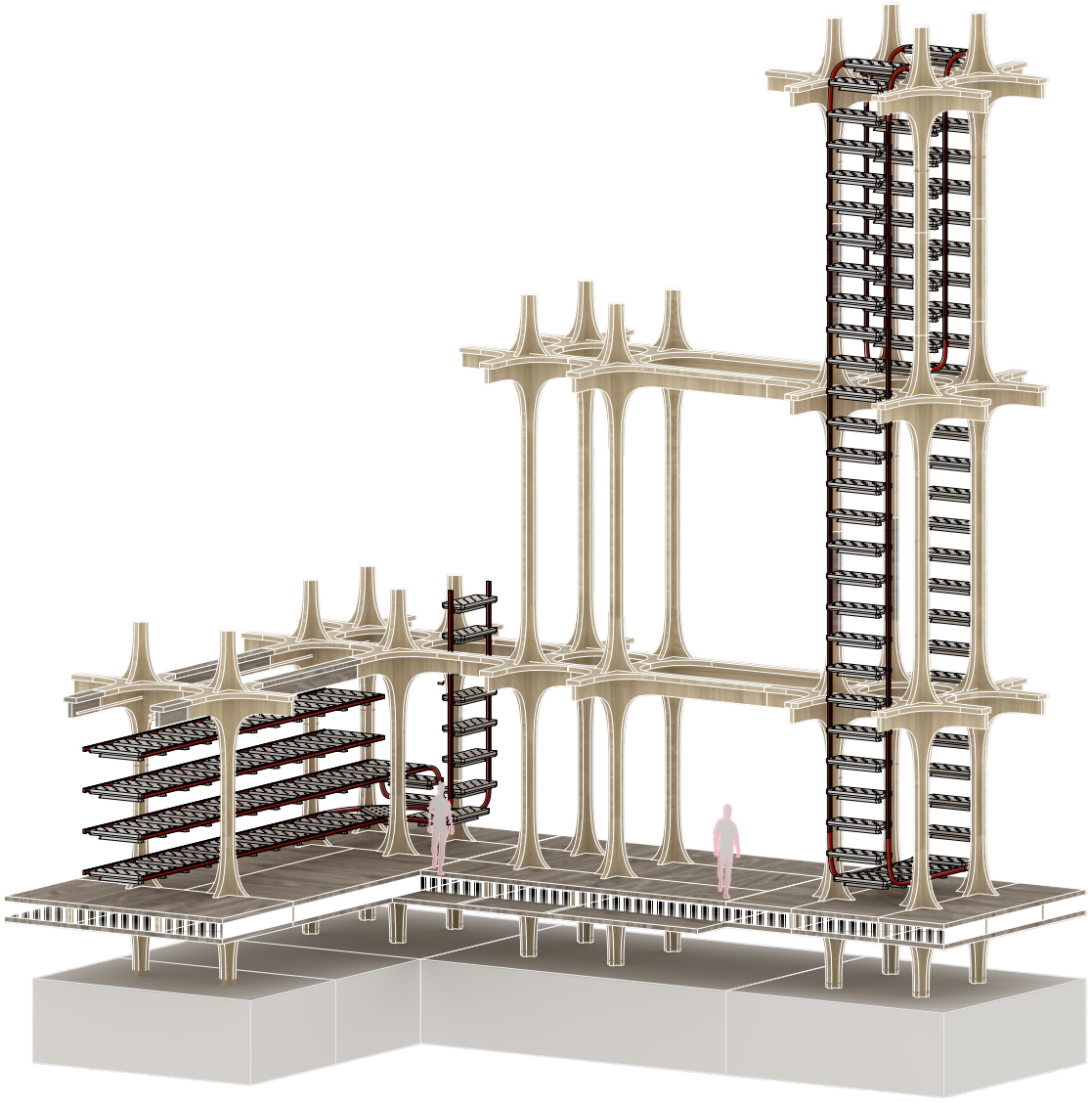
Structure integration



Movement
Structure integration

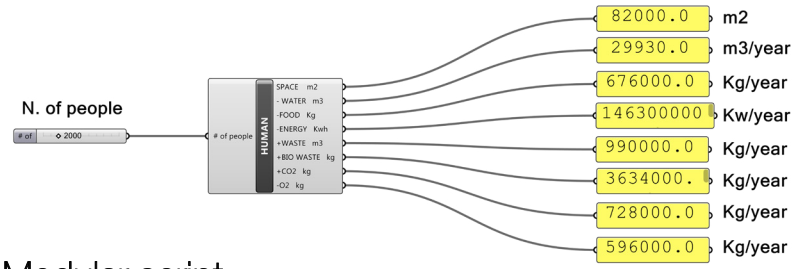




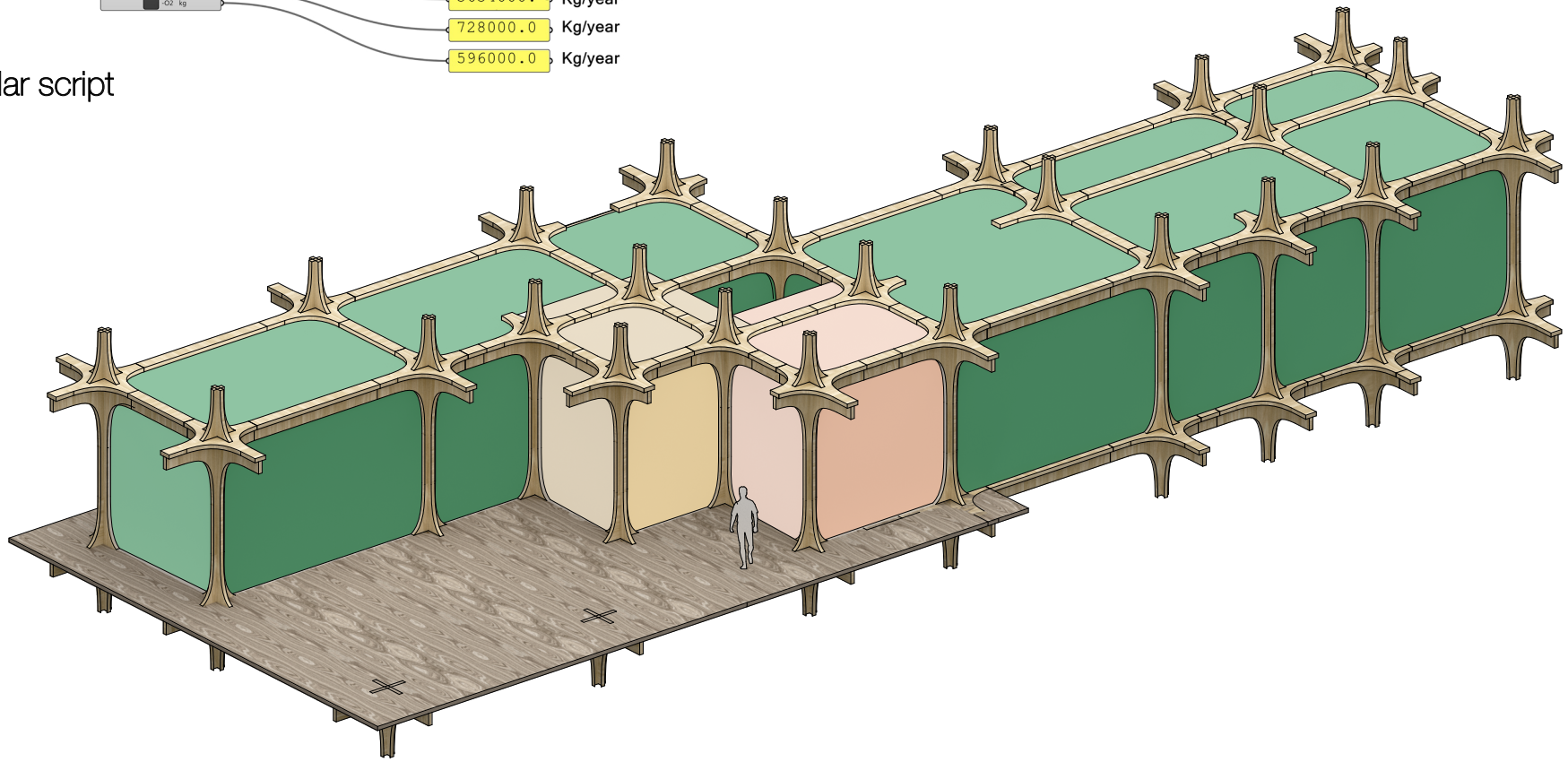


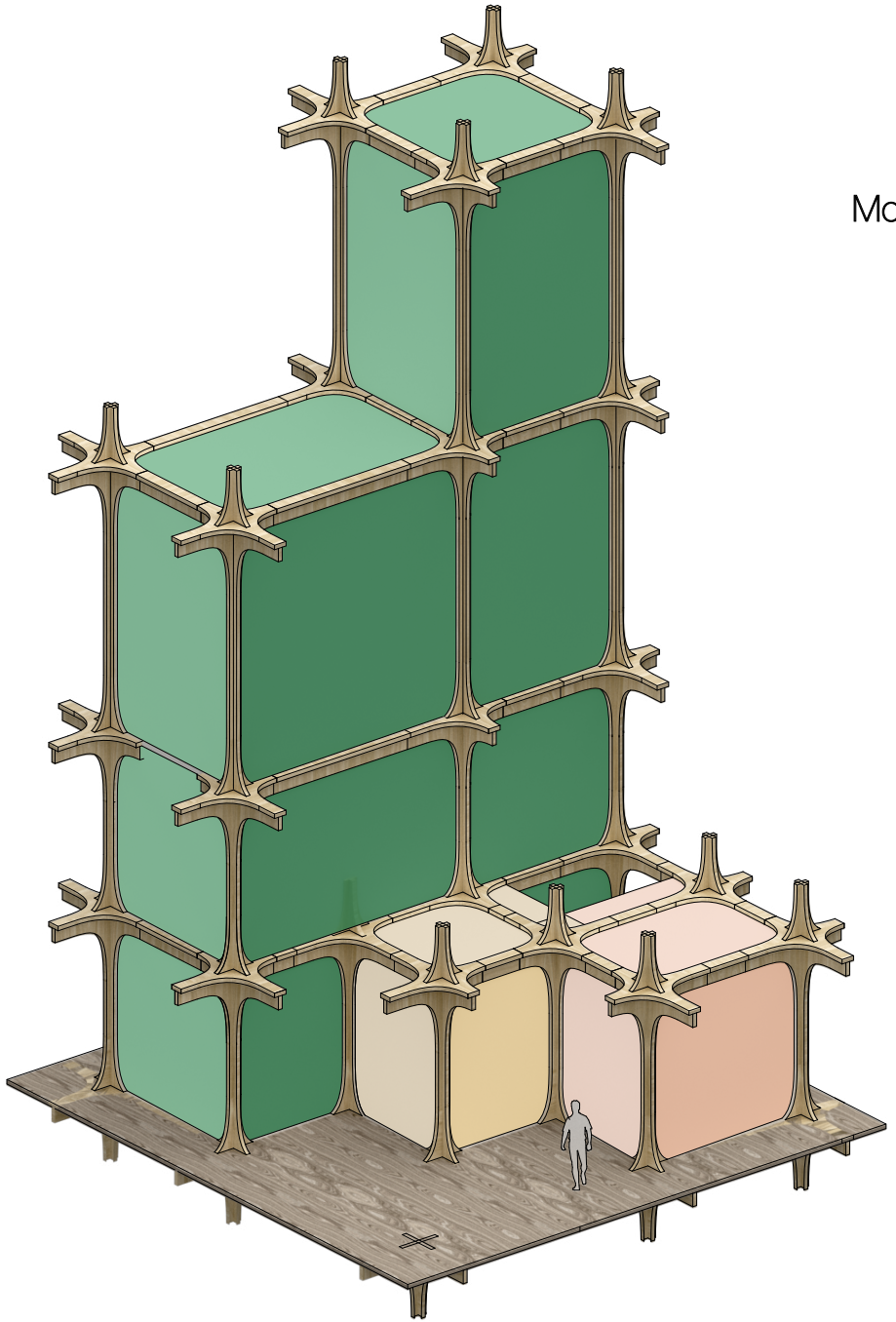
Modular structure: scalable & flexible

