



# Repurposing the port

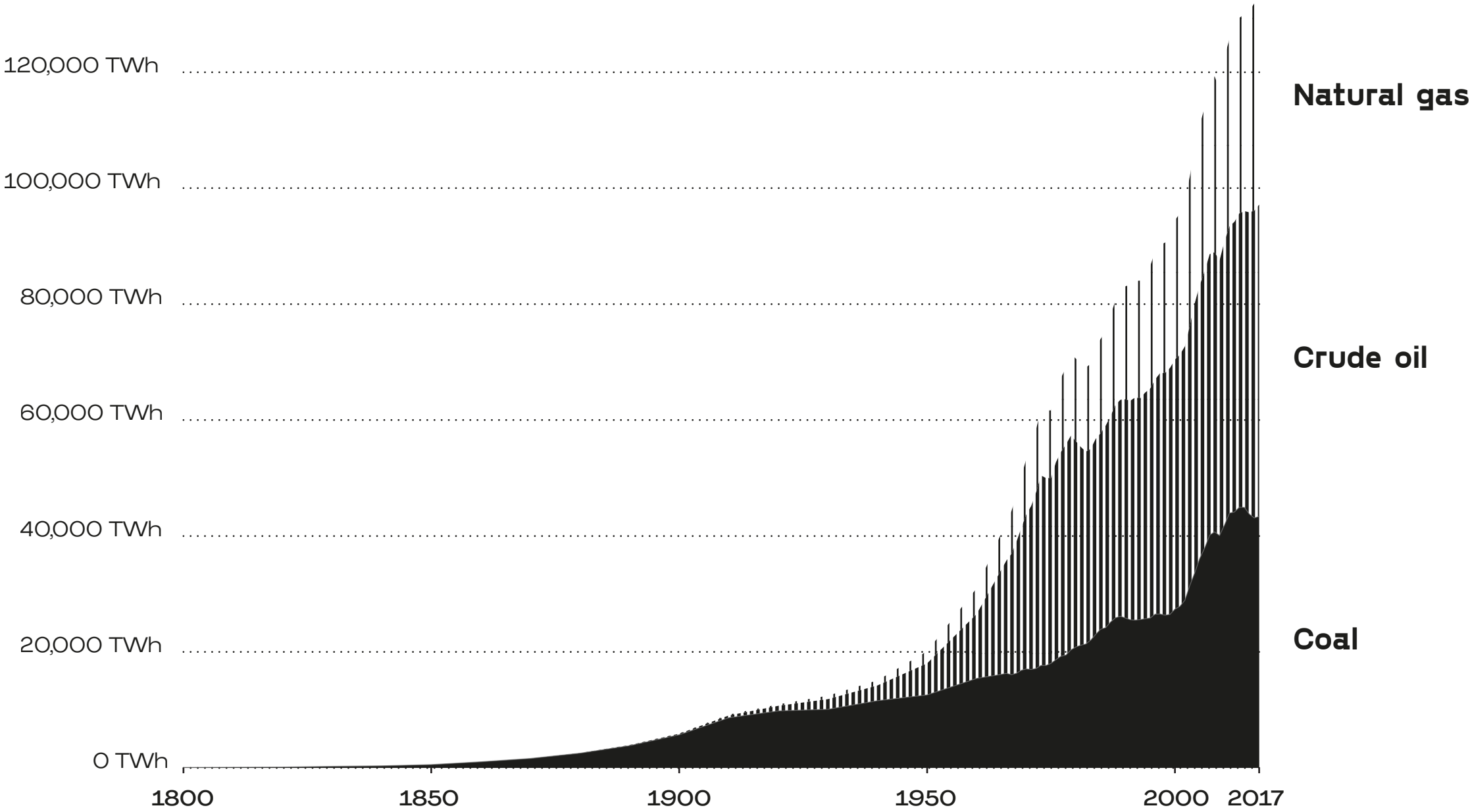
4370074  
AE 2020-2021  
PADDY TOMESEN  
JOS DE KRIEGER

COEN DE VRIES  
P5 PRESENTATION  
THIJS ASSELBERGS  
ANNEBREGJE SNIJDERS



# GLOBAL FOSSIL FUEL CONSUMPTION

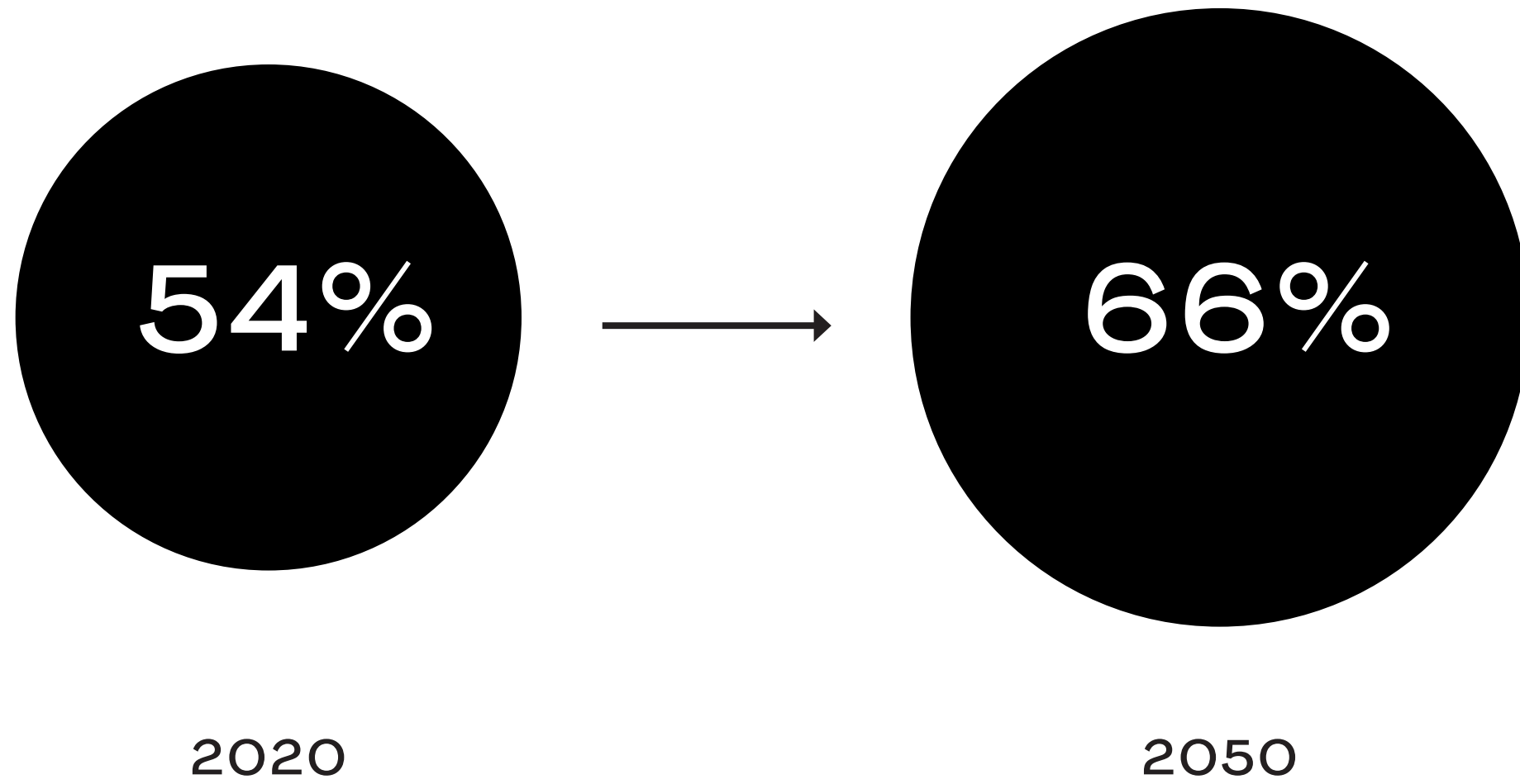
Global primary energy consumption by fossil fuel source, measured in terawatt-hours (TWh)



Source: Vaclav Smil (2017). Energy Transitions: Global and National Perspective & BP Statistical Review of World Energy  
OurWorldInData.org/fossil-fuels/ • CC BY

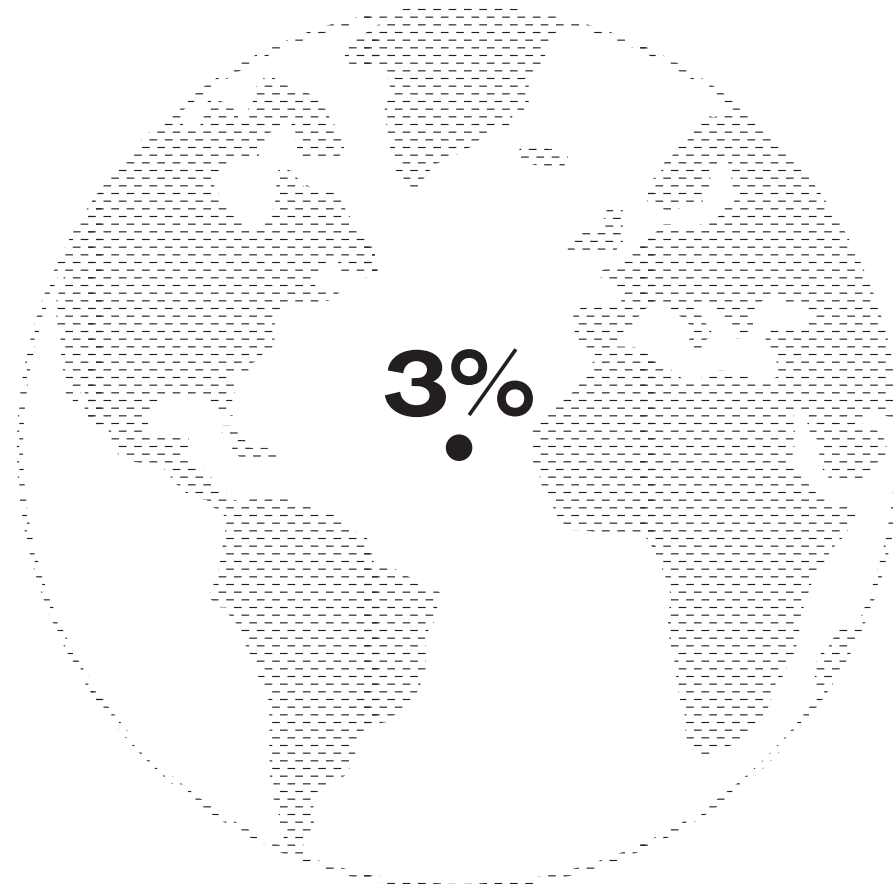


**% OF GLOBAL POPULATION  
LIVING IN CITIES**

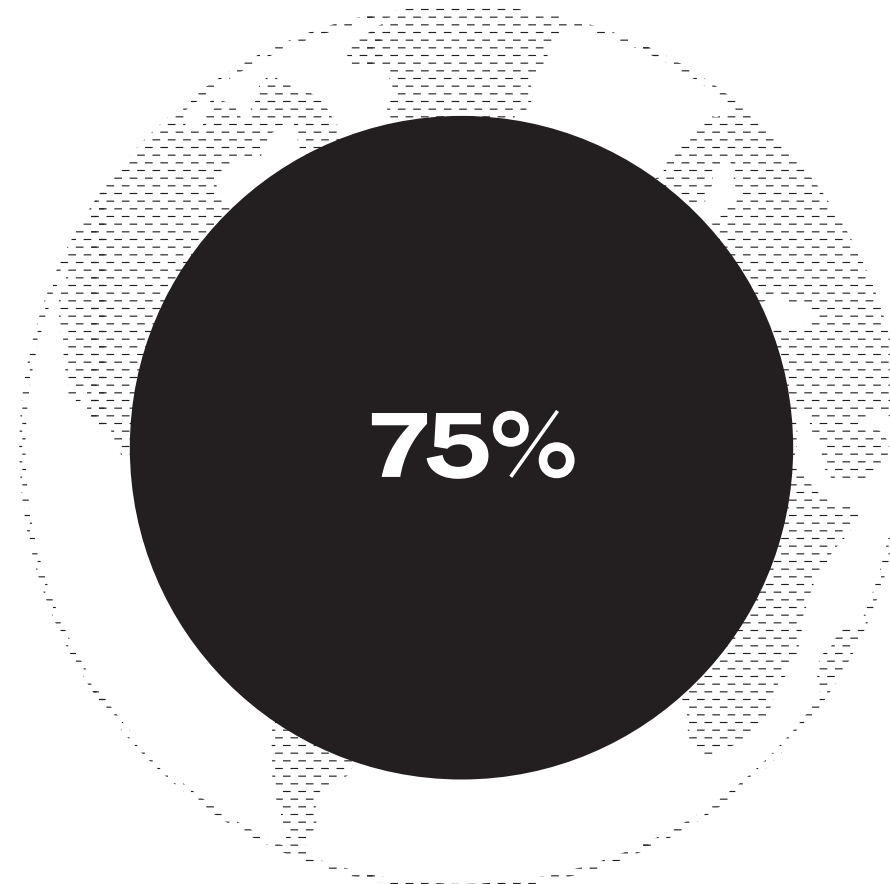




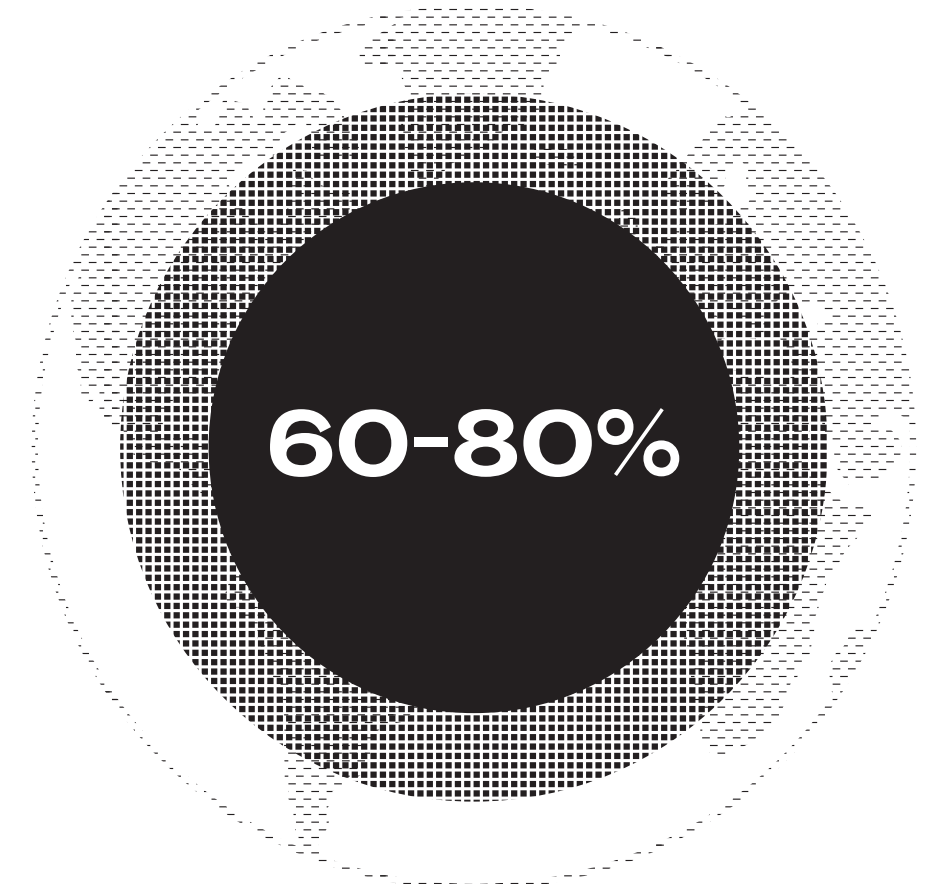
## GLOBAL IMPACT OF CITIES



GLOBAL  
LAND COVERAGE



GLOBAL  
MATERIAL USAGE

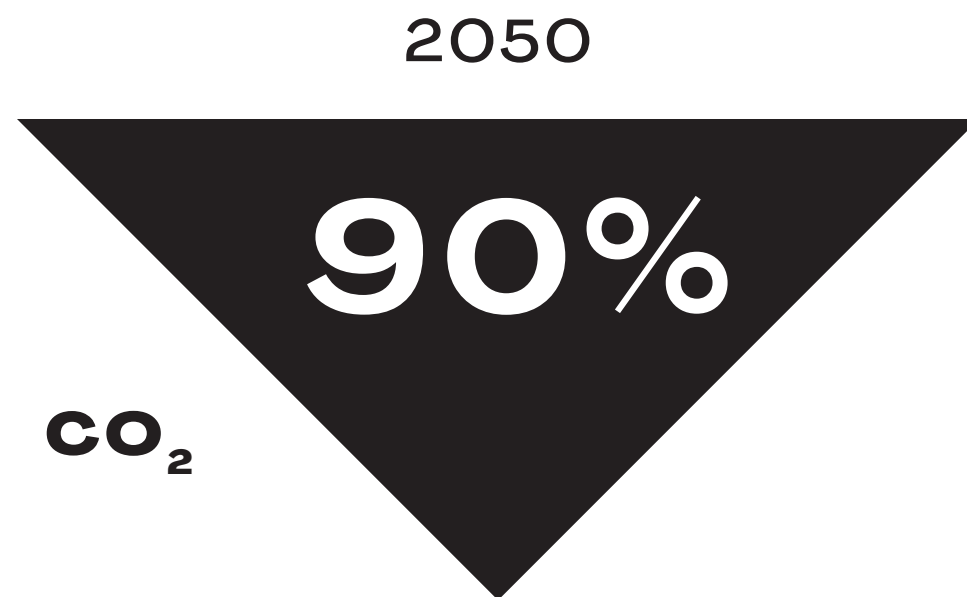
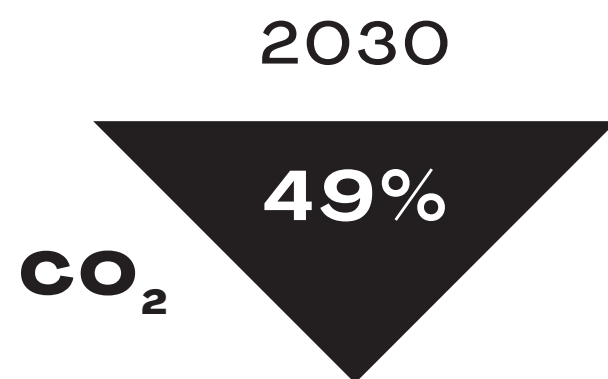