Horizontal layout



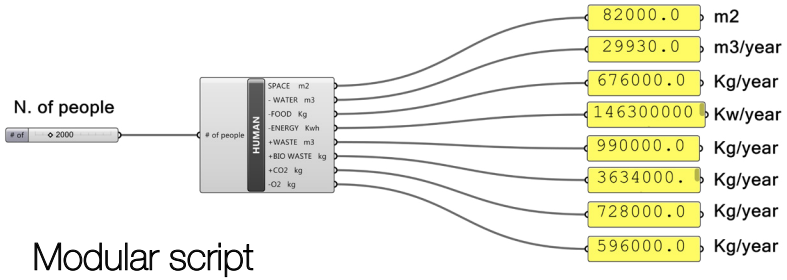
Modular script





Modular structure: scalable & flexible

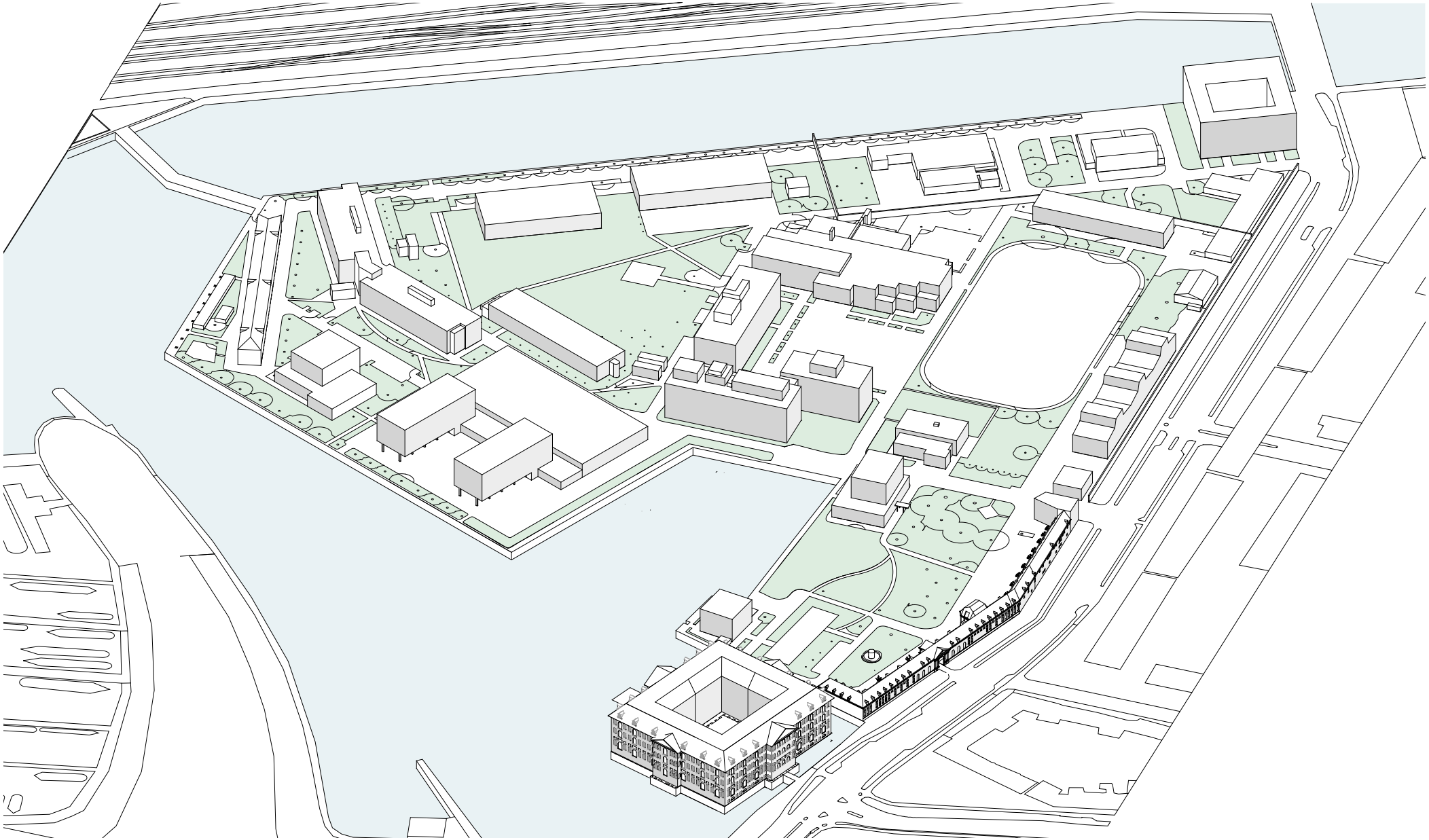
Vertical layout



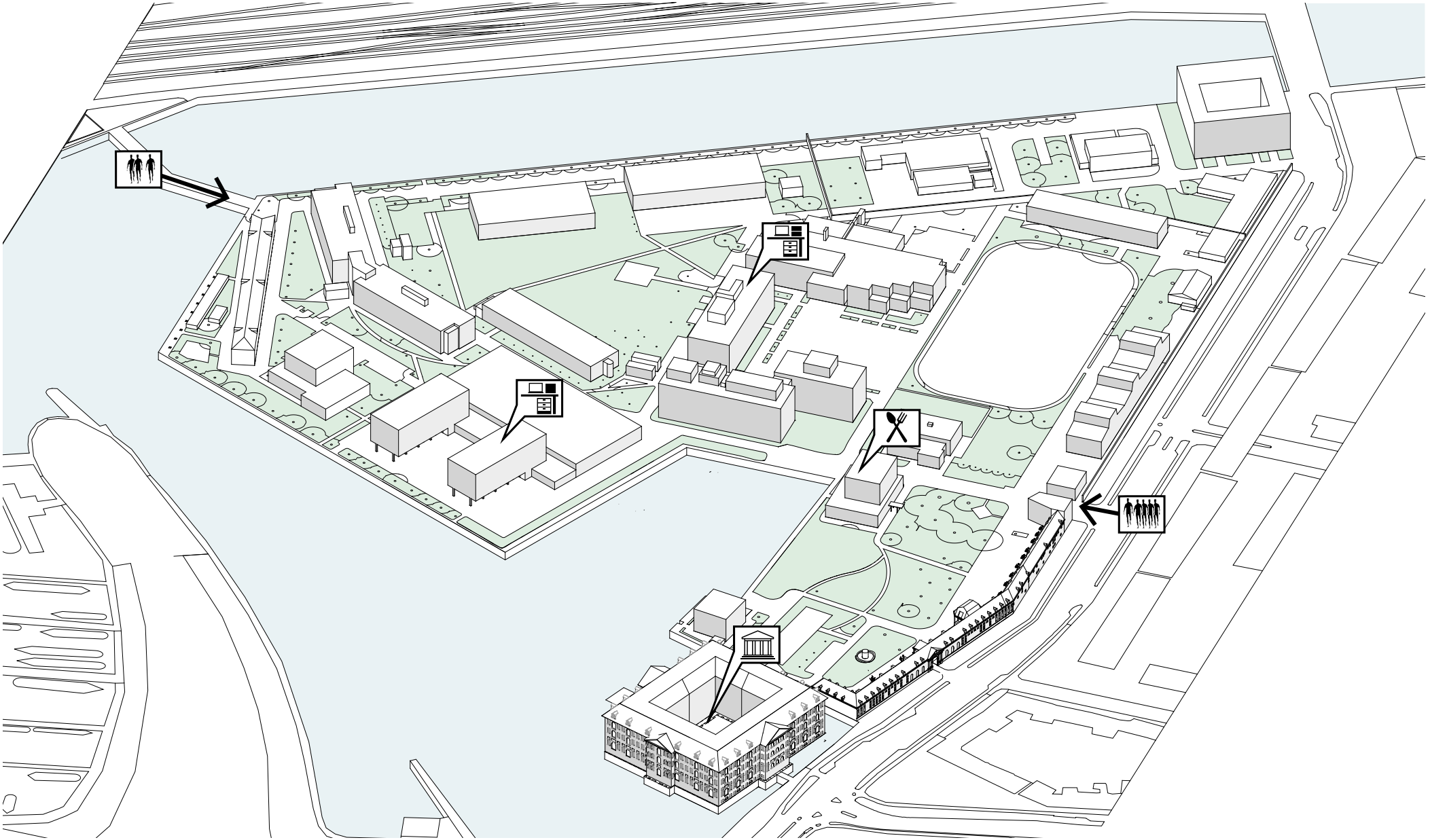
Modular script


Urban Context
Amsterdam
Marineterrein
Jordaan district

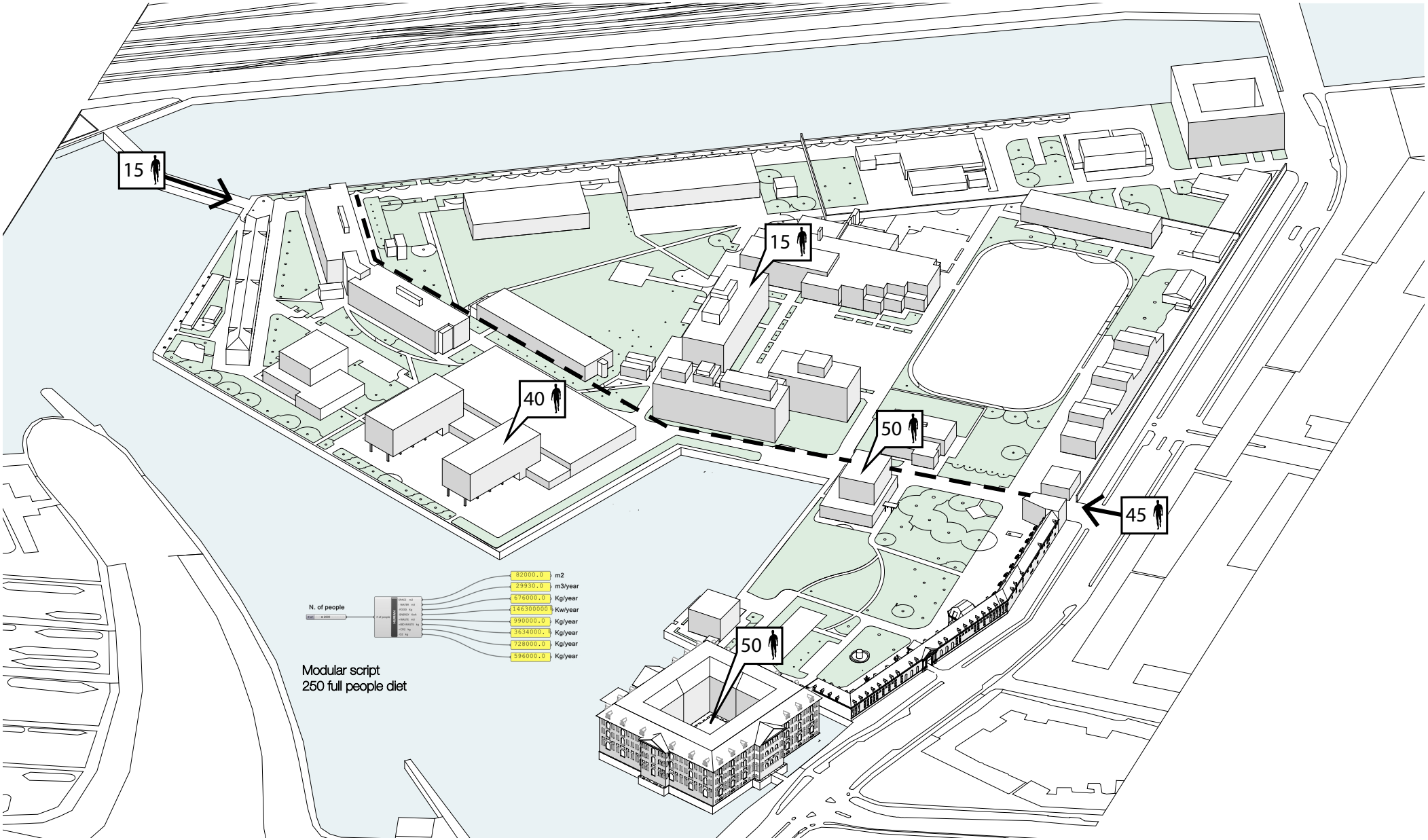
Urban Context
Marineterrein



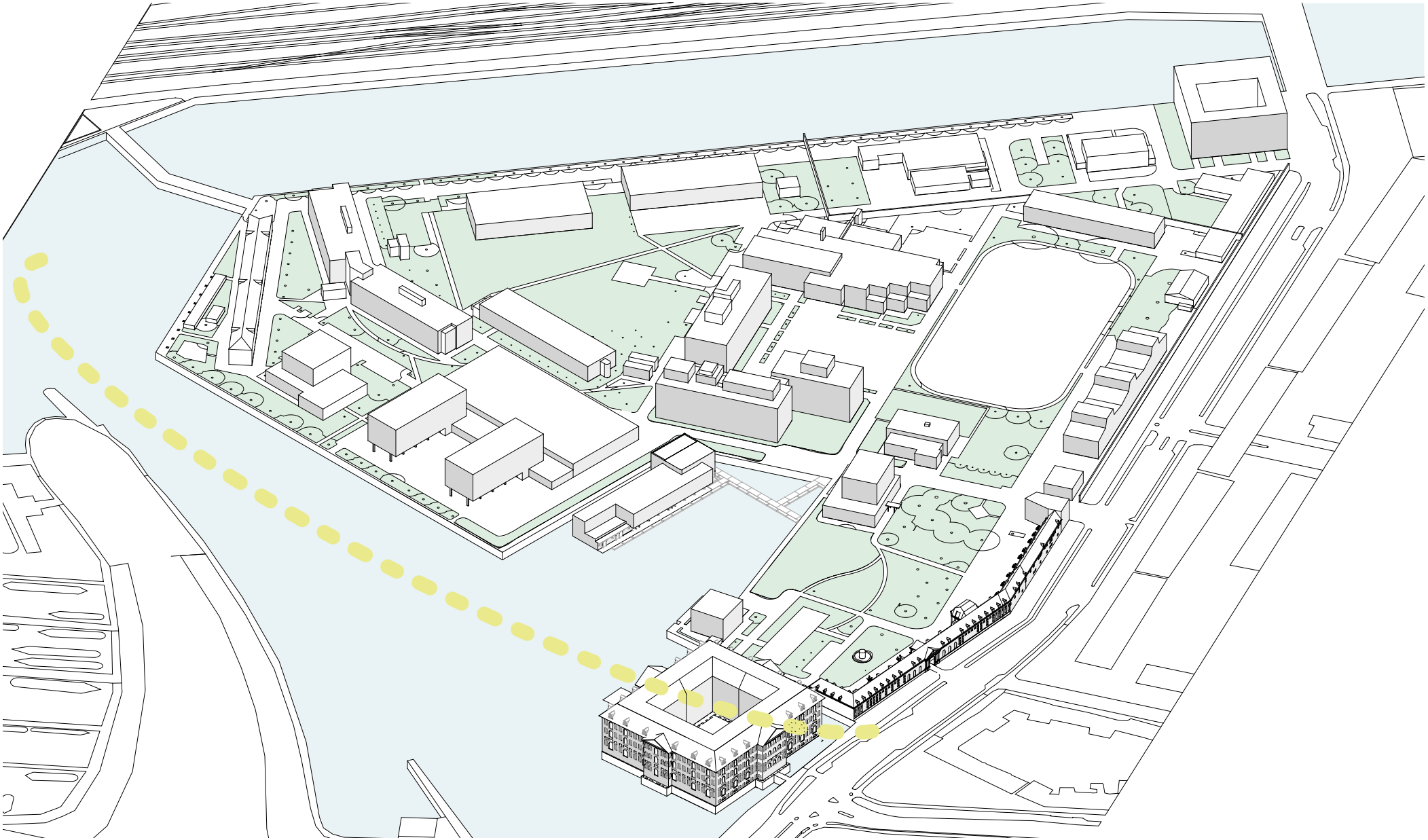
Urban Context
Marineterrein



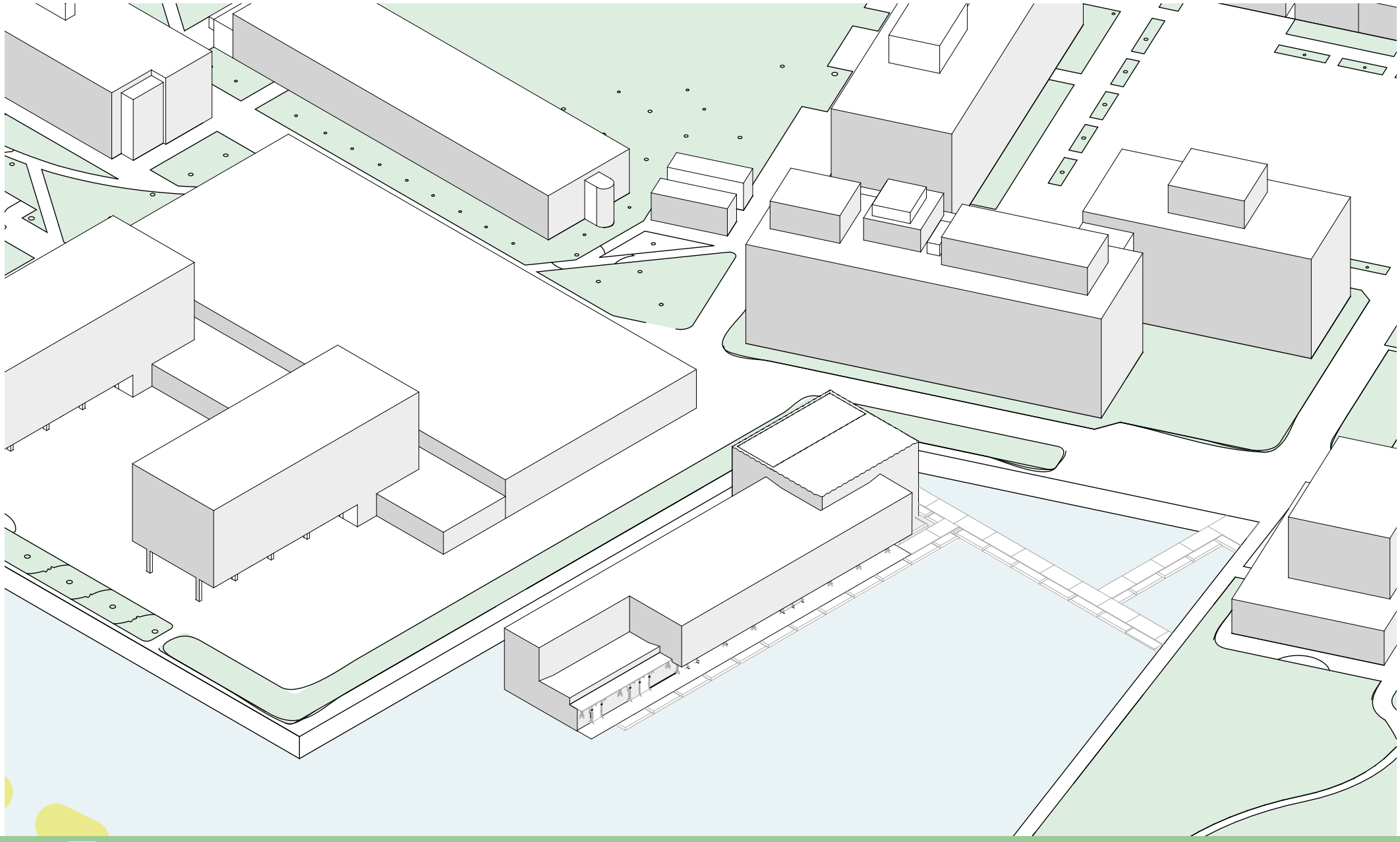
Urban Context
Marineterrein

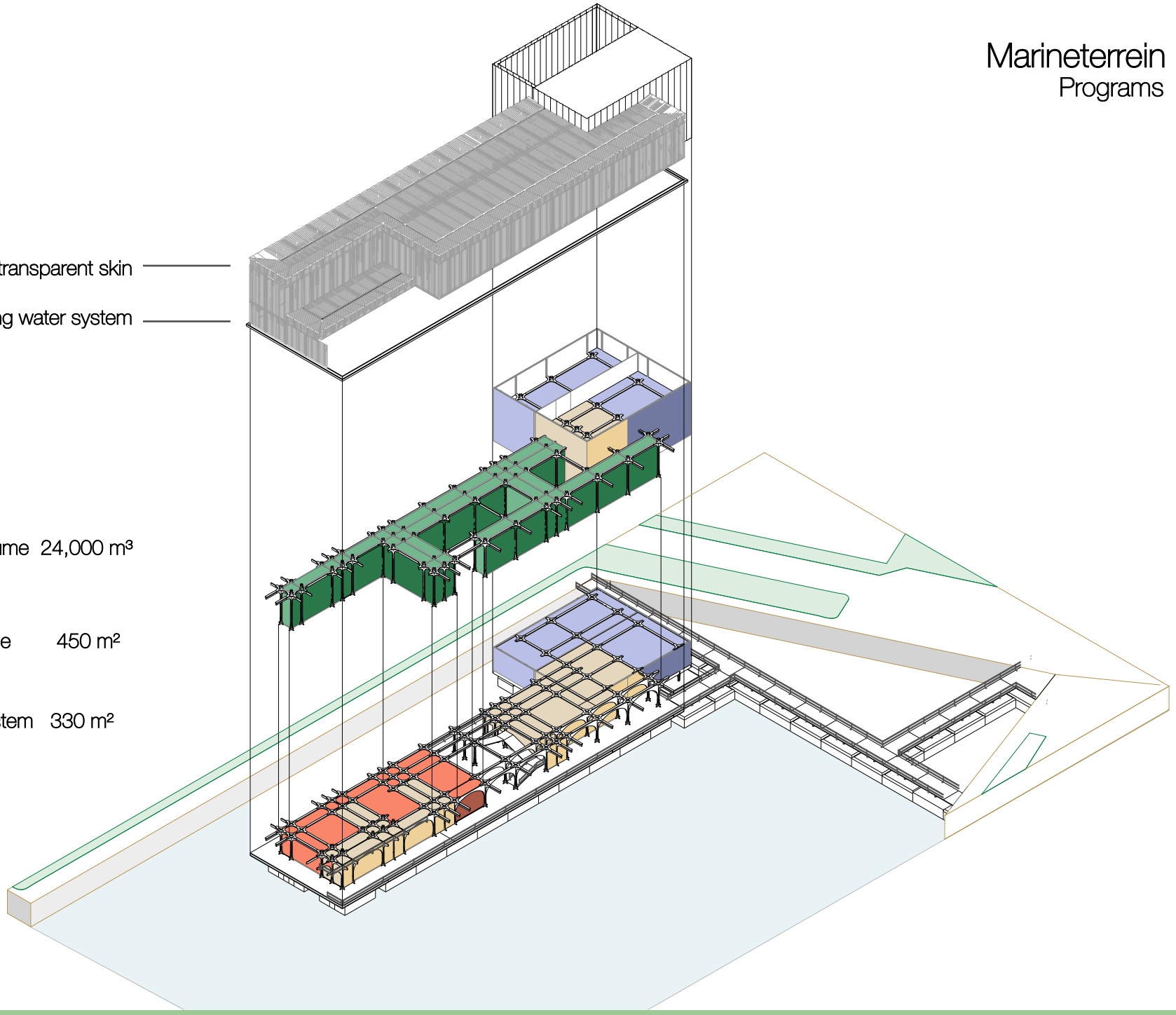


Urban Context