GLOBAL  
CO<sub>2</sub> EMISSION



DUTCH GOVERNMENT

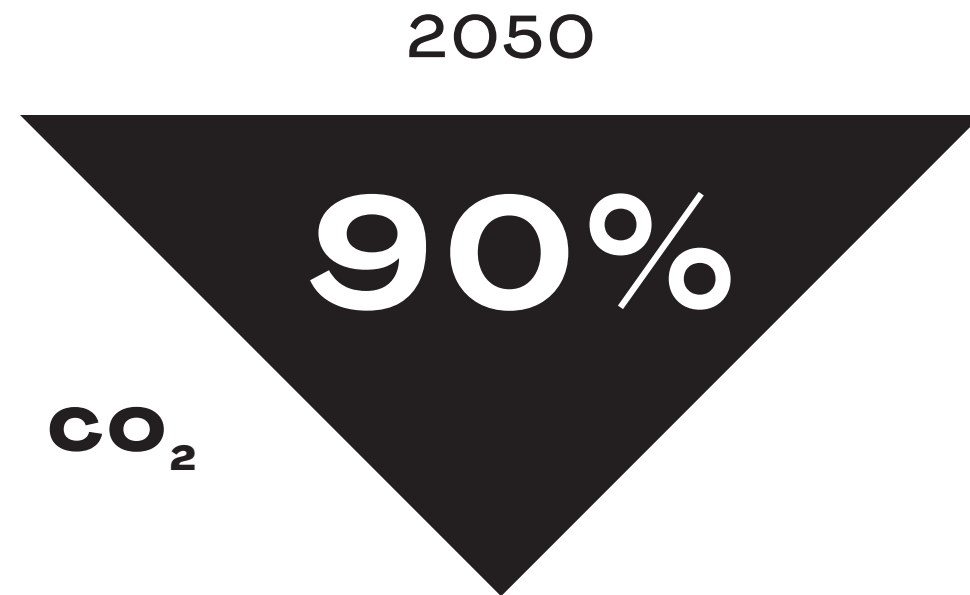
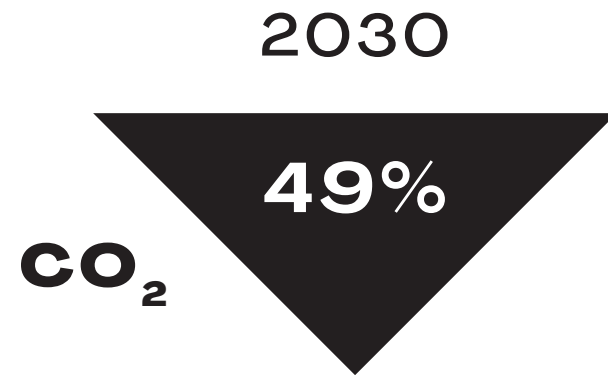
# Klimaatplan





DUTCH GOVERNMENT

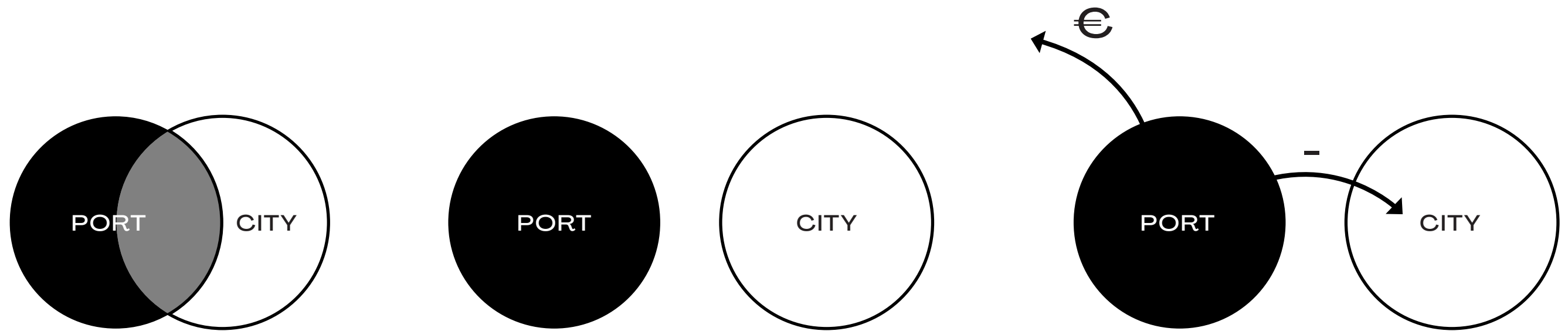
# Klimaatplan



CITY OF AMSTERDAM

# Nieuw Amsterdam's Klimaat





#### PORT-CITY RELATIONSHIPS

**“ Another effect of the Industrialization is the fact that ports and cities, formerly intimately connected, grew apart**

Hein 2016





1775

SOURCE Stadsarchief Amsterdam



1887.

Gemeente Amsterdam.

Behoort bij Bestek 24.

# PETROLEUMHAVEN IN DEN AMSTERDAMMER POLDER.

DOORSNEDE over AB.

Schaal voor de Profielen.

Verklaring

Bestaande toestand  
Ontwerp

ZEKANAAL.

NOORDZEE -

KANAAL.

PROFIL over CD.

STOORWEG.

ZAANDAM.

TOCHT.

GEMEENTE

MOLEN

C

D

TERREIN BESTEMD VOOR BEGRAAFPLAATS.

HEM-

(GRINTWEG)

WEG.

Schaal voor den Plattegrond.

HOUTHAVEN.

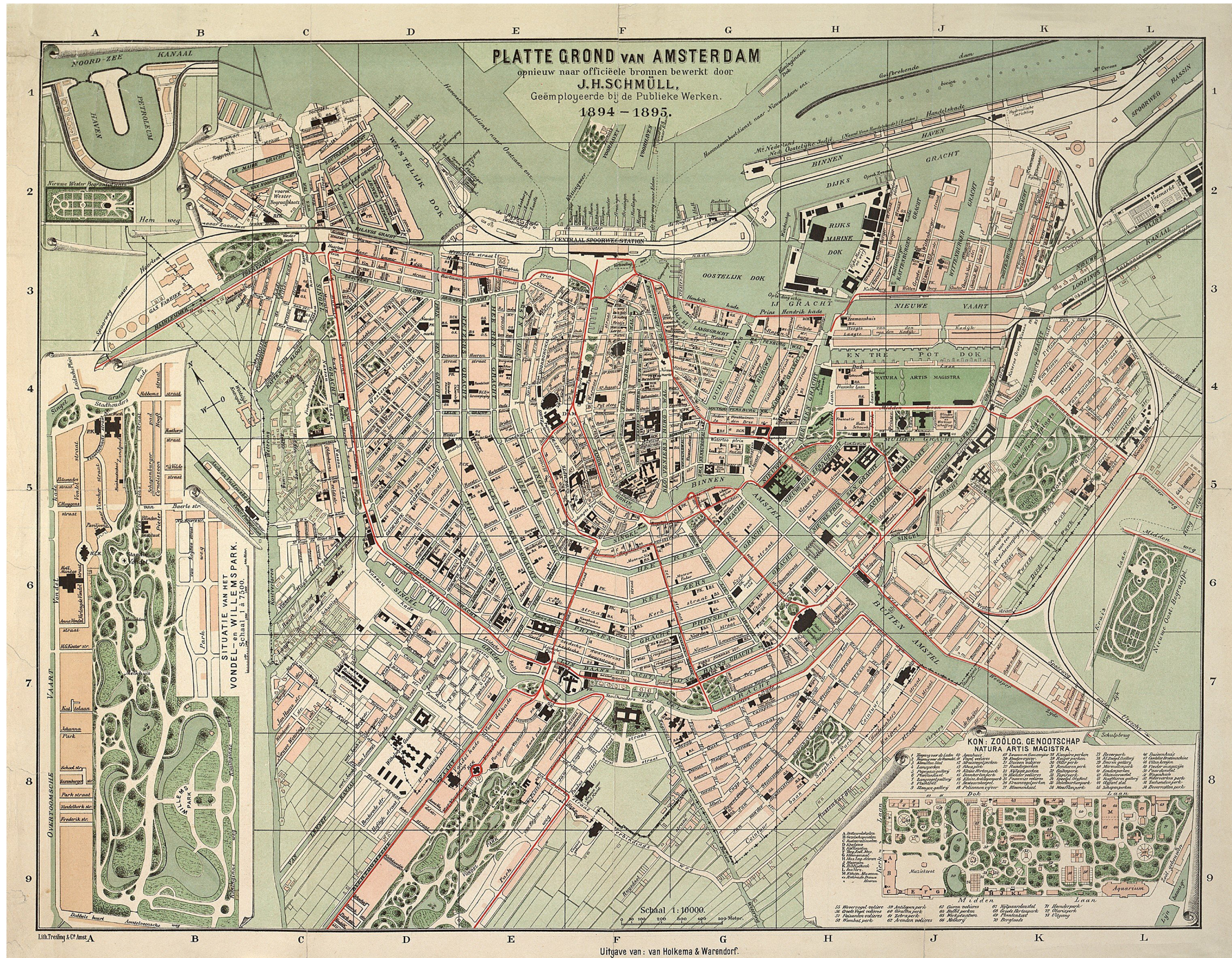
Geb. Remington, Amsterdam.

2003

1887

SOURCE Stadsarchief Amsterdam





1894

SOURCE Stadsarchief Amsterdam









# Amsterdam Havenstad

**40.000 - 70.000**  
DWELLINGS





**Delft**  
**51.146** DWELLINGS

**Zwolle**  
**58.723** DWELLINGS

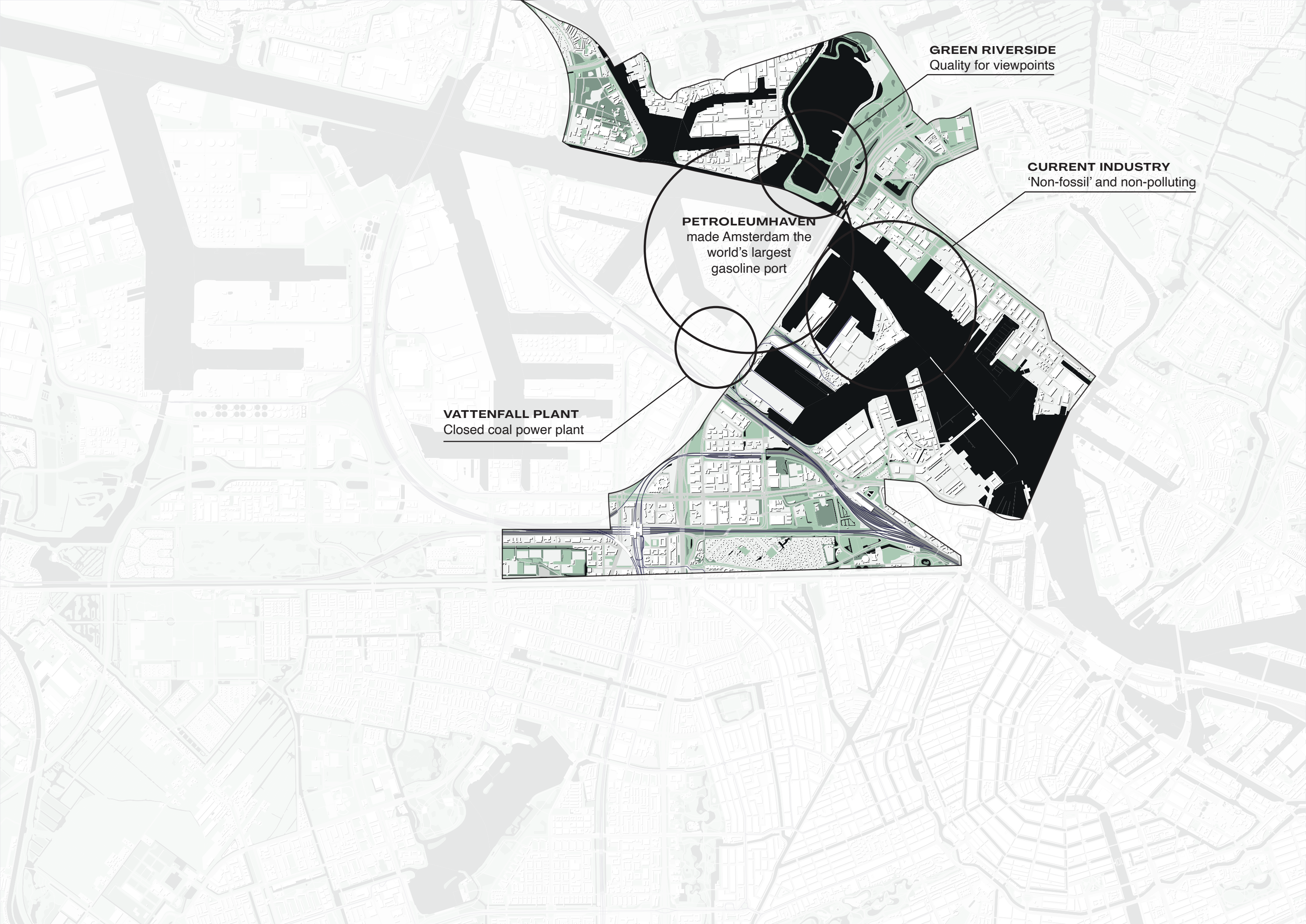
**Zaanstad**  
**68.944** DWELLINGS

BRON CBS, 2020

**Amsterdam**  
**Havenstad**

**40.000 - 70.000**  
DWELLINGS





**GREEN RIVERSIDE**  
Quality for viewpoints

**CURRENT INDUSTRY**  
'Non-fossil' and non-polluting

**PETROLEUMHAVEN**  
made Amsterdam the  
world's largest  
gasoline port

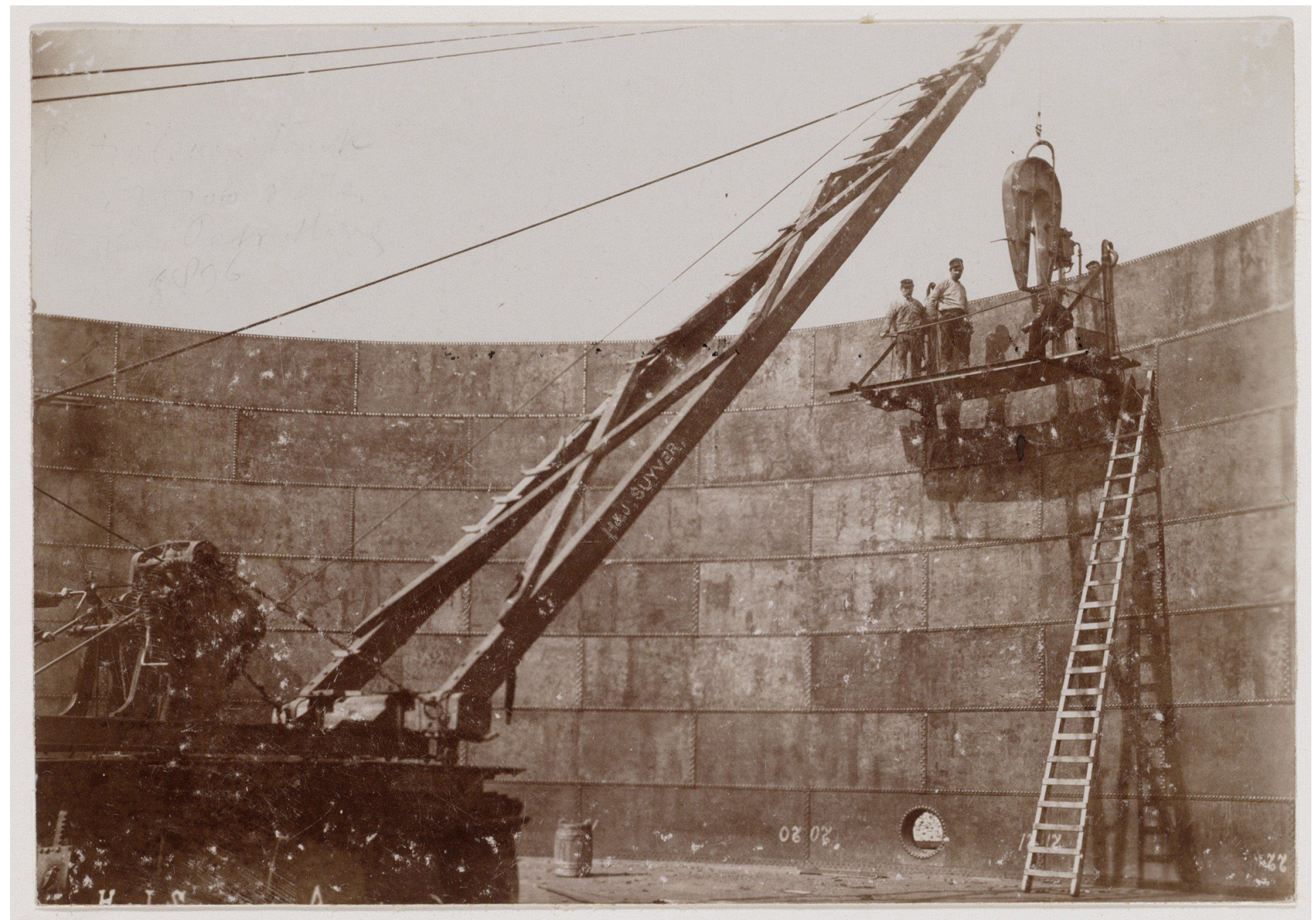
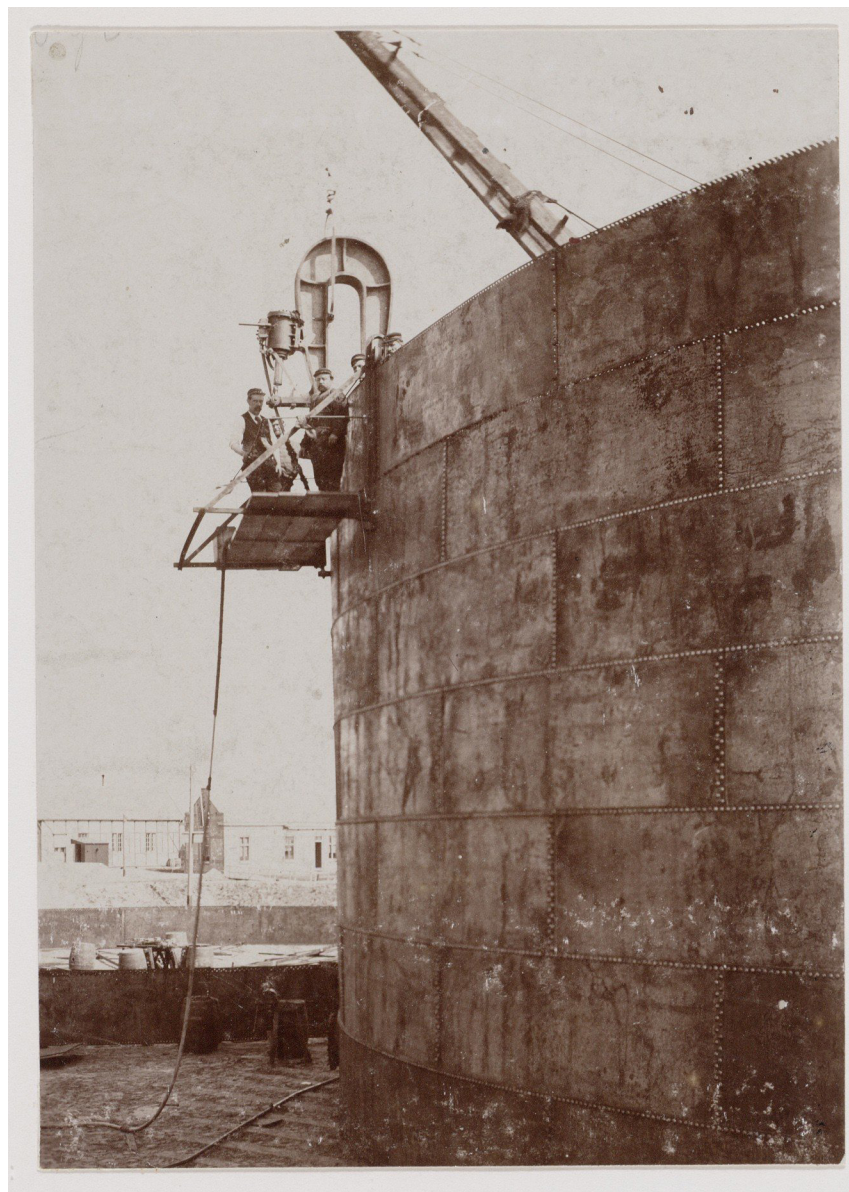
**VATTENFALL PLANT**  
Closed coal power plant



OVERALL DESIGN QUESTION

**“ How can a former oil-related port area - in a circular way - be transformed to a mixed-use neighborhood?**





**1896**

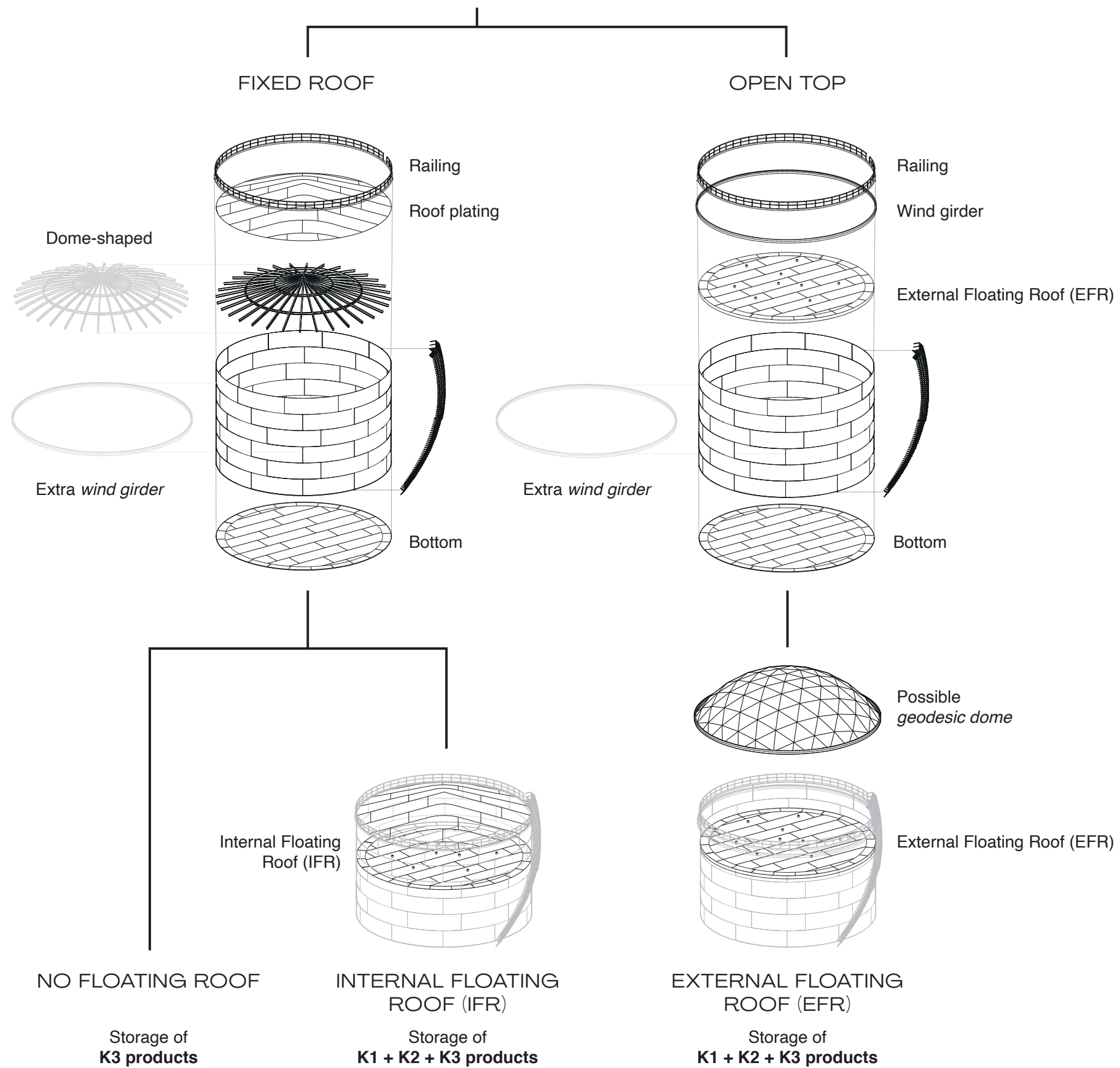
SOURCE Stadsarchief Amsterdam



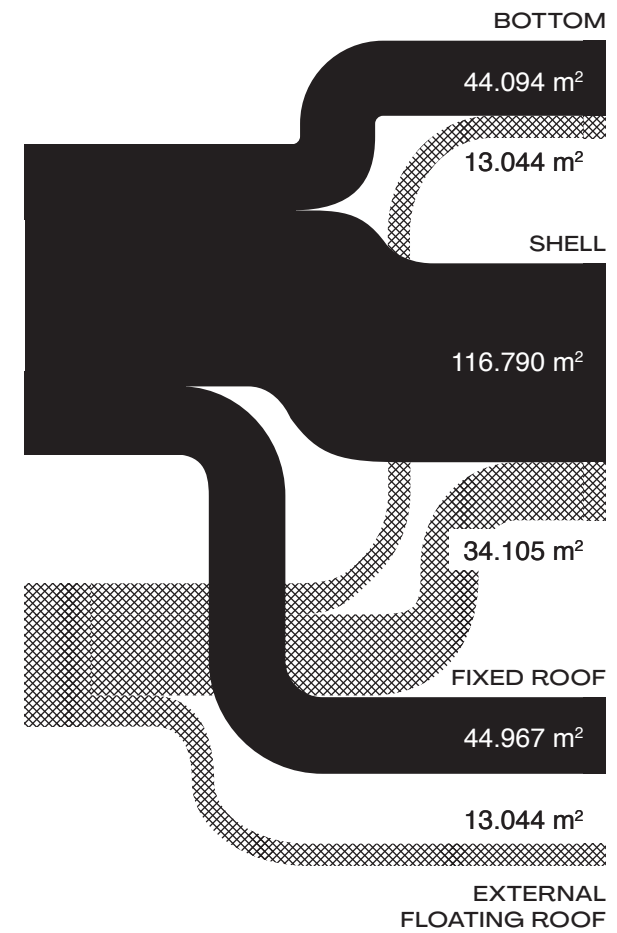
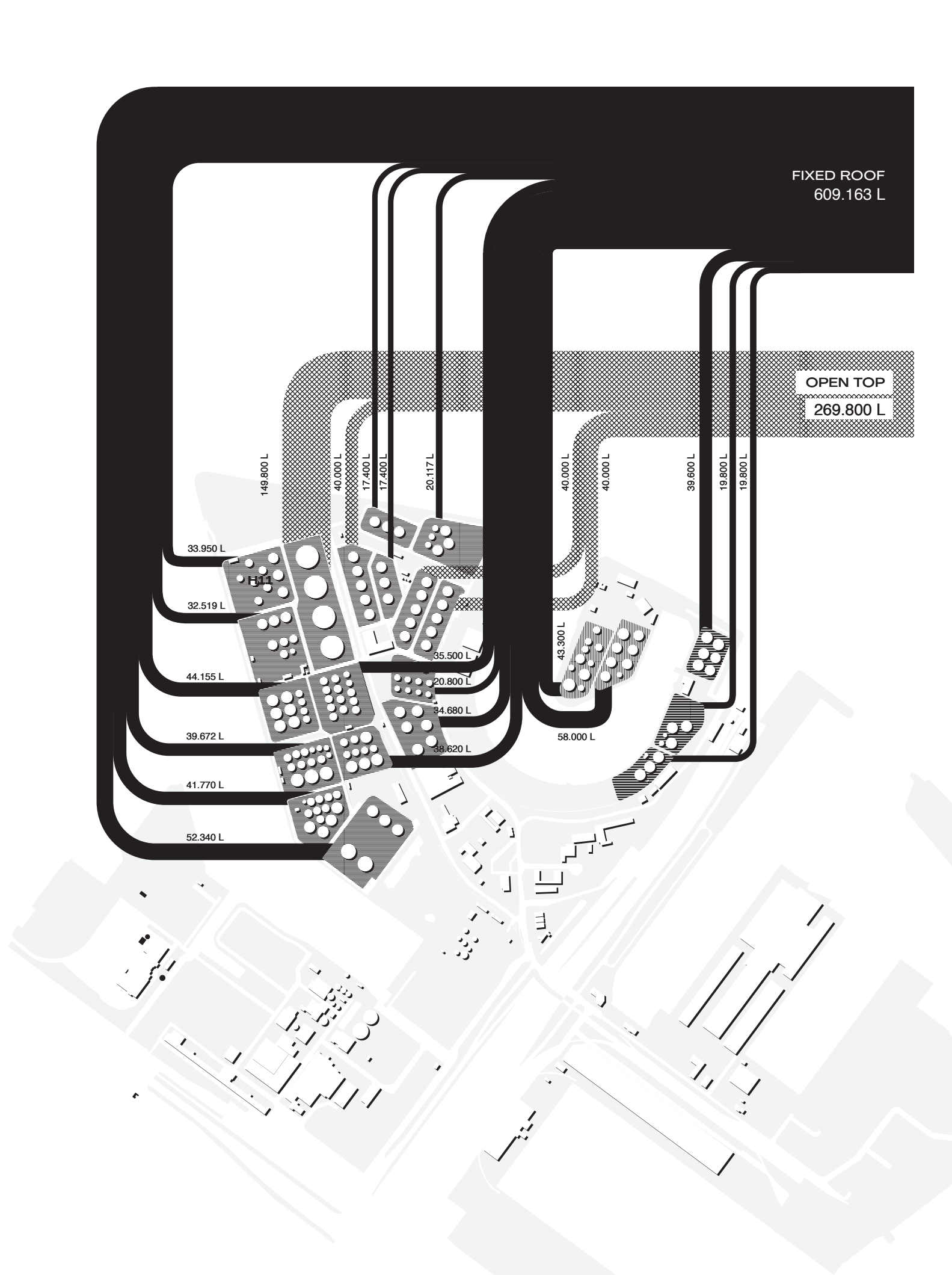
OVERALL RESEARCH QUESTION