Marineterrein

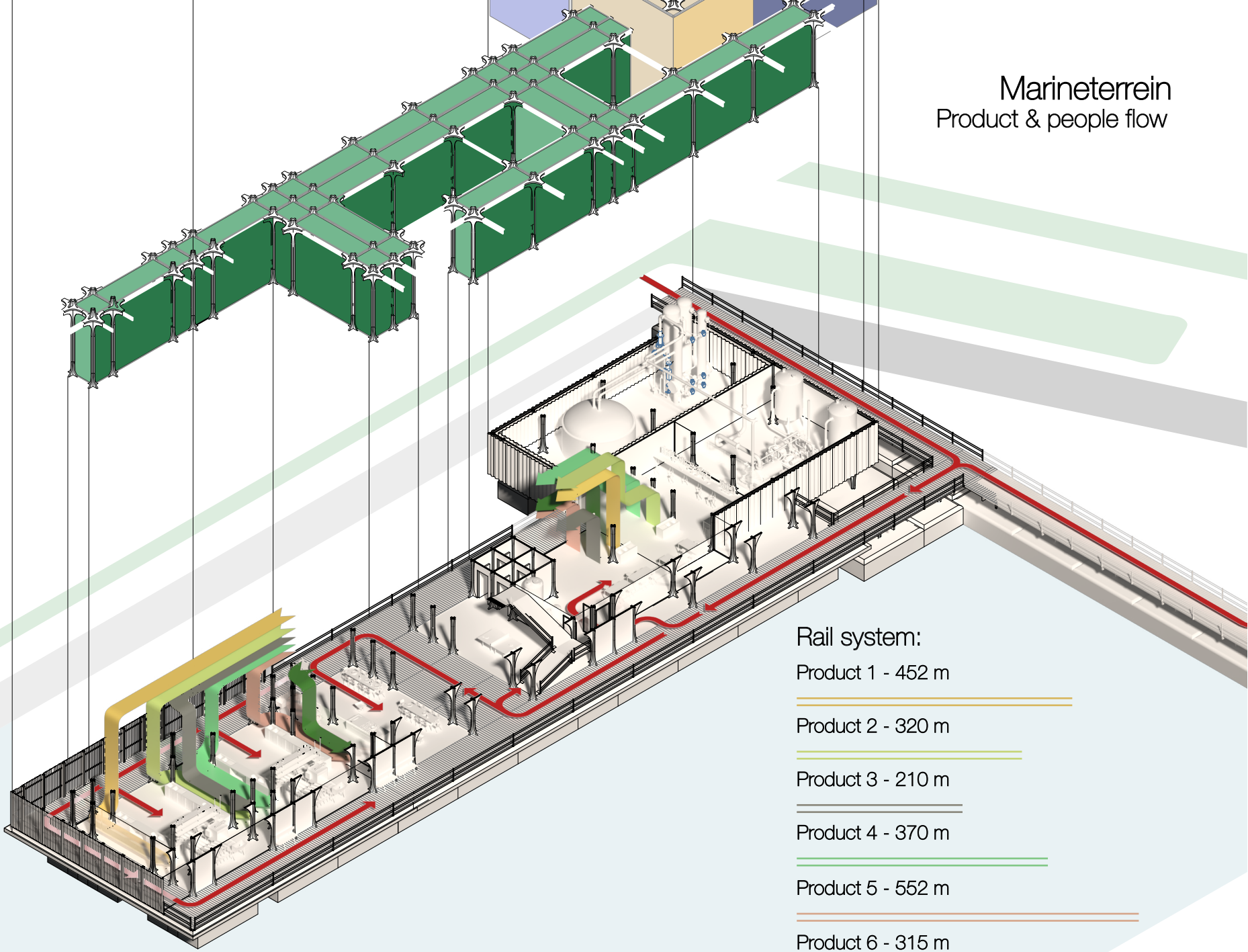


Urban Context
Marineterrein




Opac and transparent skin
Gathering water system
Food production volume 24,000 m³
Process space 450 m²
Heat / waste system 330 m²

Marineterrein
Product & people flow



Rail system:

Product 1 - 452 m

Product 2 - 320 m

Product 3 - 210 m

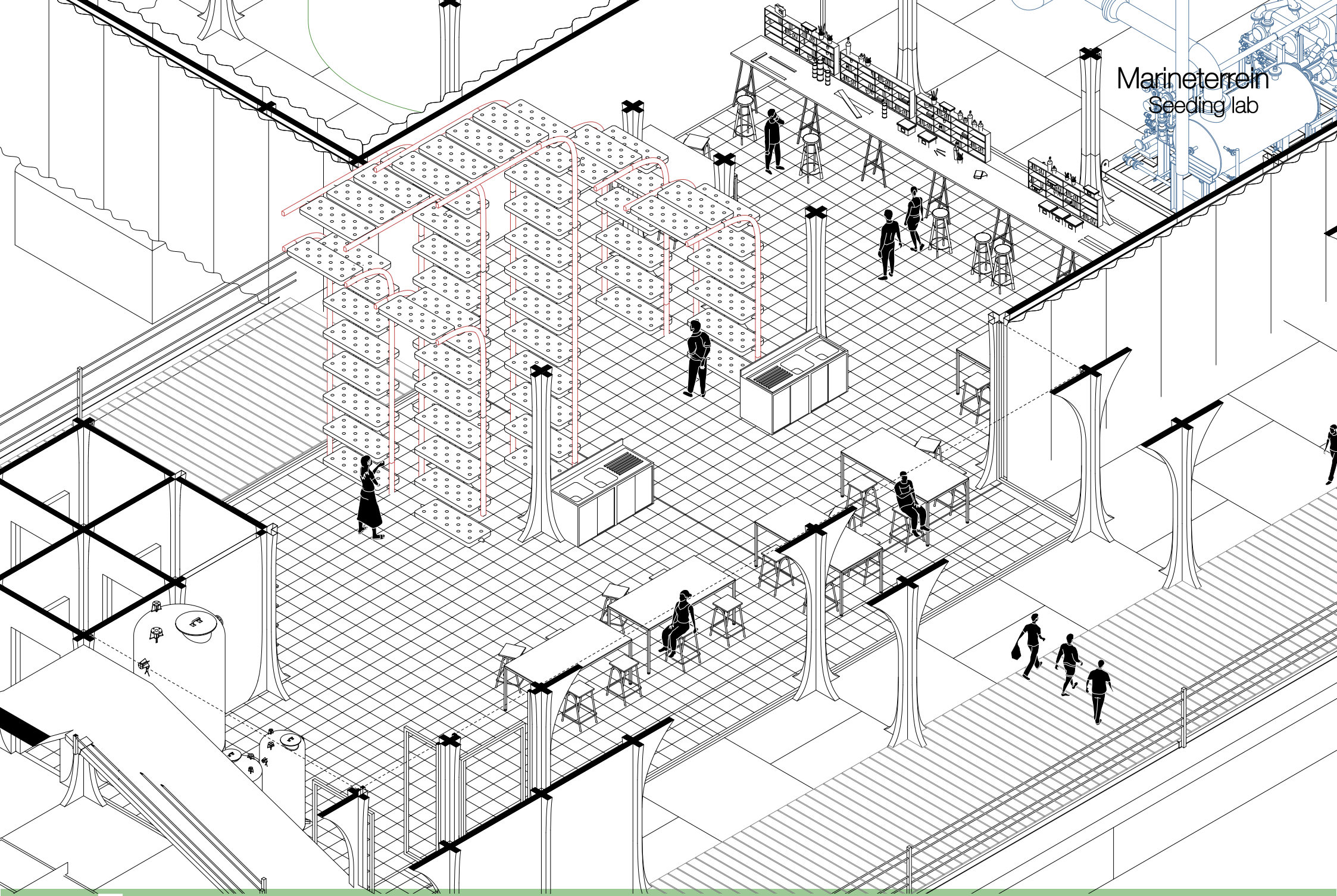
Product 4 - 370 m

Product 5 - 552 m

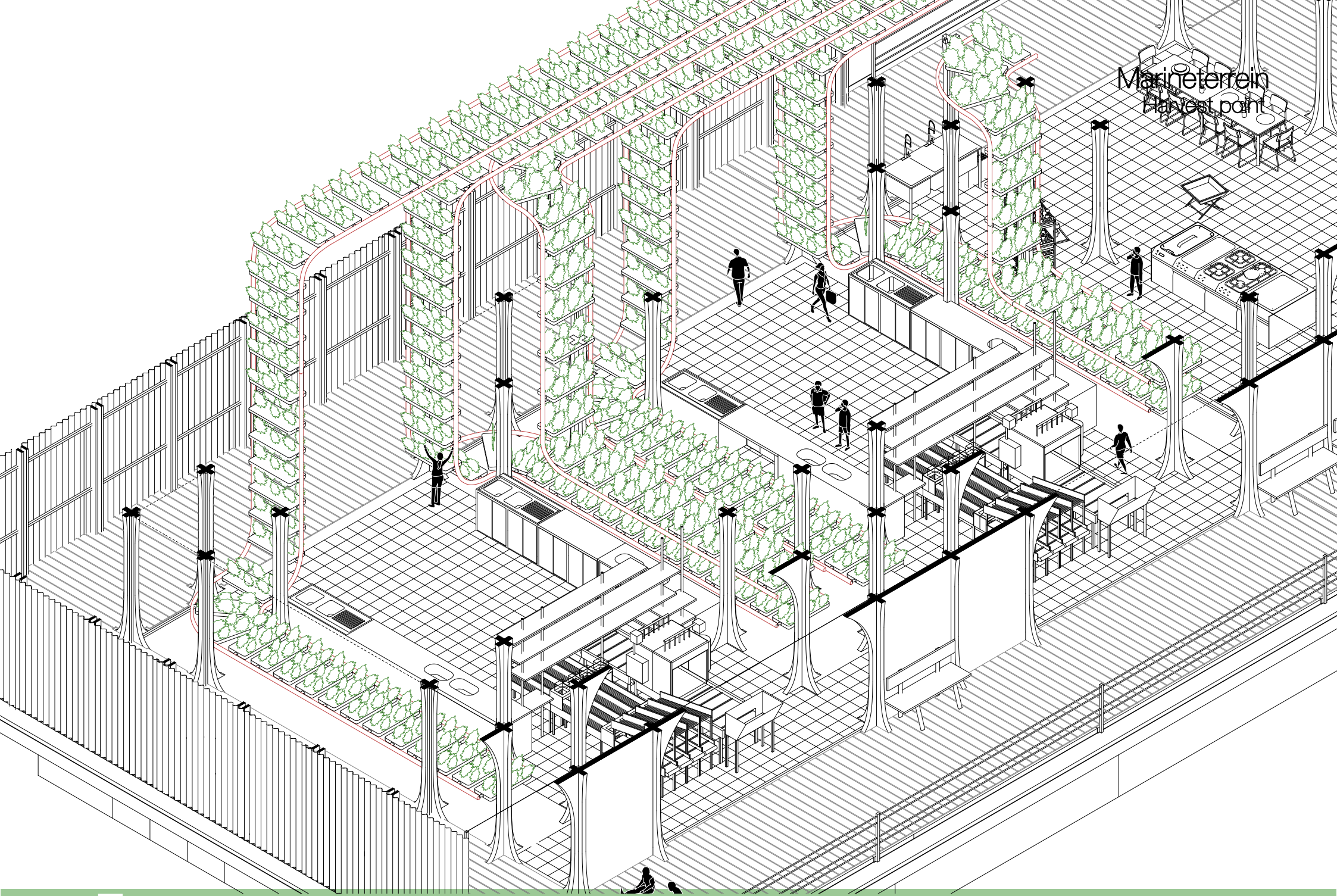
Product 6 - 315 m

Marineterrein
Entrance



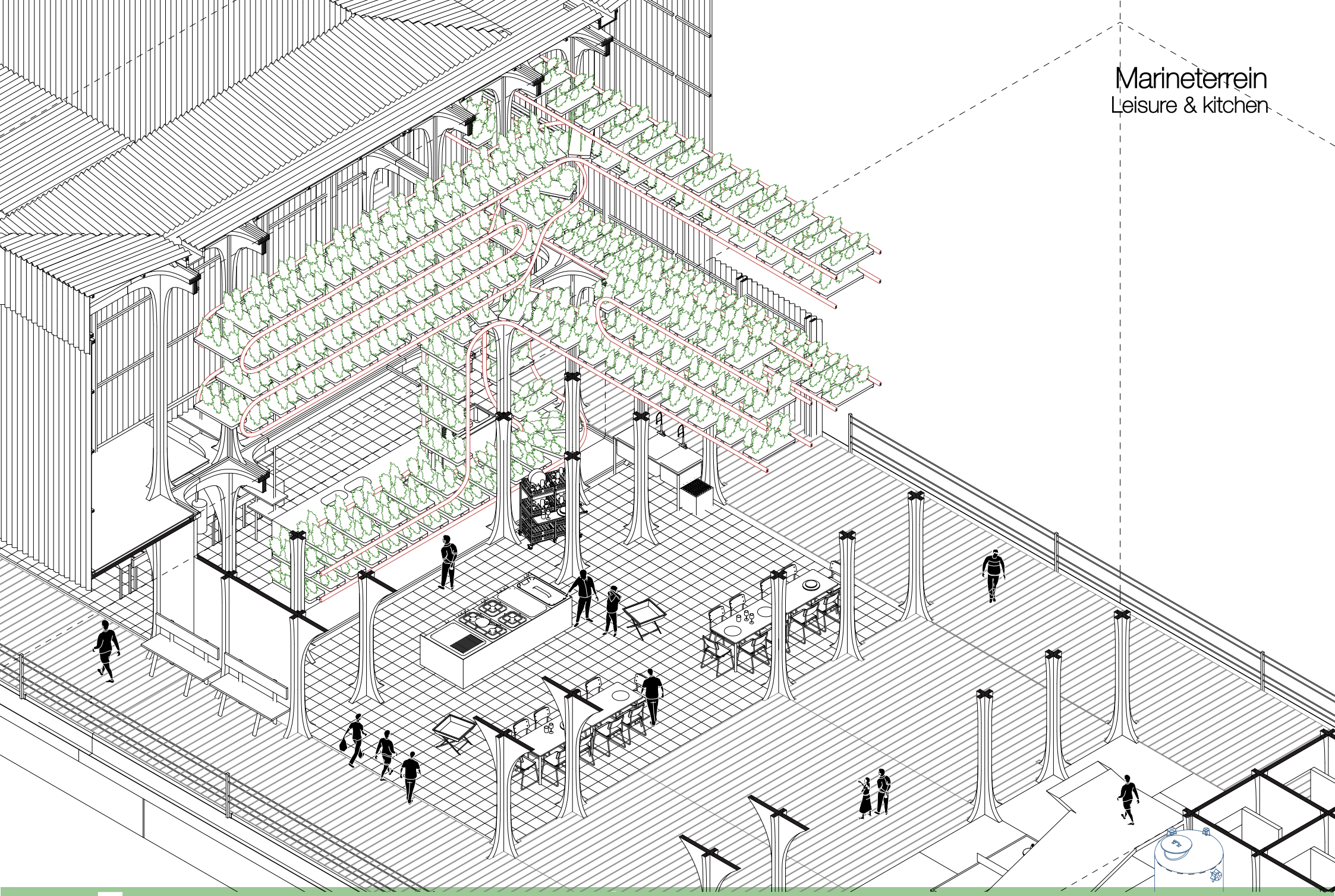

Marineterrein
Seeding lab




Marineterrein
Harvest point



Marineterrein
Leisure & kitchen



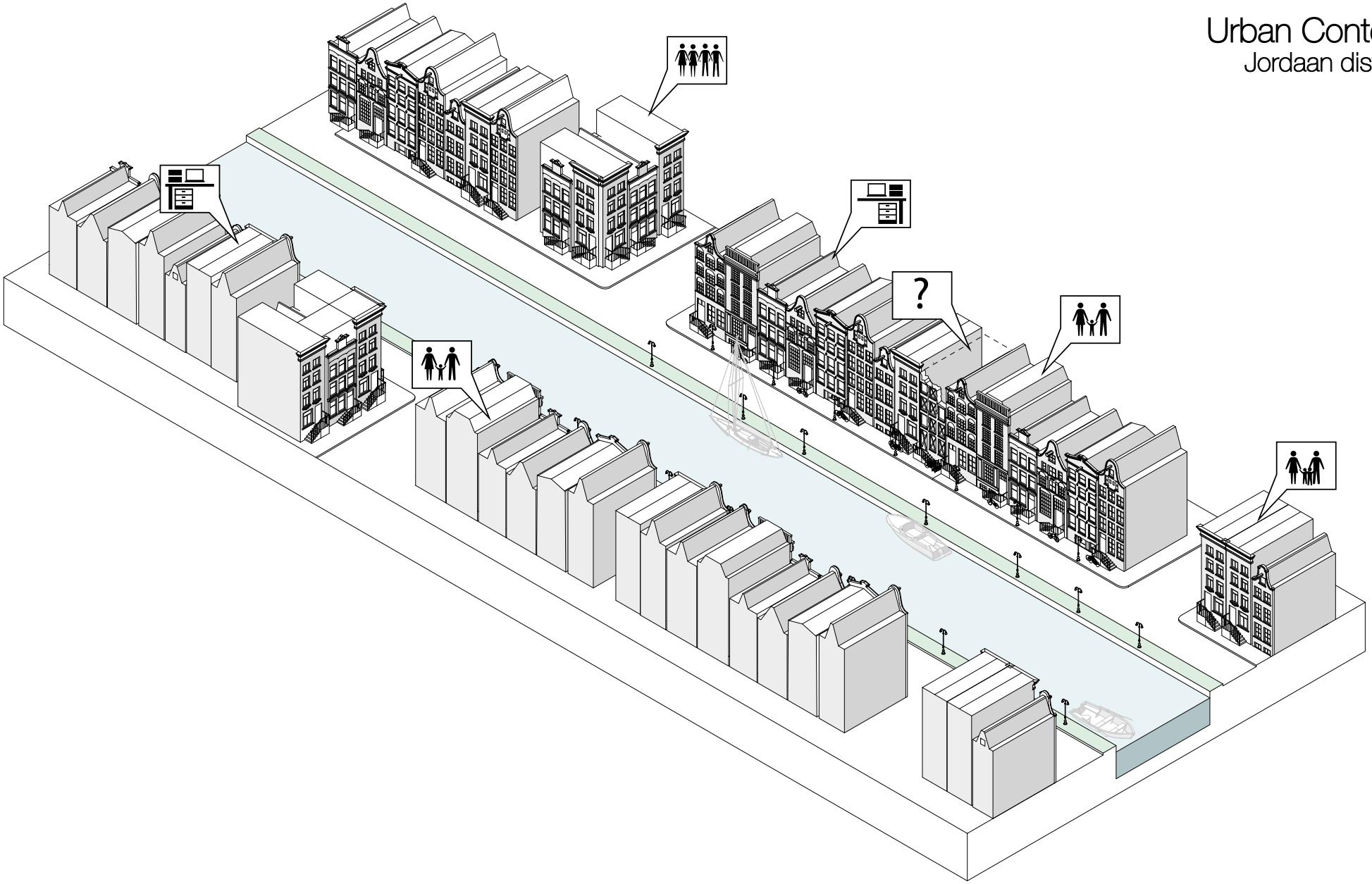



Urban Context