**“ How can aboveground steel storage tanks be categorized and reused to house new, urban functions?**

# ABOVEGROUND STEEL STORAGE TANKS (AST'S)







**57.138** m²

**150.895** m²

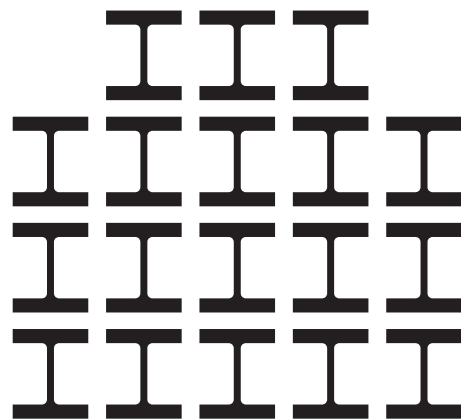
**44.967** m²

**13.044** m²

FIXED ROOF  
GIRDERS  
**44.339** m

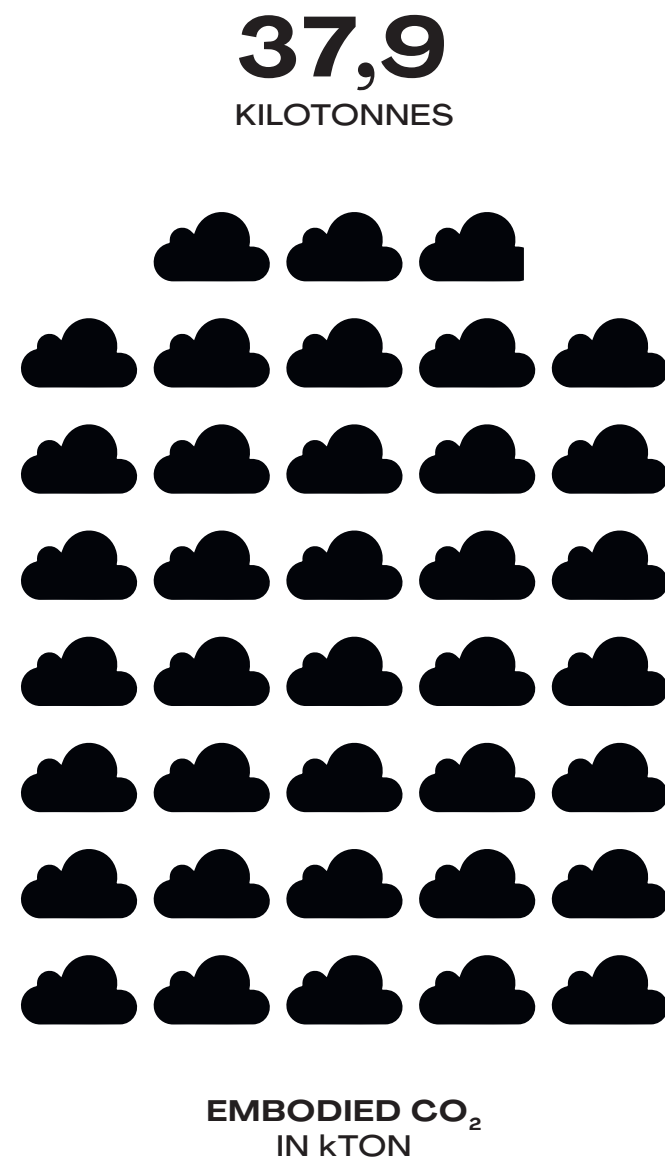
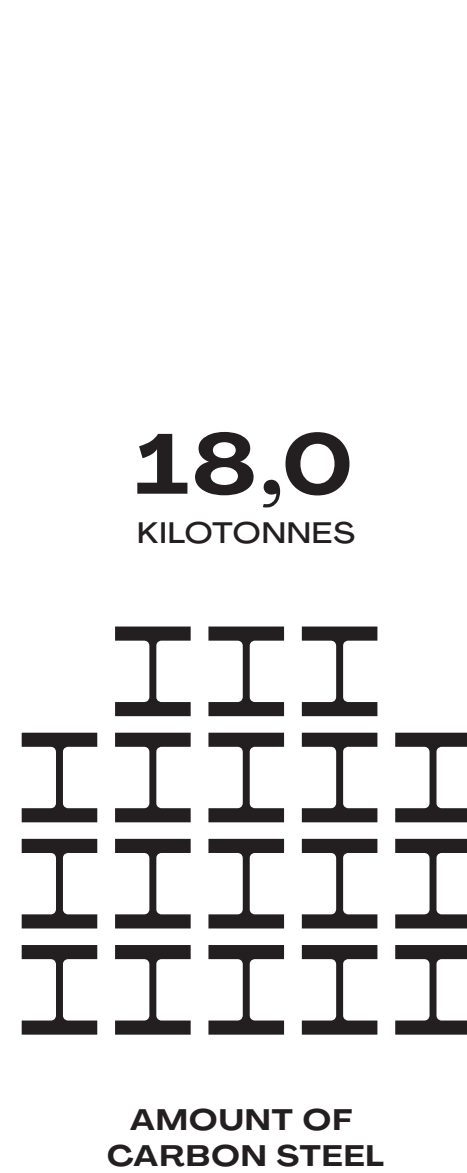


**18,0**  
KILOTONNES

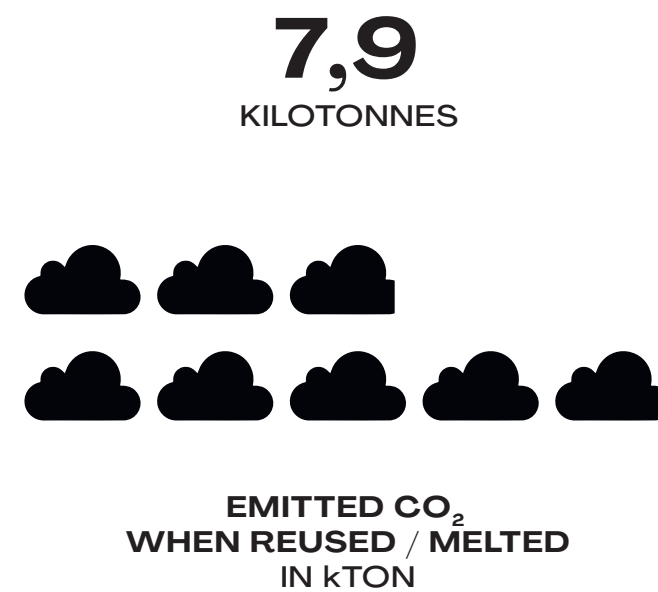
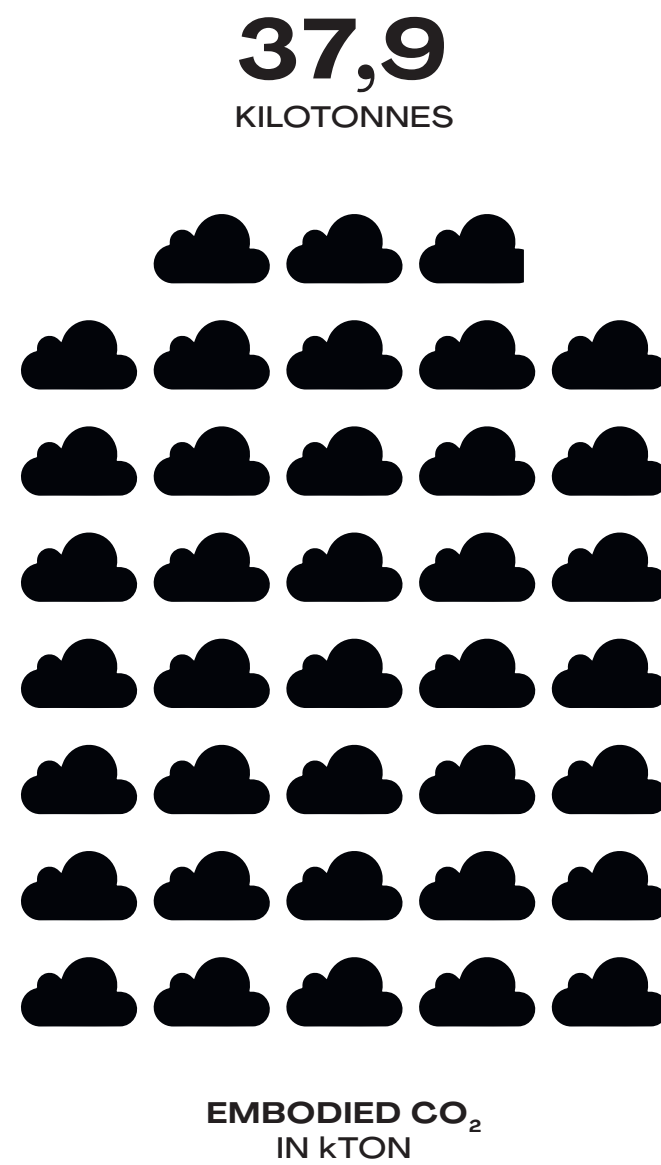
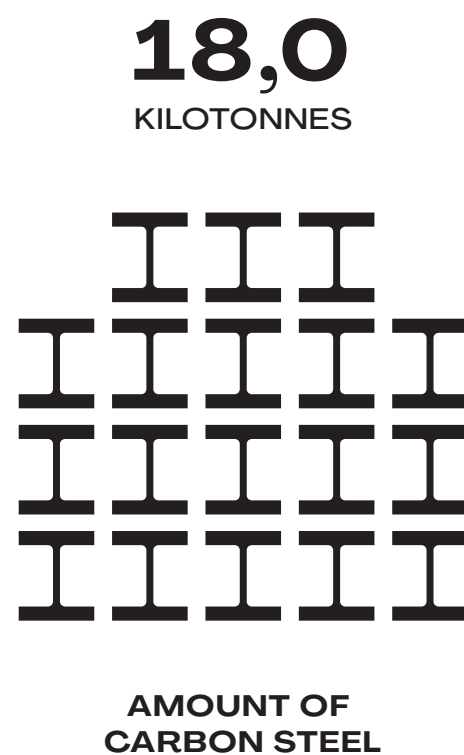


AMOUNT OF  
CARBON STEEL



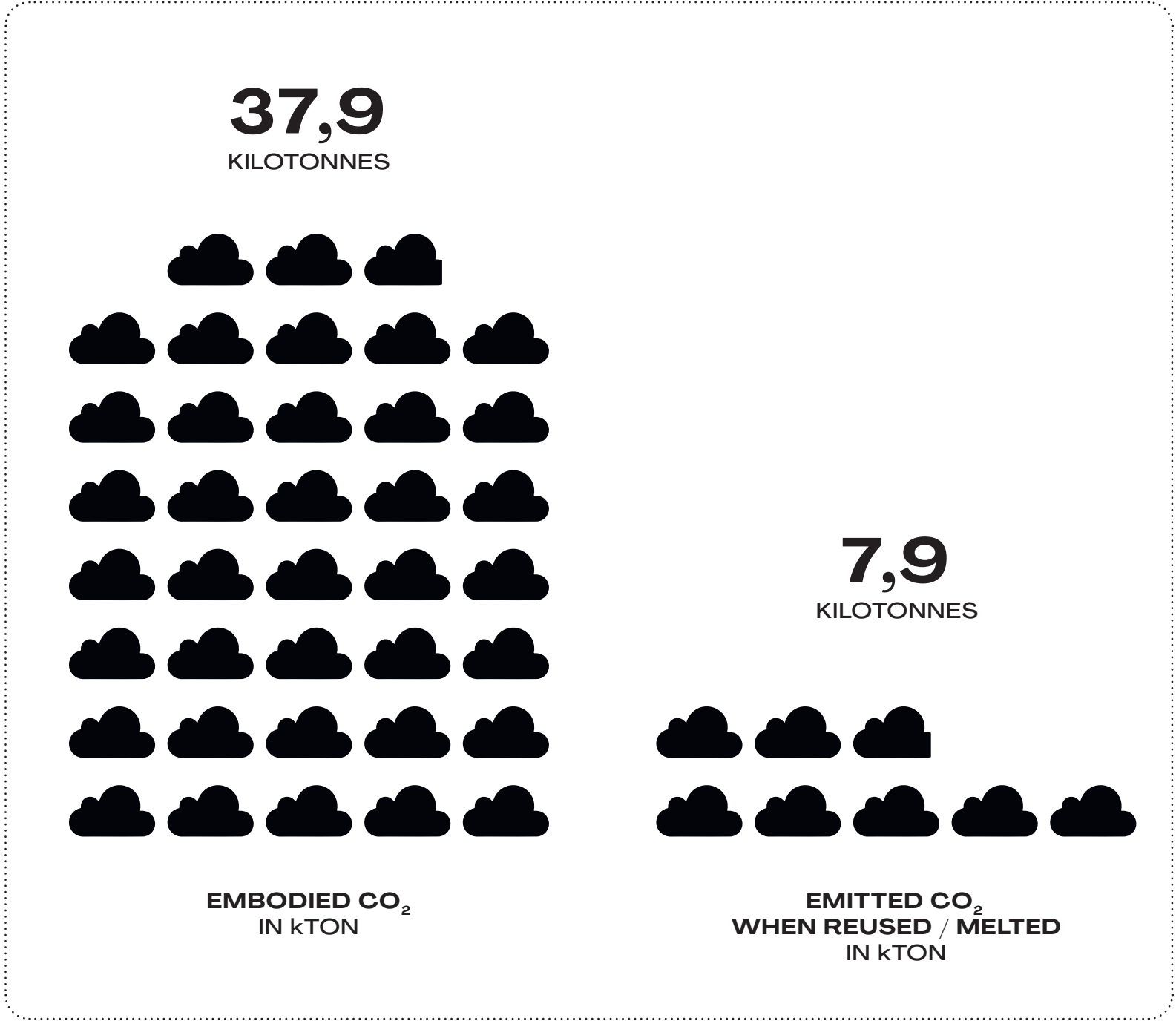
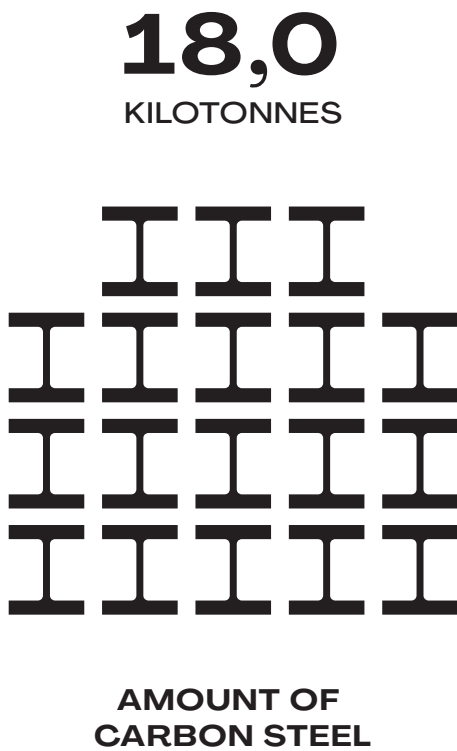








1,3% OF 2030-TARGET







**BERLIN** GERMANY



**LONDON** ENGLAND



**NAALDWIJK** NETHERLANDS



**VIENNA** AUSTRIA



**SNEEK** NETHERLANDS



**HILVERSUM** NETHERLANDS



**LONDON** ENGLAND



**AMSTERDAM** NETHERLANDS



**“ Instead of searching out the best, calling it heritage and fighting to preserve it, we should look at everything around us and accept it all as cultural heritage.**

**Proceeding from there [...] we can determine the most appropriate ways of using it to create [...] added value for the future**



## **4 TYPES OF REUSING**

Resource Salvation - Mark Gorgolewski (2018)

- 1** Reuse of an existing structure on the site and possibly add to it or extend it.
- 2** Relocate most or all of an existing building to a new location.
- 3** Reuse individual components extracted from the demolition of one project in a new building.
- 4** Use materials and components that were previously used for a different purpose.



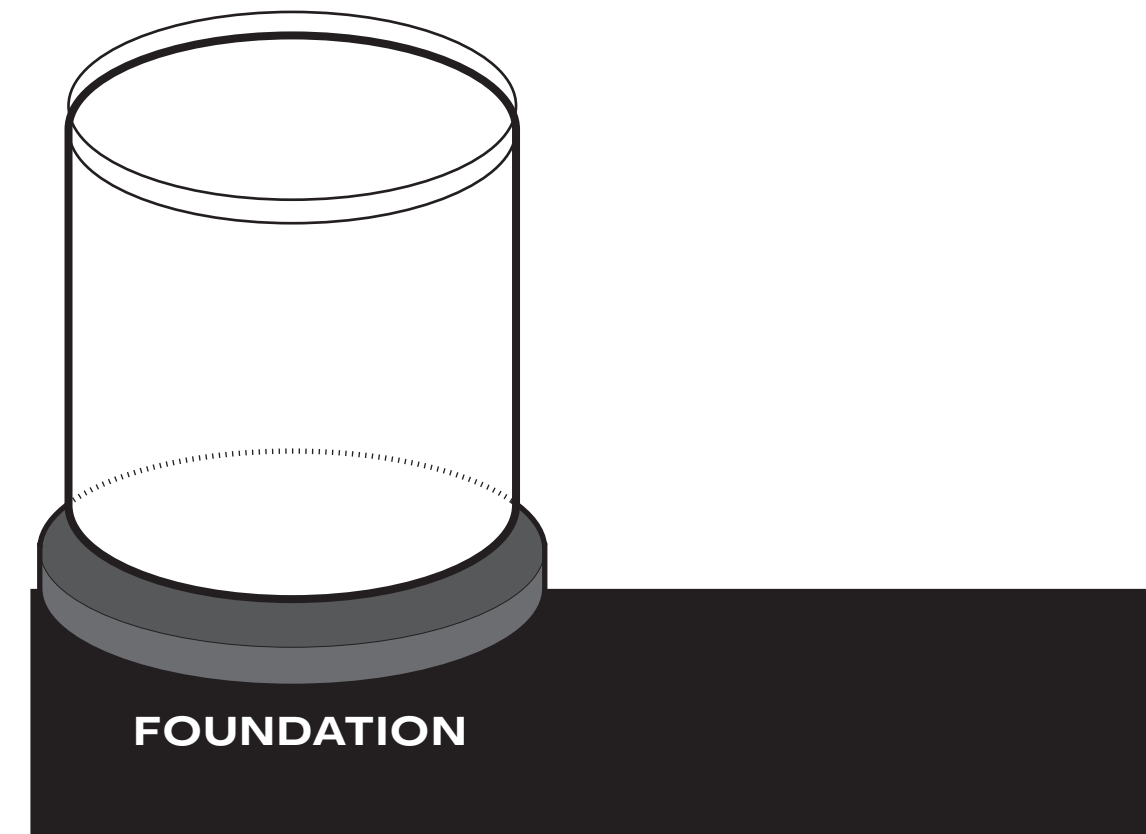
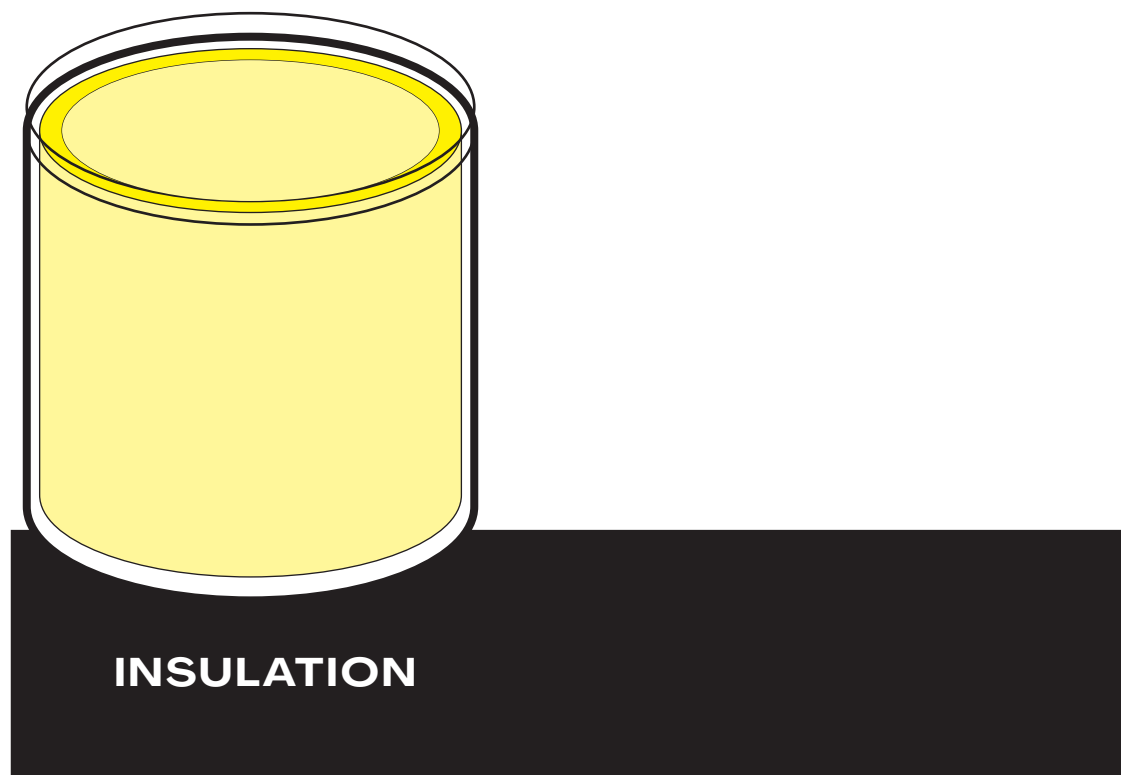
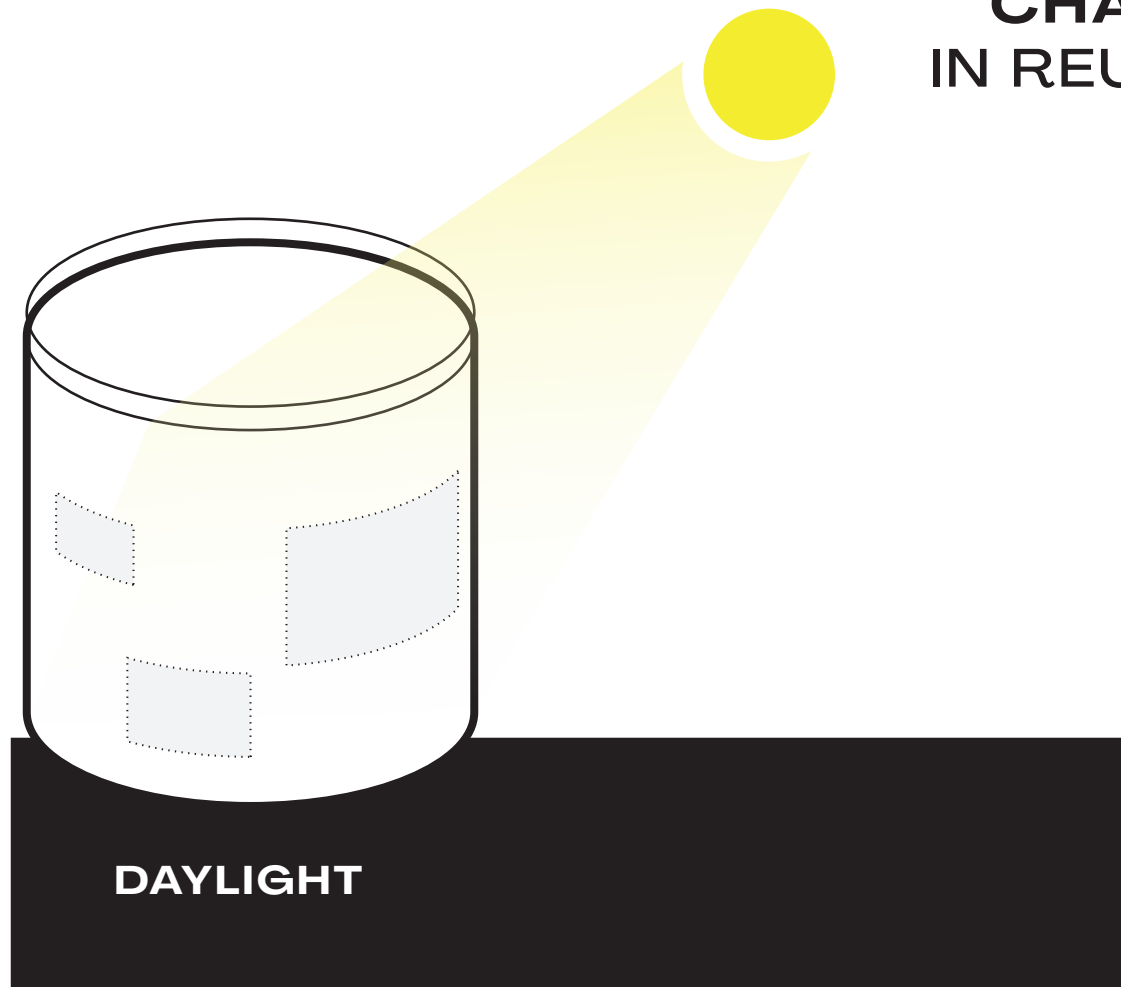
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## CHALLENGES IN REUSING AST'S