Amsterdam
Marineterrein
Jordaan district

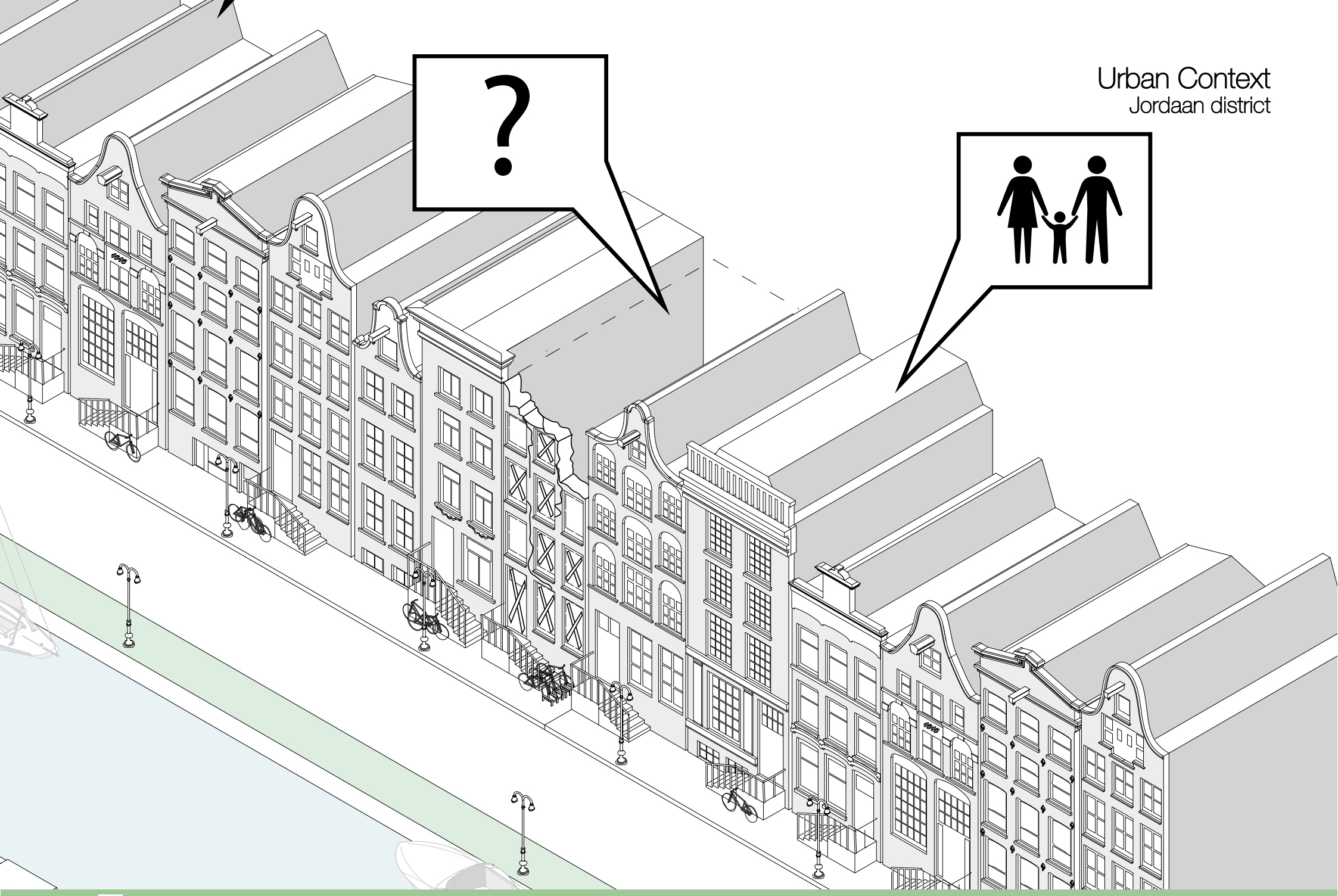
Urban Context
Jordaan district



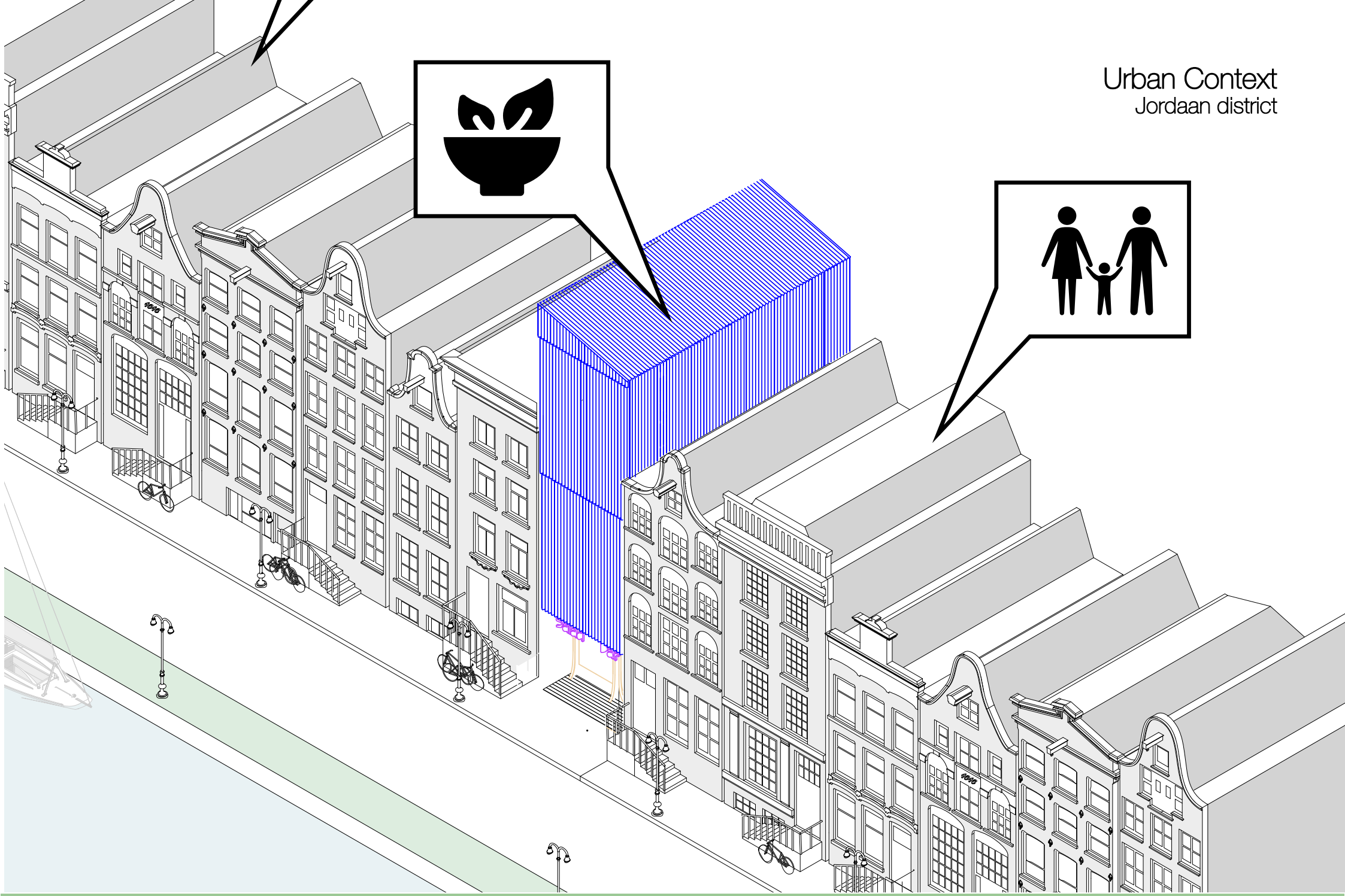
Urban Context
Jordaan district



Urban Context
Jordaan district



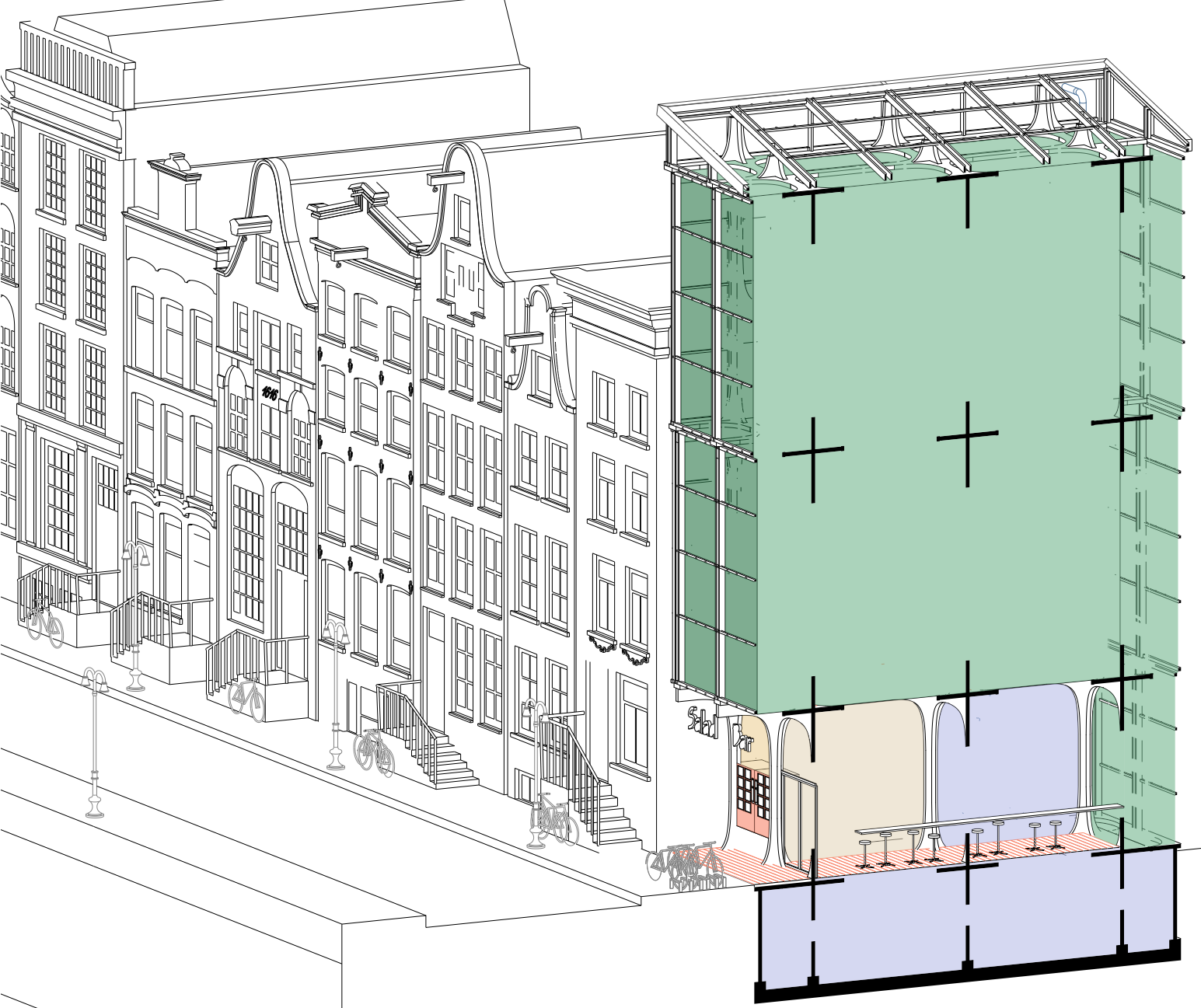
Urban Context
Jordaan district

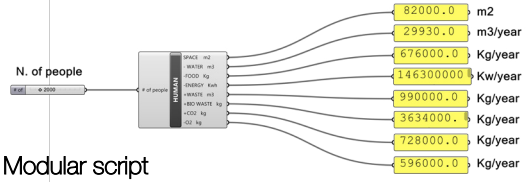



Salad Bar


Salad
Bar

Jordaan Salad Bar
Programs space





Modular script
Food demand

Food production 770 m³

Process/kitchen 15 m²

Heat / waste system 65 m²

Jordaan Salad Bar
Production line



Rail system: 340 ml

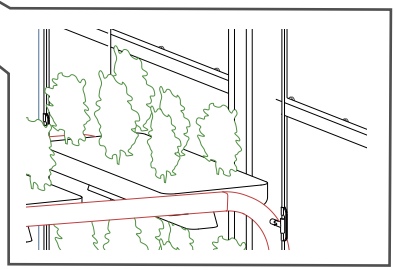
80 mature salad / day

- 20 raw salad
- 120 prepared meals

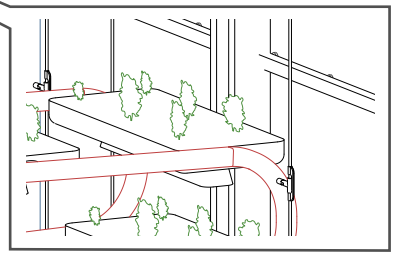
Jordaan Salad Bar
Production line



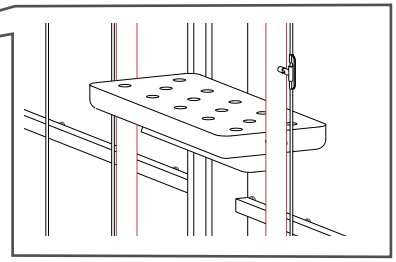
Day 30

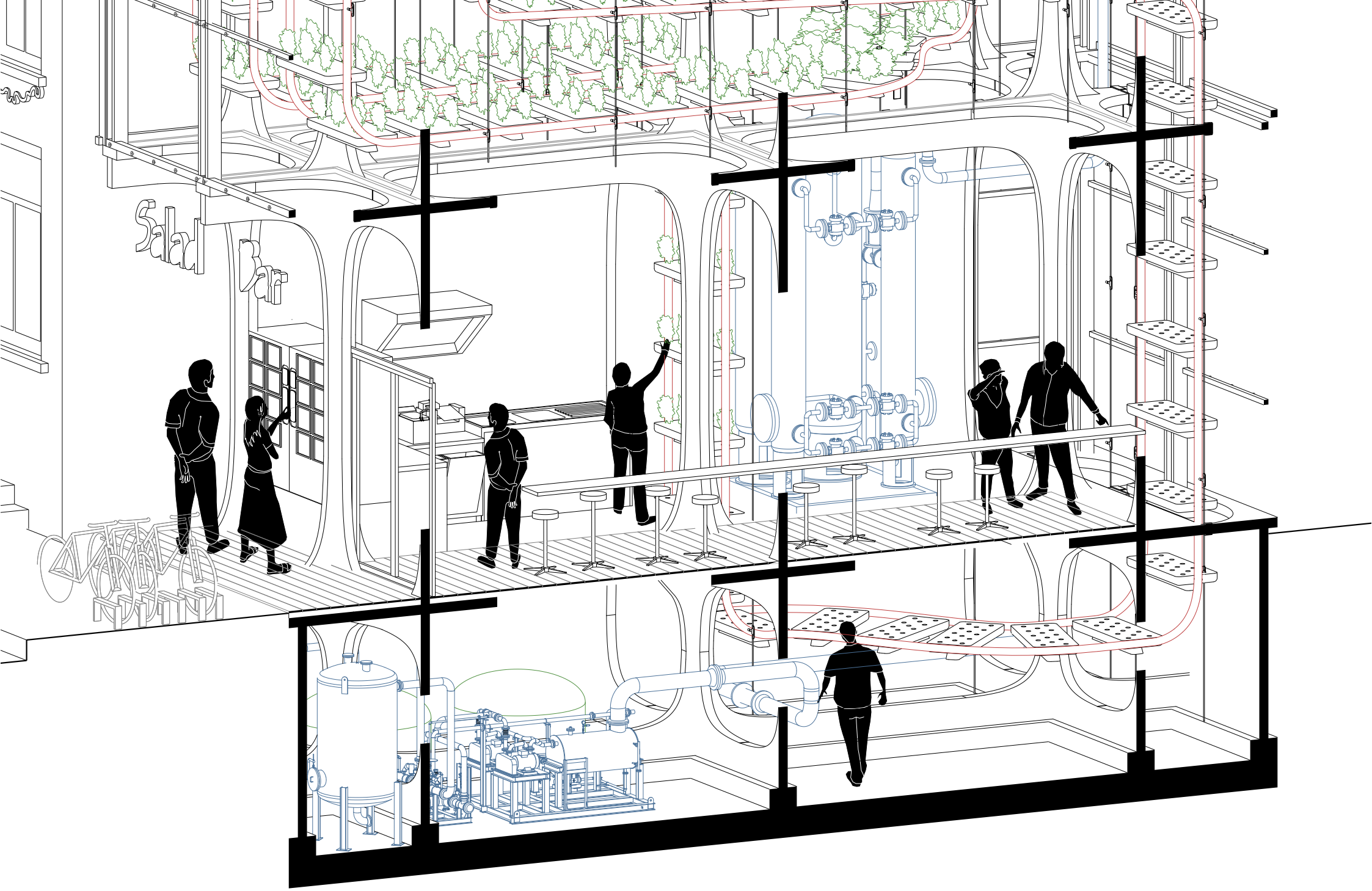