1933

SOURCE Stadsarchief Amsterdam





1940

SOURCE Stadsarchief Amsterdam





**1956**

SOURCE Stadsarchief Amsterdam





1967

SOURCE Stadsarchief Amsterdam





1984

SOURCE Stadsarchief Amsterdam

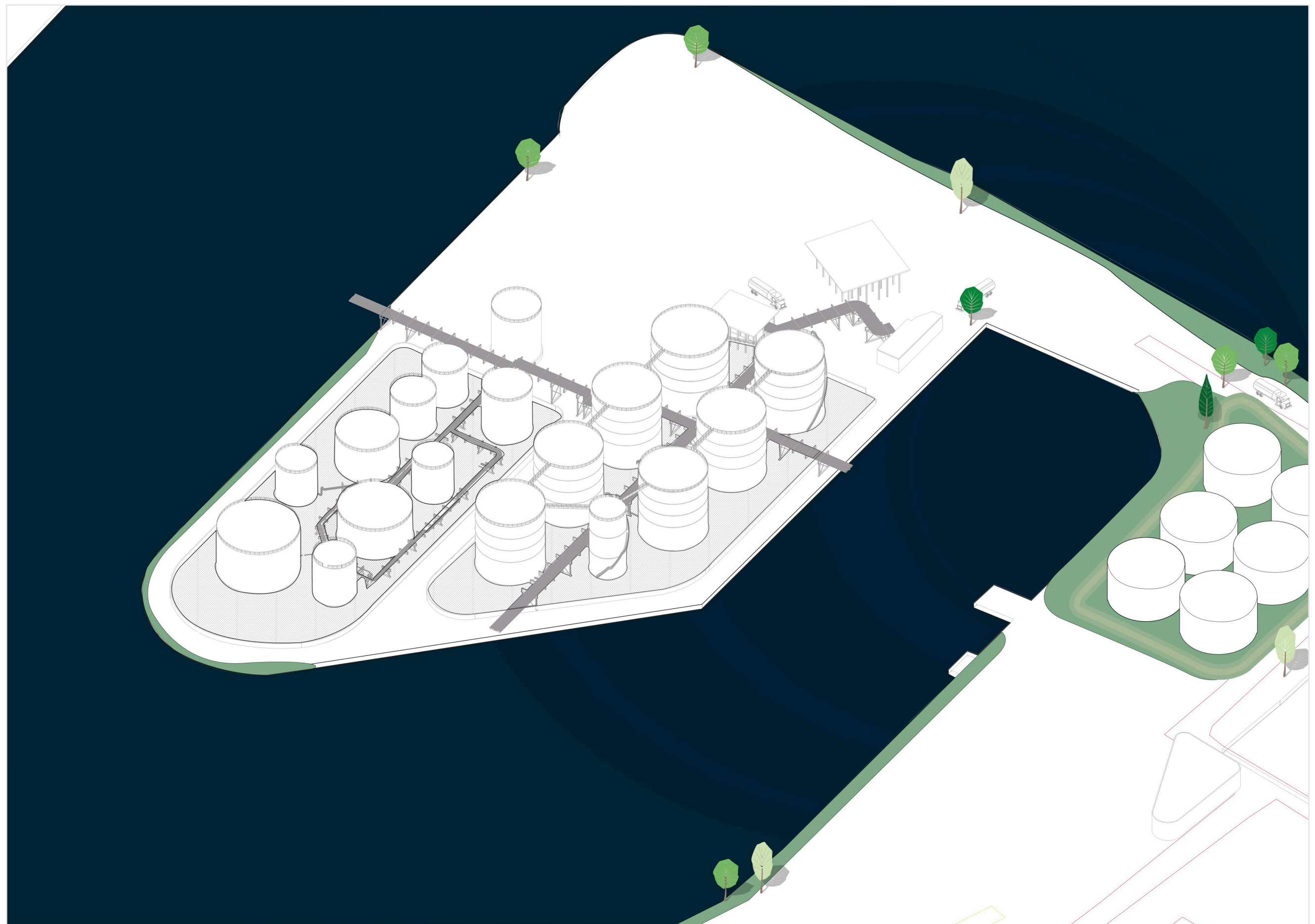




2013

SOURCE Foto Video Honing





EXISTING SITUATION

**2020**

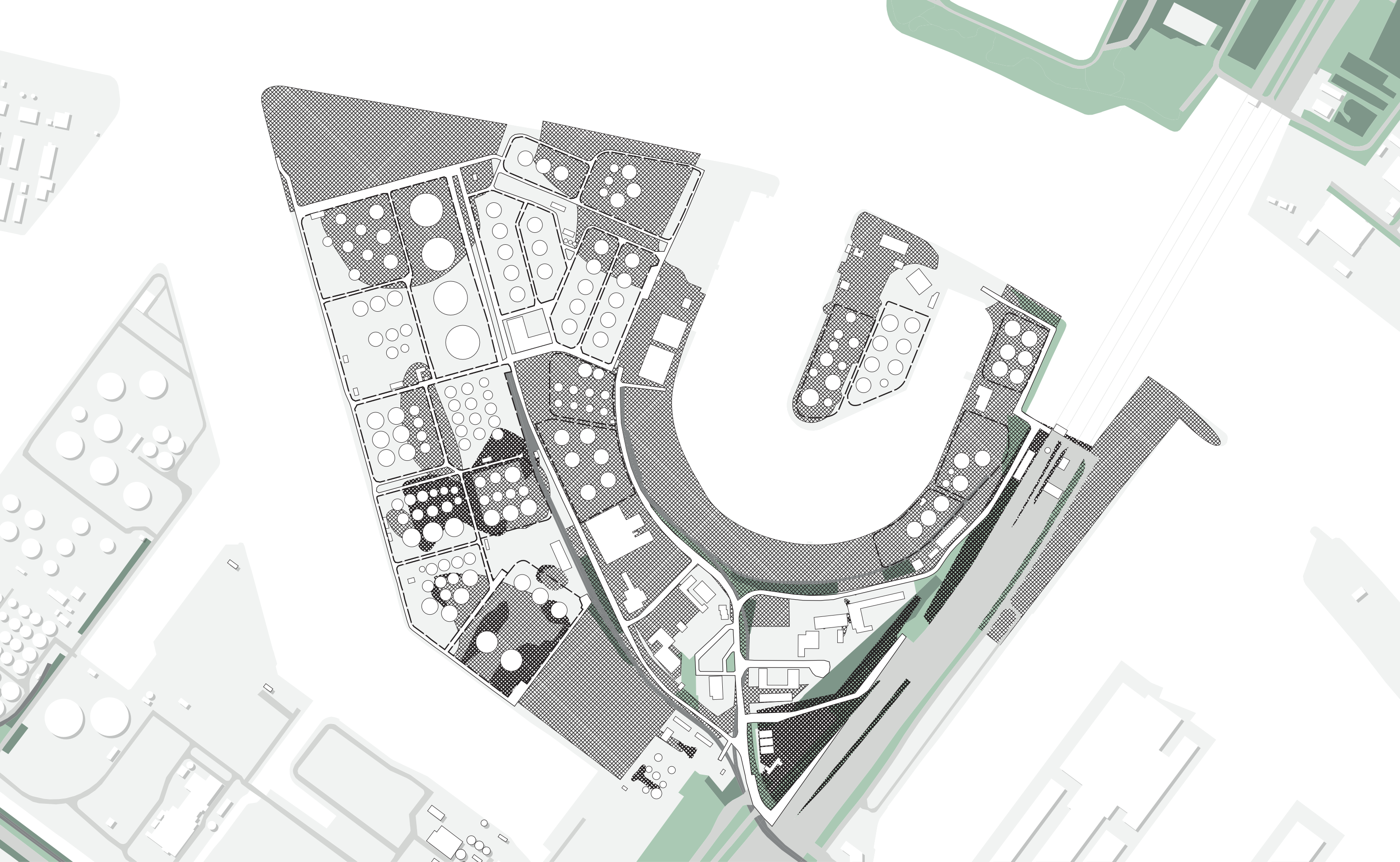




EXISTING SITUATION

**2020**

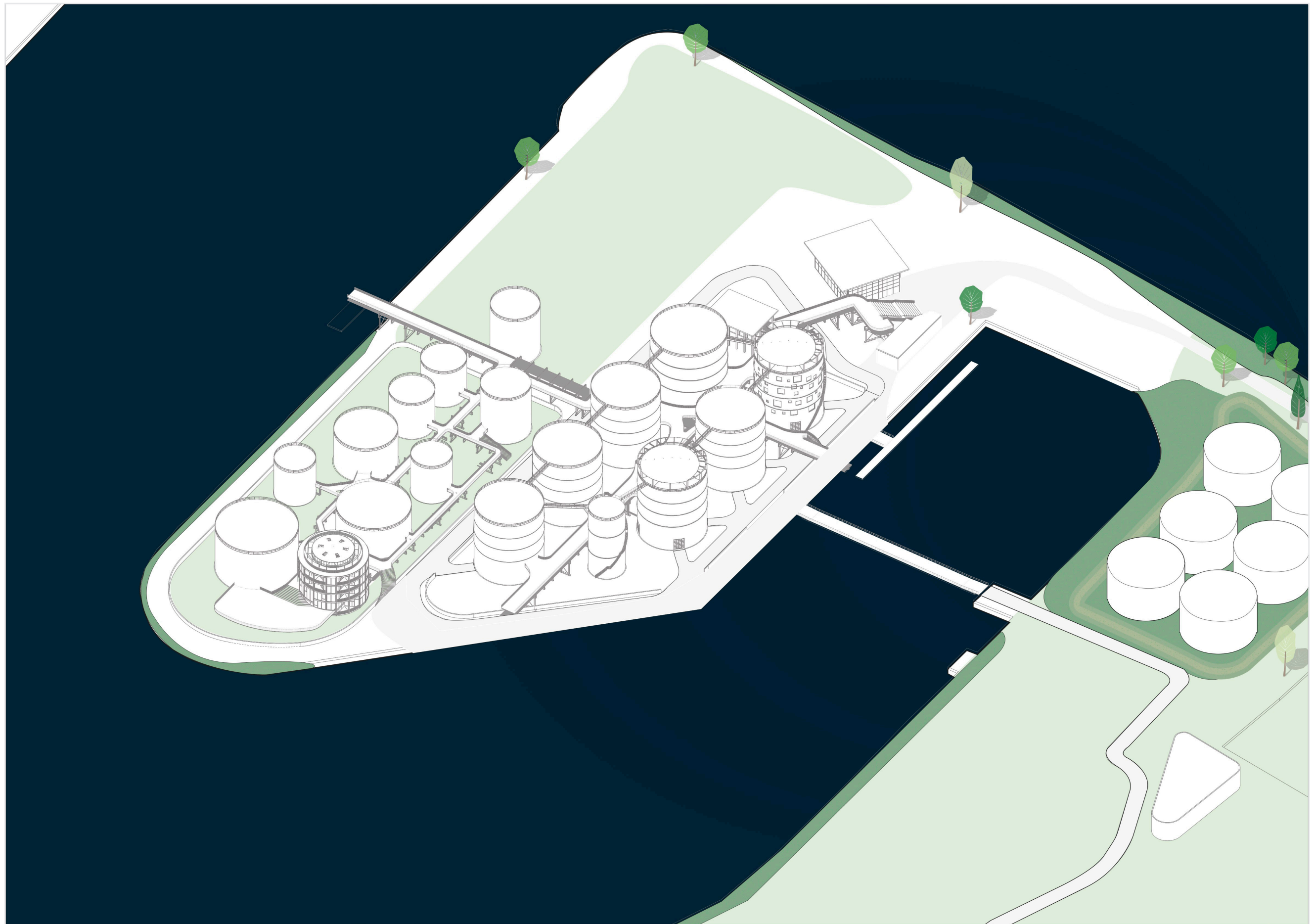




EXISTING SITUATION

**2020**

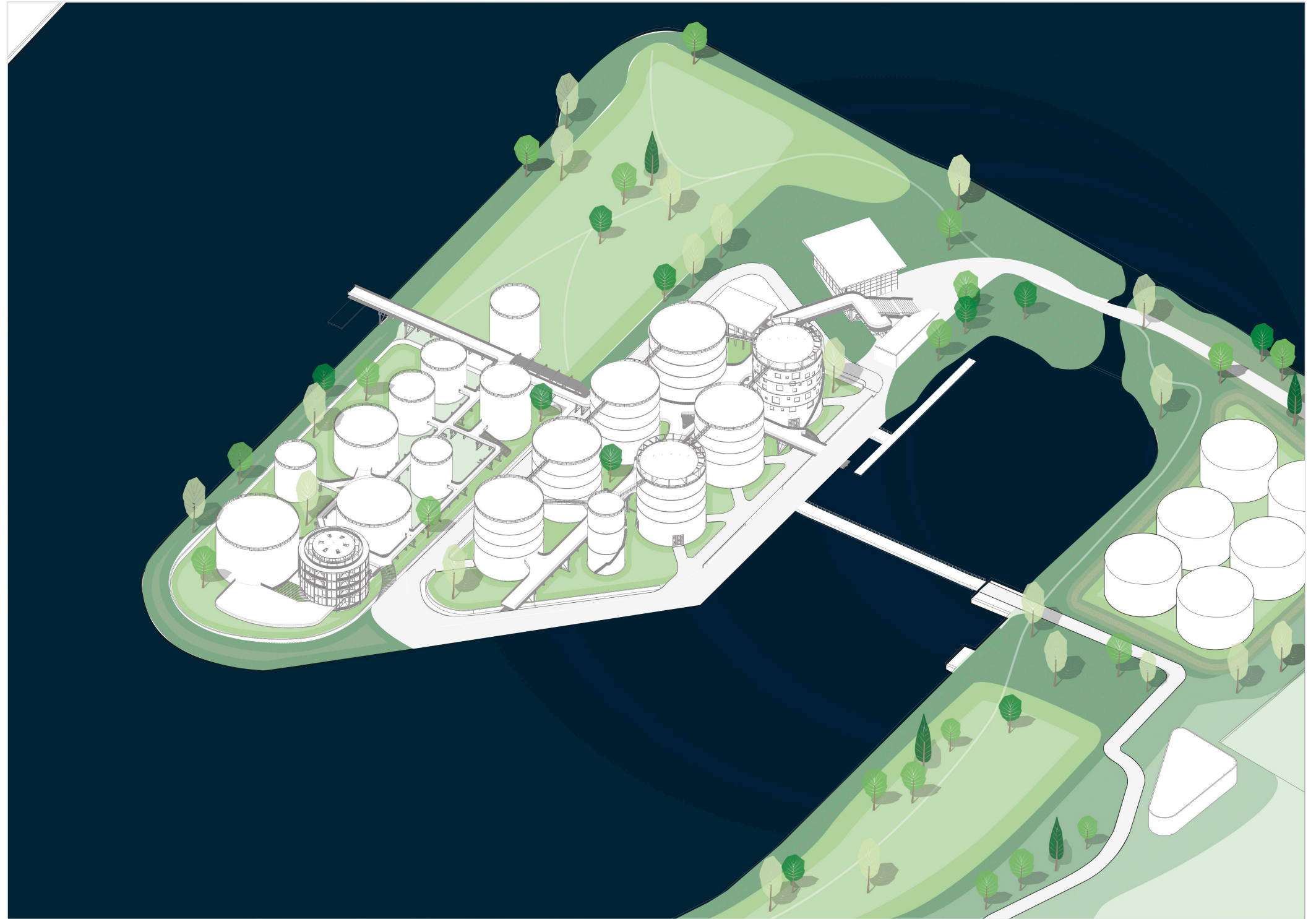
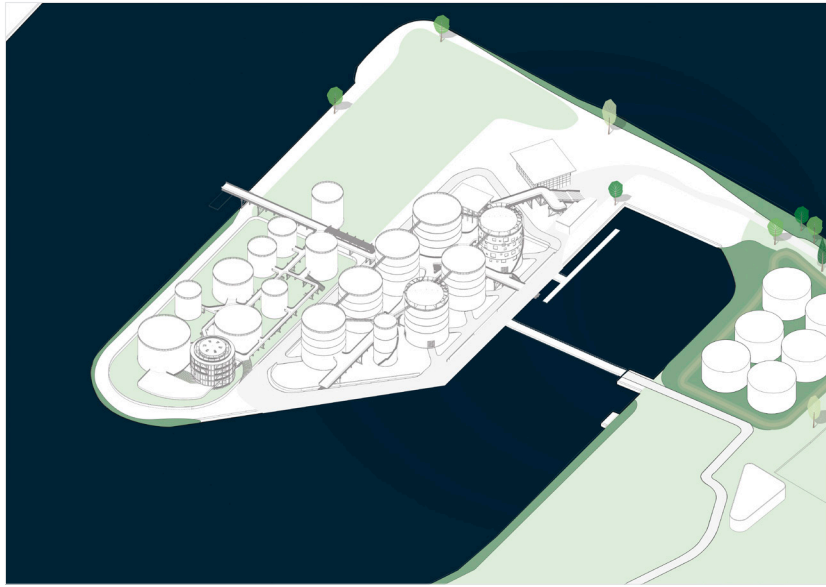




FYTO- AND MYCOREMEDIATION

**2025**

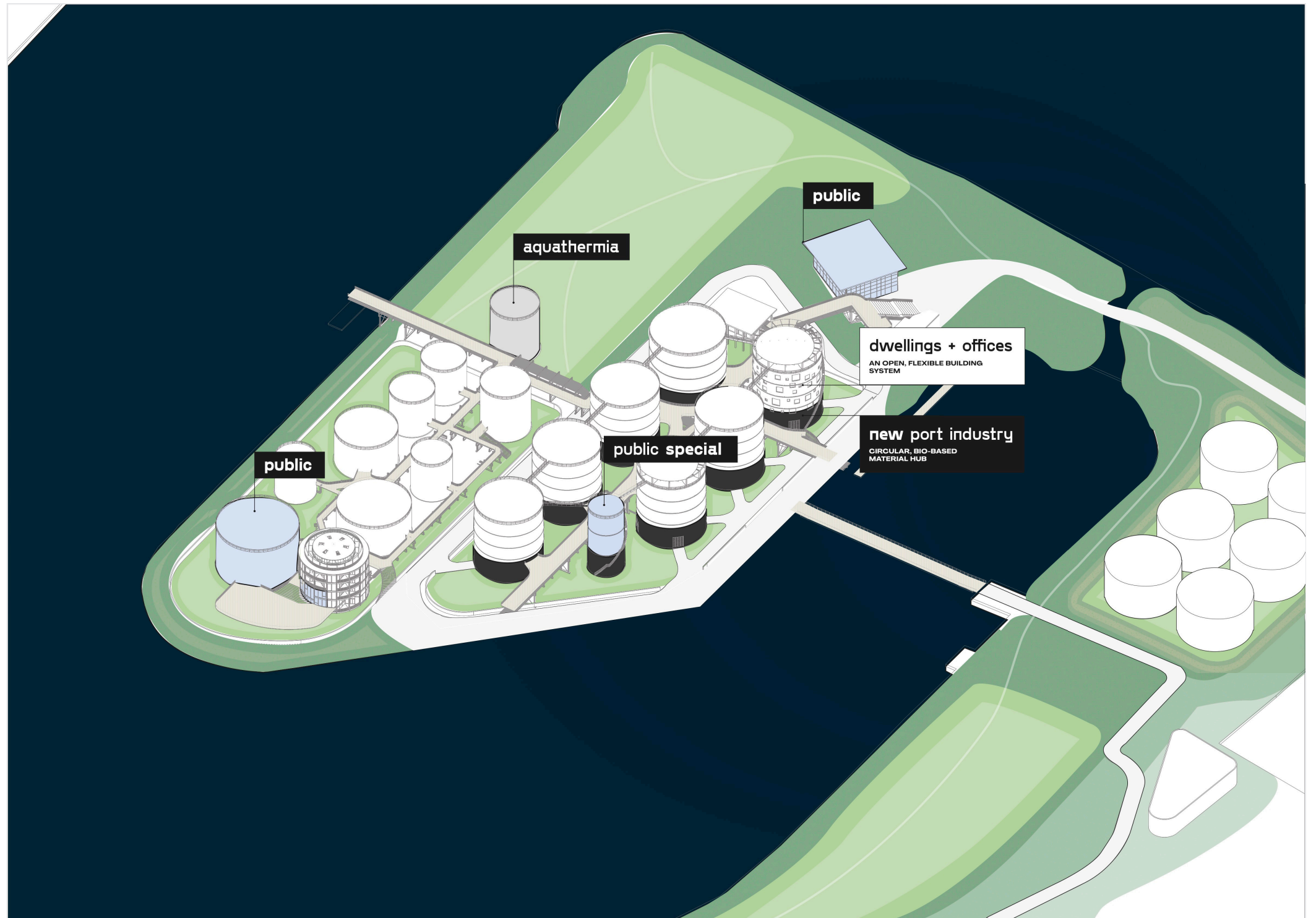
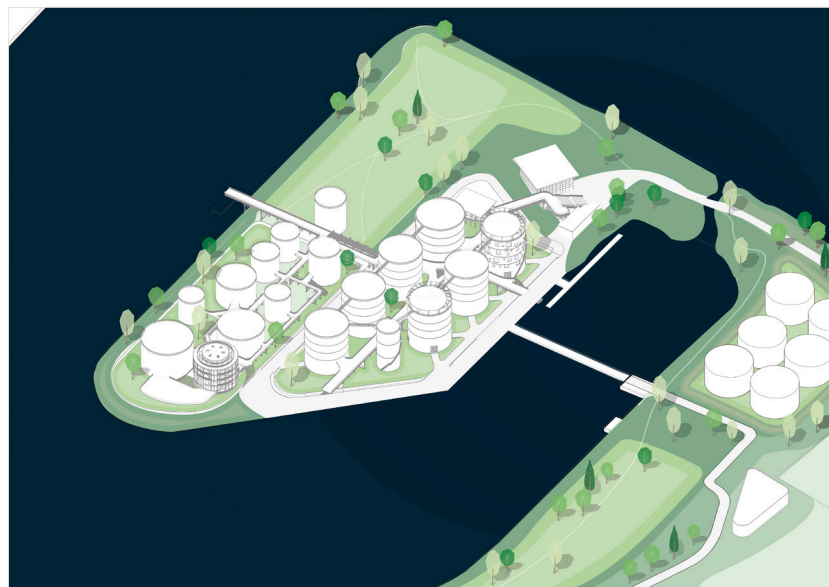
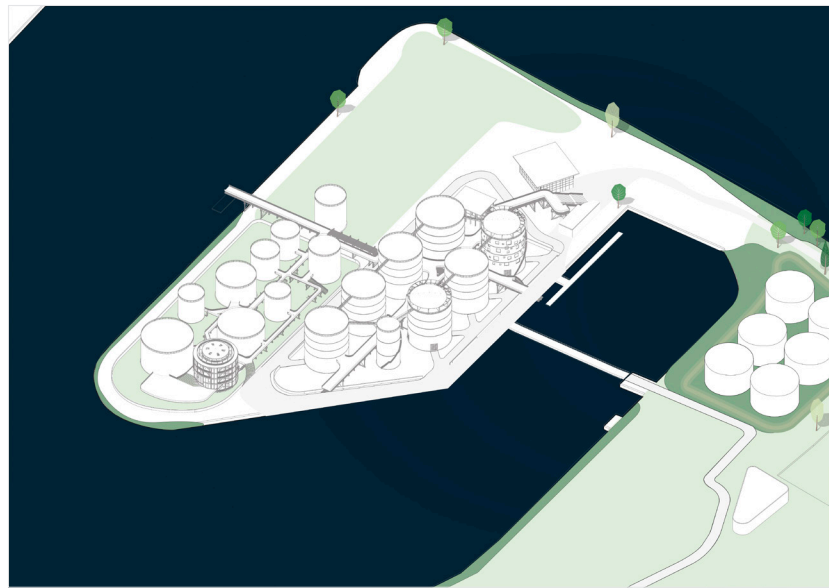