Day 15



Day 1

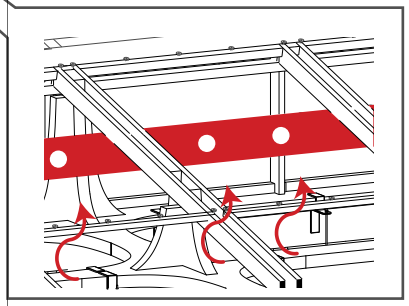



Salad Bar

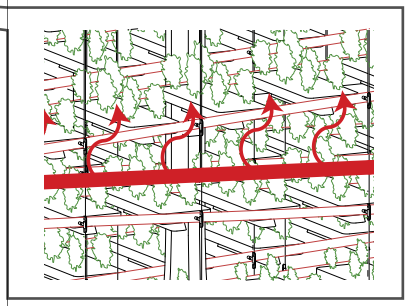
Jordaan Salad Bar

Climate concept

Winter period



Extractor warm air

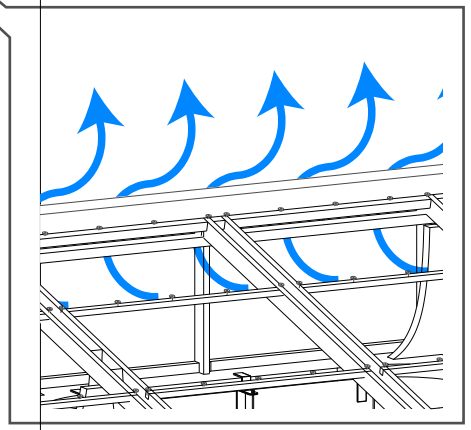


Heating system

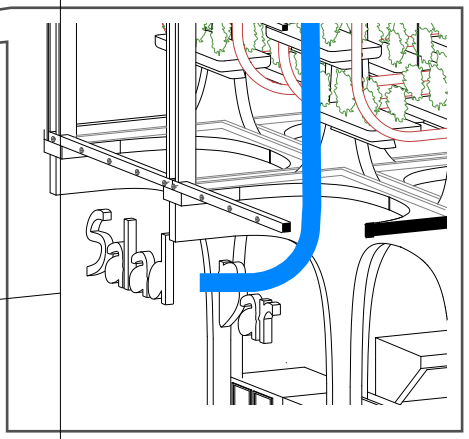
Jordaan Salad Bar

Climate concept

Summer period



Facade output air



Facade input air

Future developments