GREENING THE SITE

**2025**

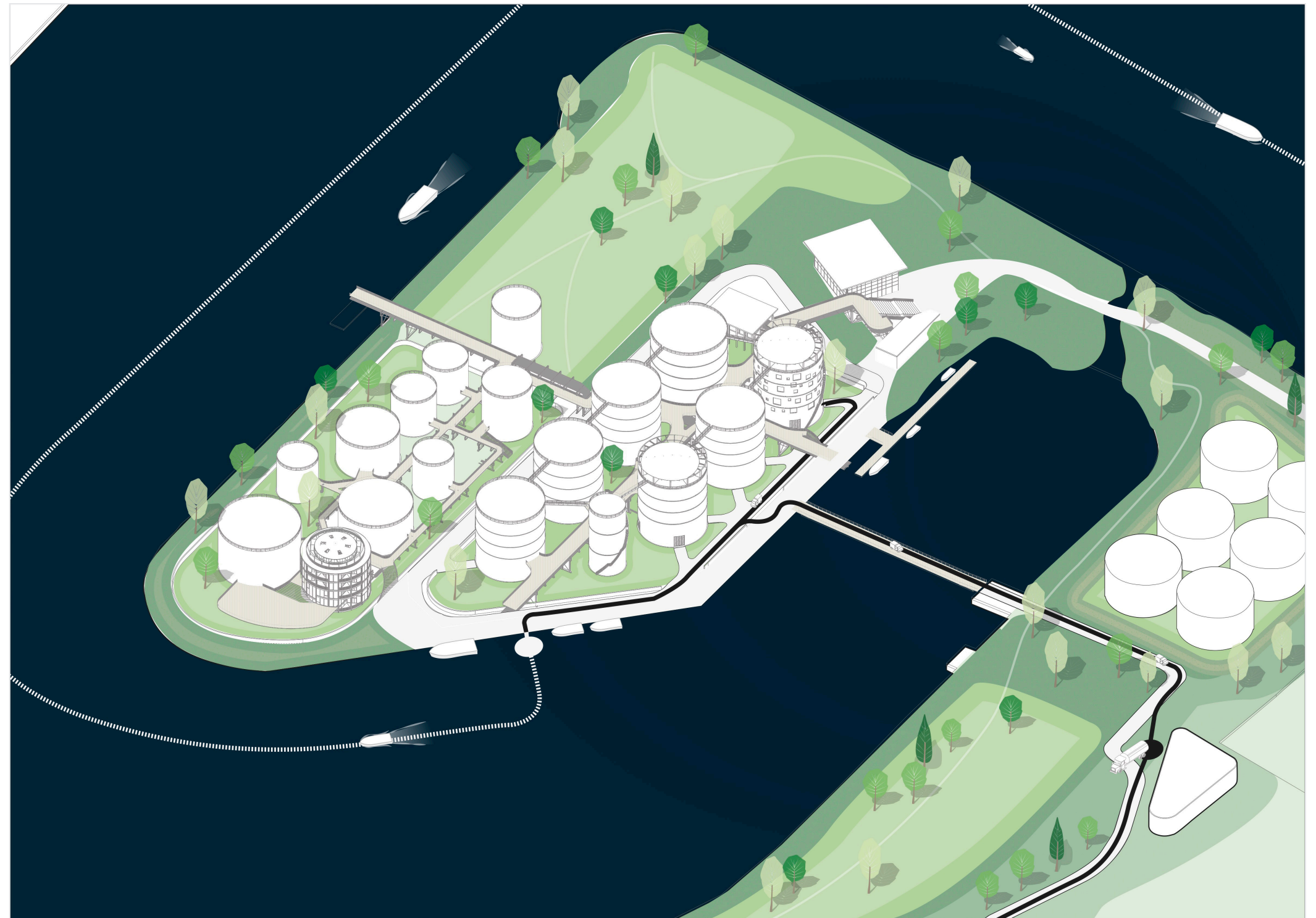
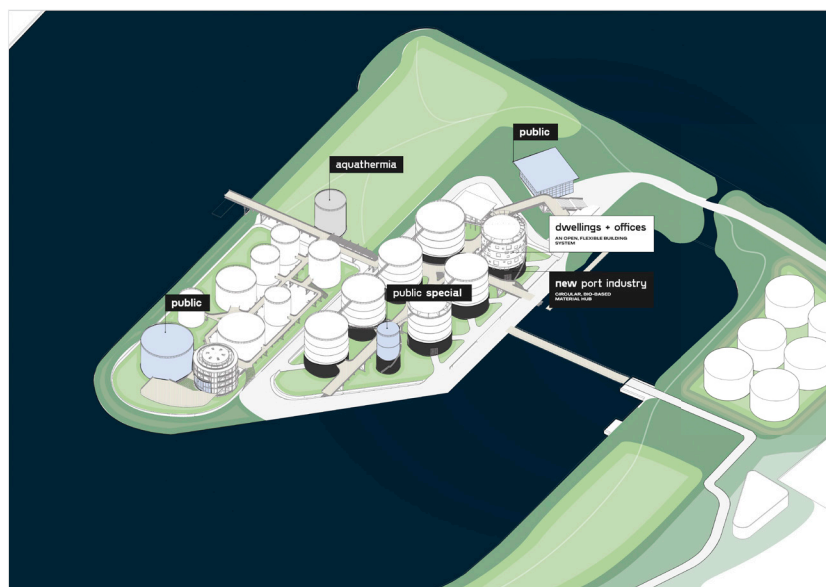
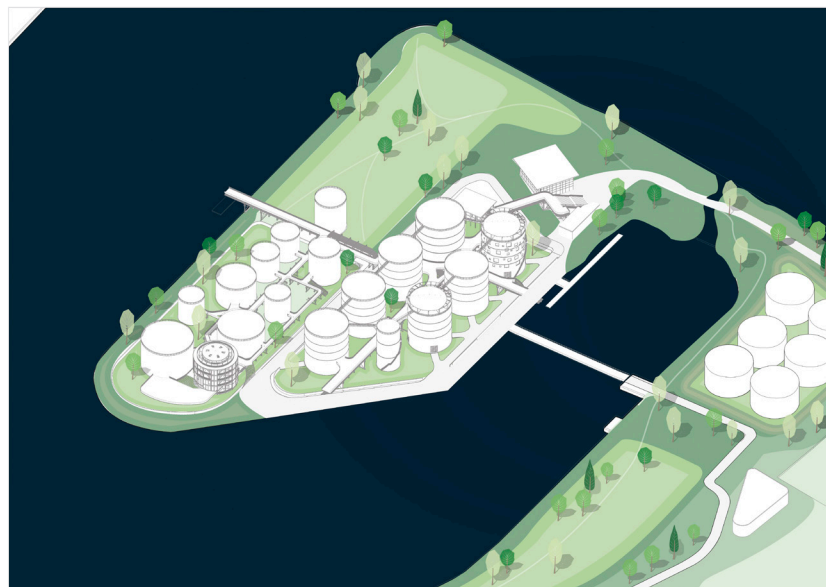
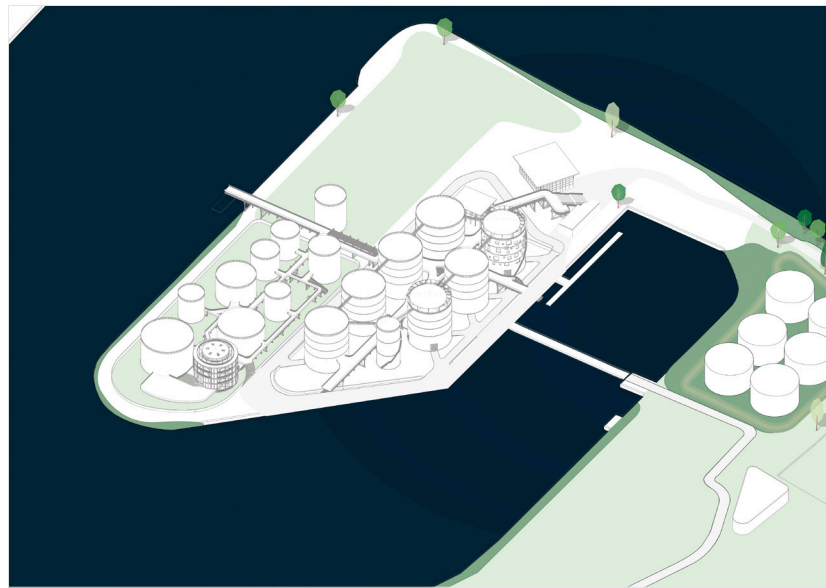




A MIXED, FLEXIBLE PROGRAM

**2025**

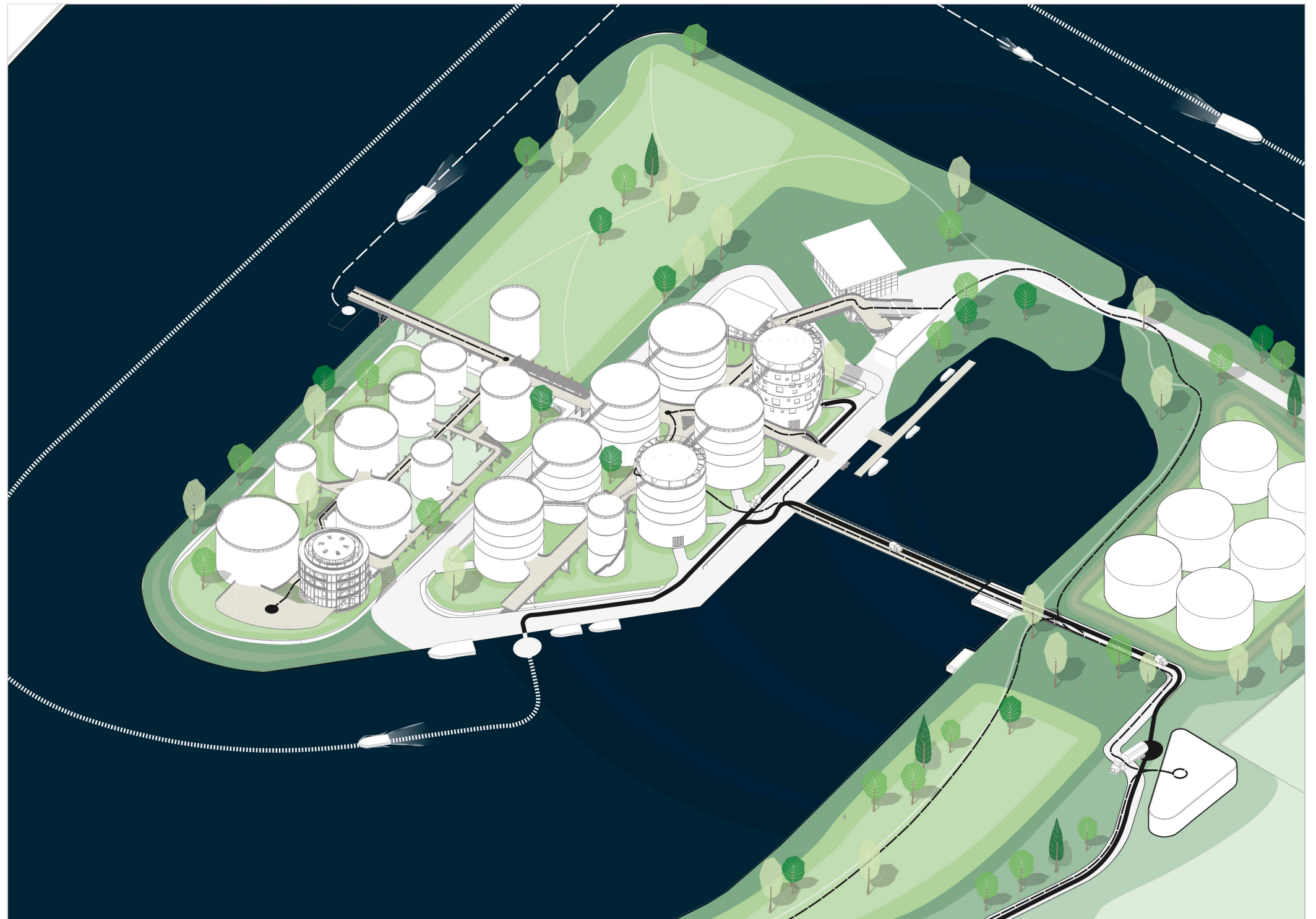
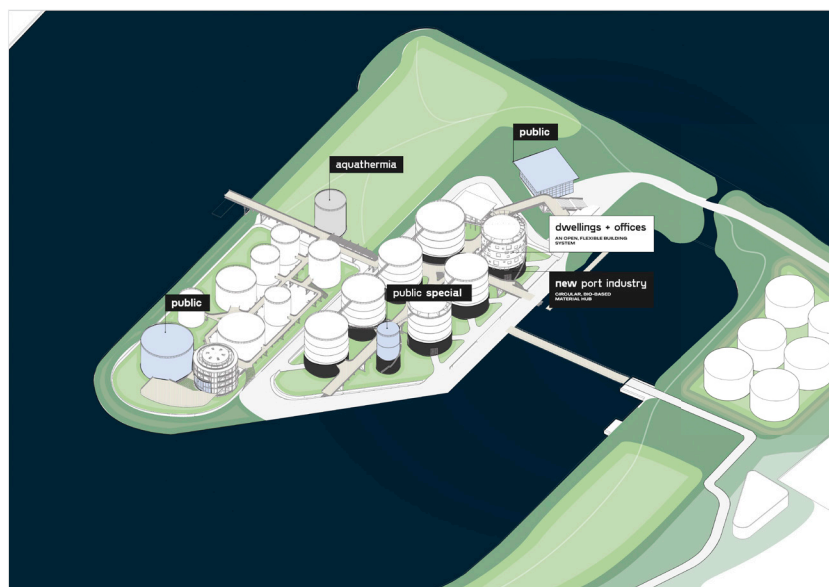
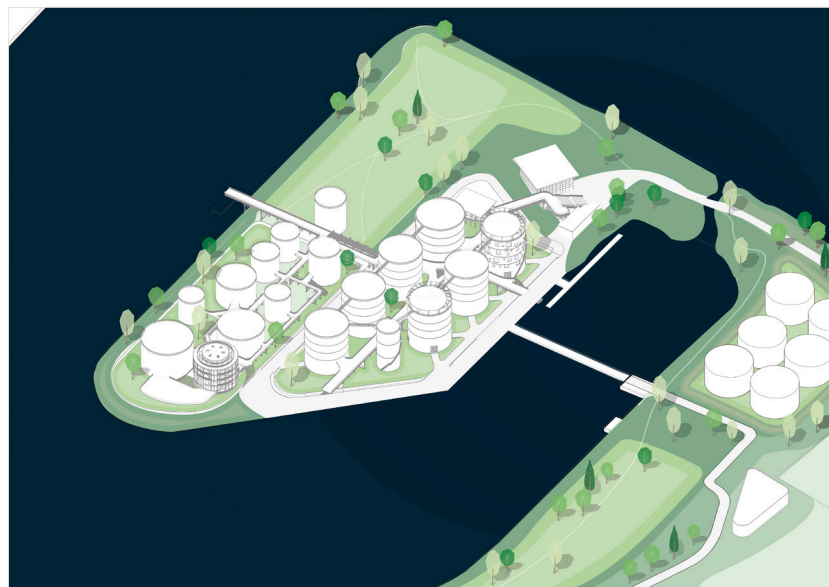
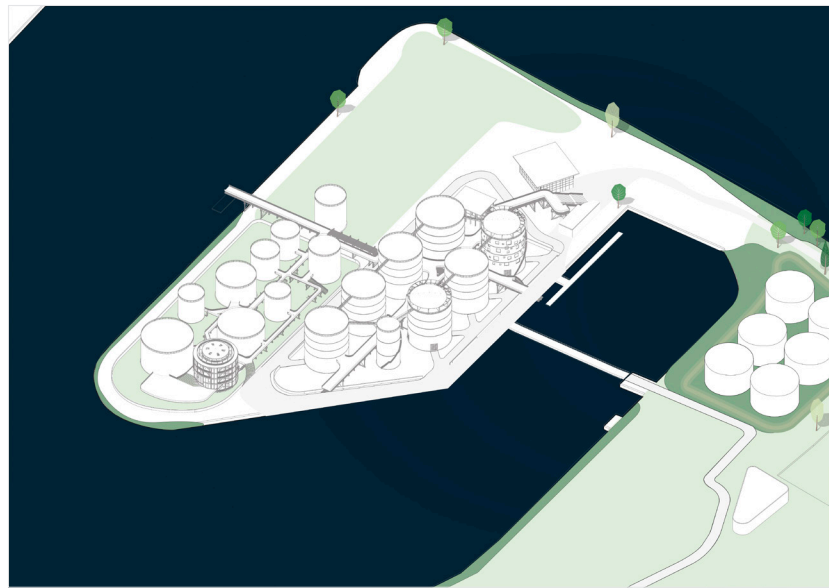




MOBILITY OVER WATER

**2025**





A LIFTED DECK

**2025**







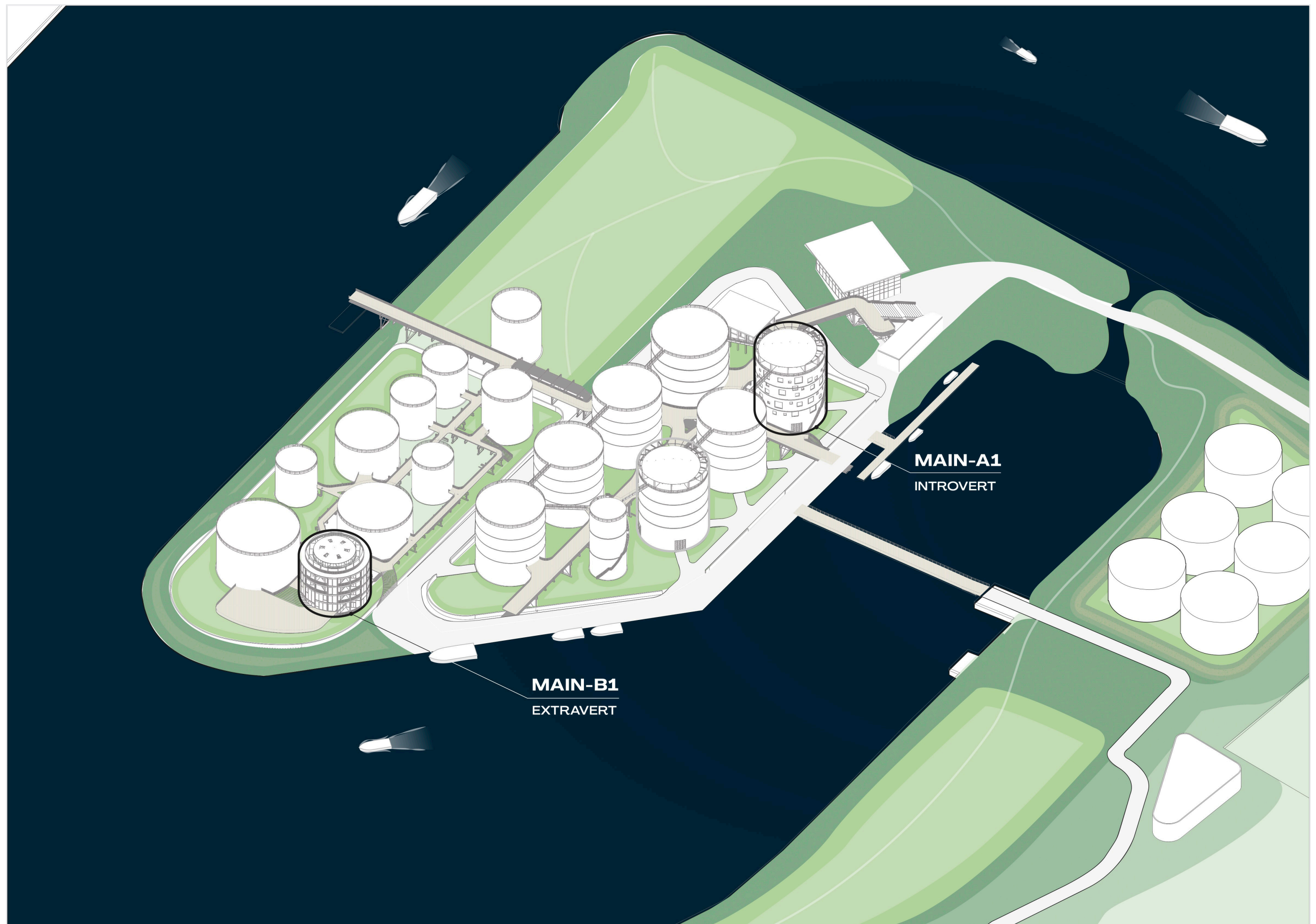


SOURCE Stadsarchief Amsterdam



SOURCE AMS Institute

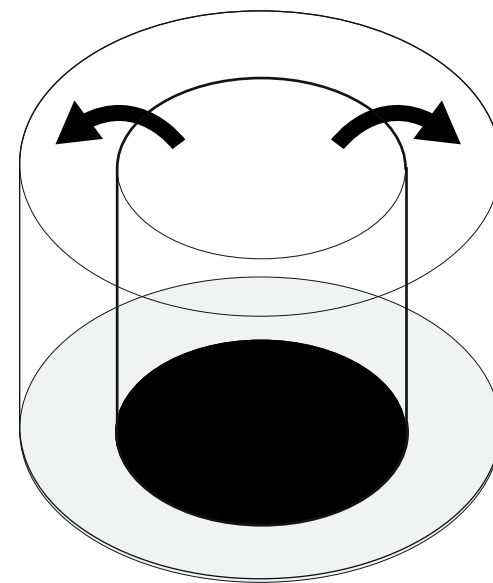




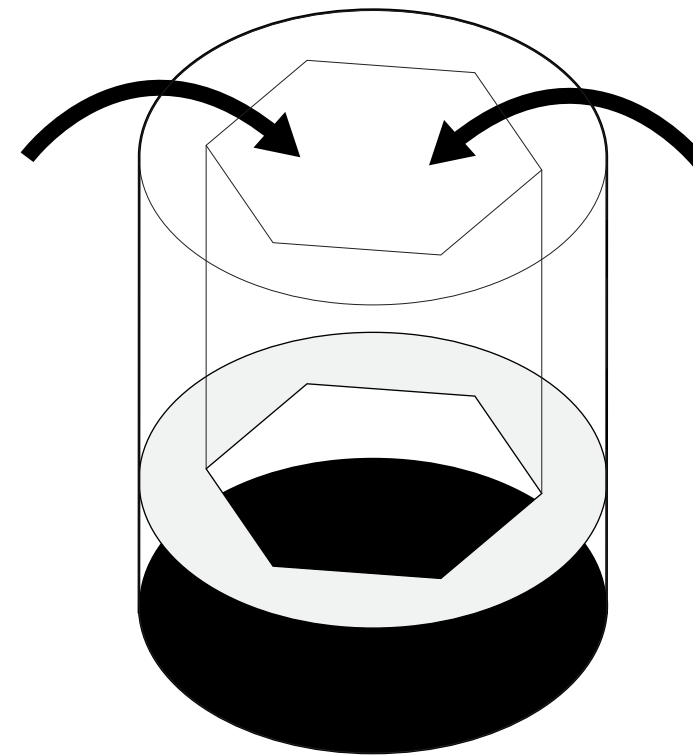
TWO TRANSFORMATIONS

**2025**



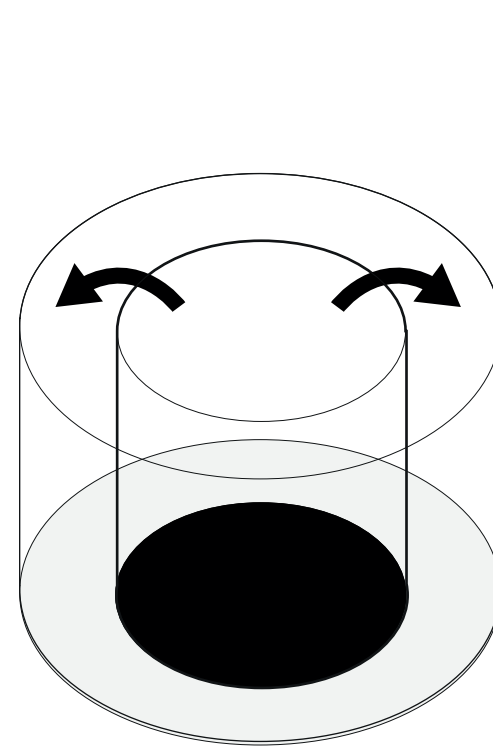


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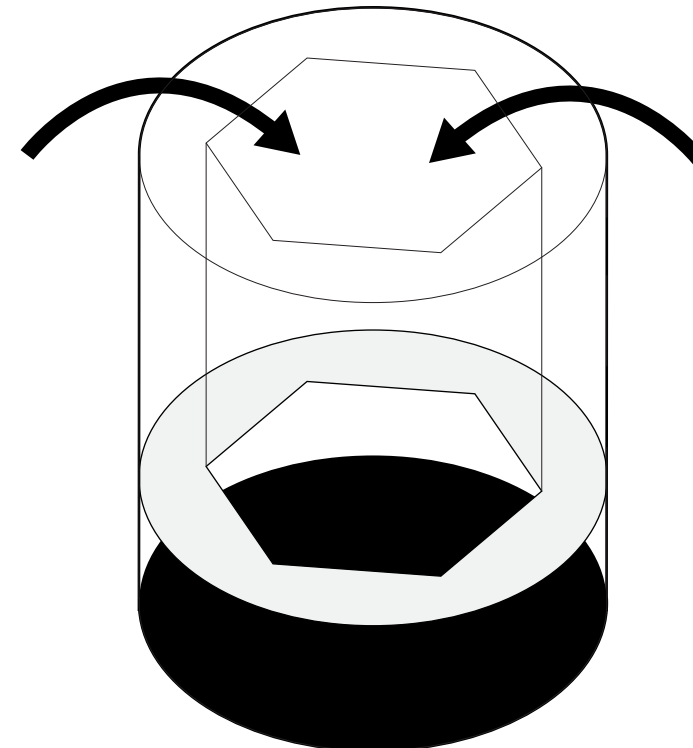


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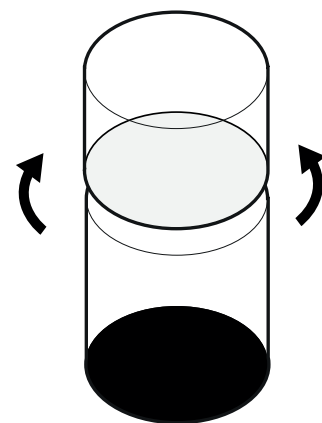


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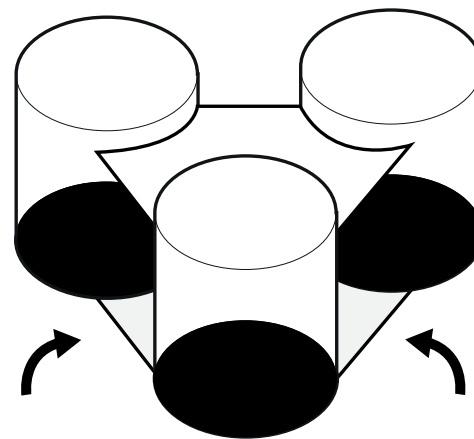


**INTROVERT**

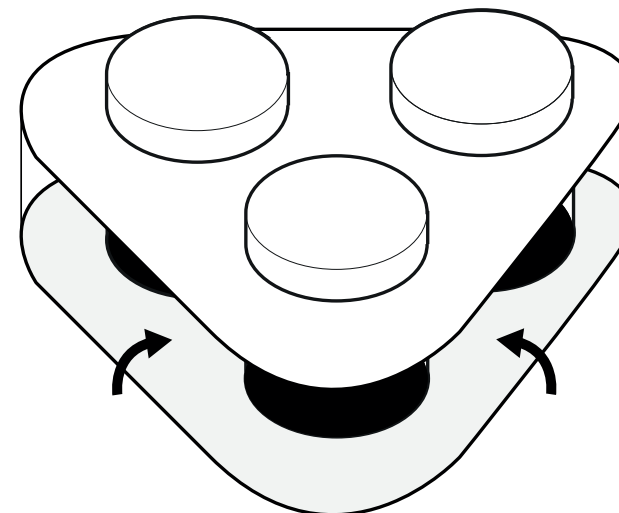
**OTHER OPTIONS FOR DIFFERENT PHASES**



**TOP-UP**

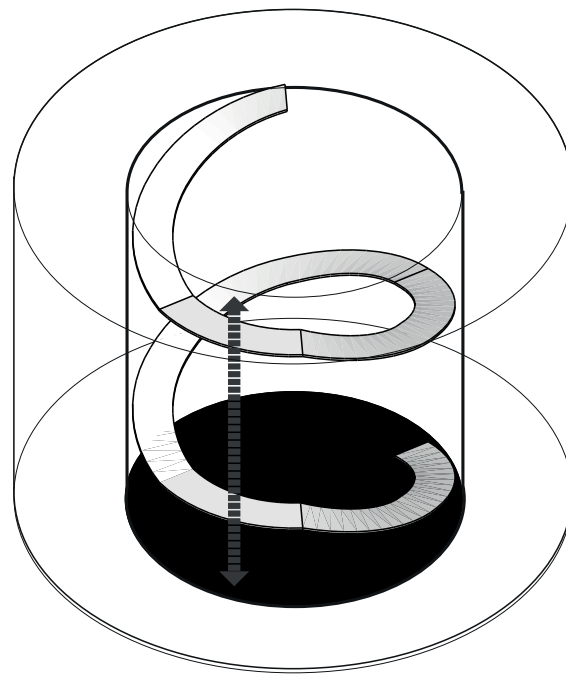


**IN BETWEEN**

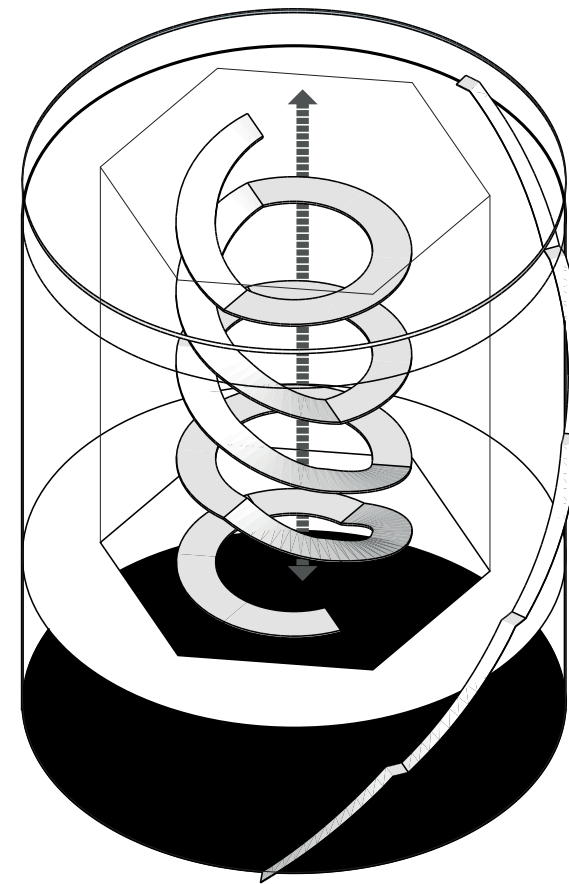


**SUPERBLOCK**





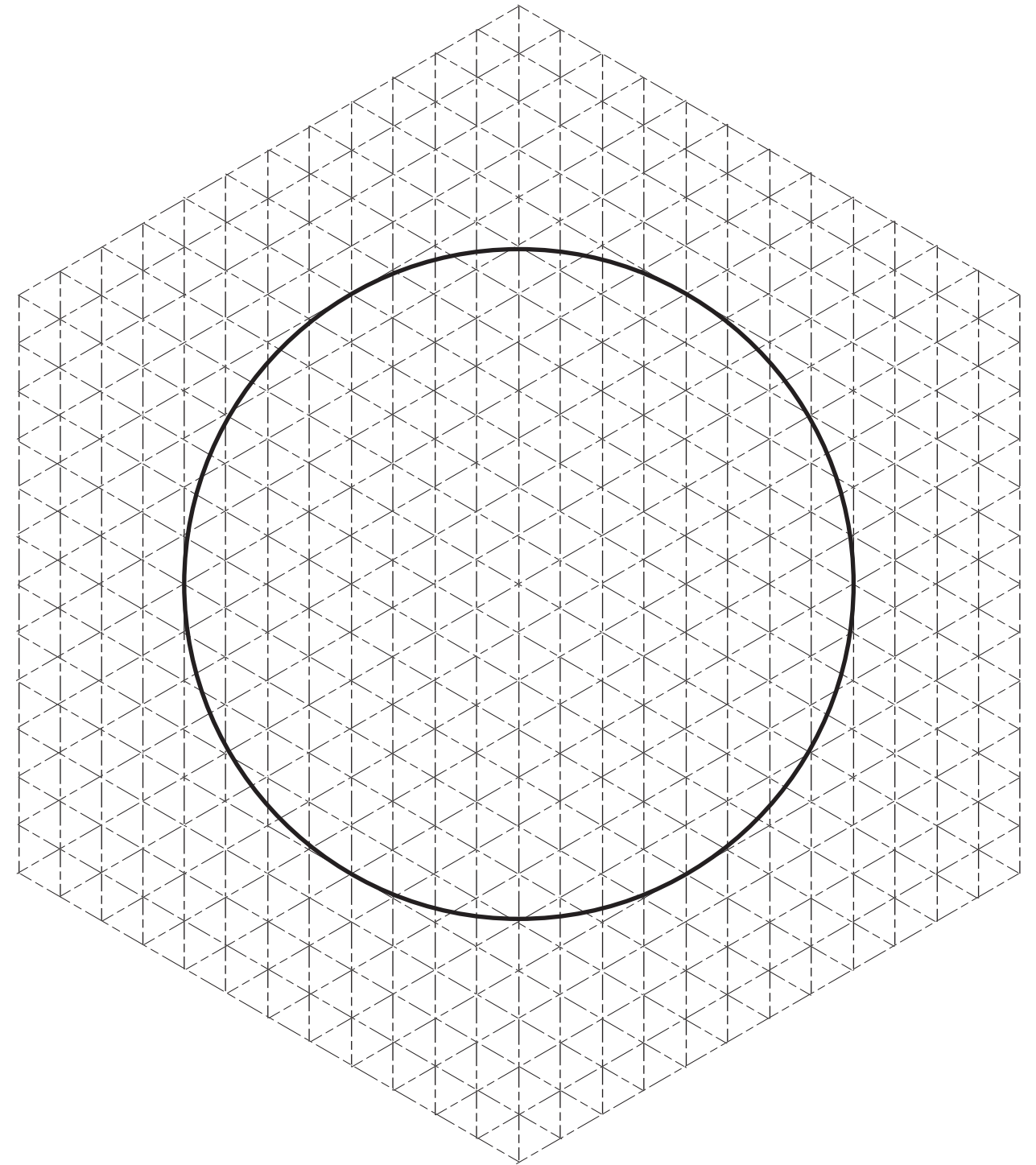
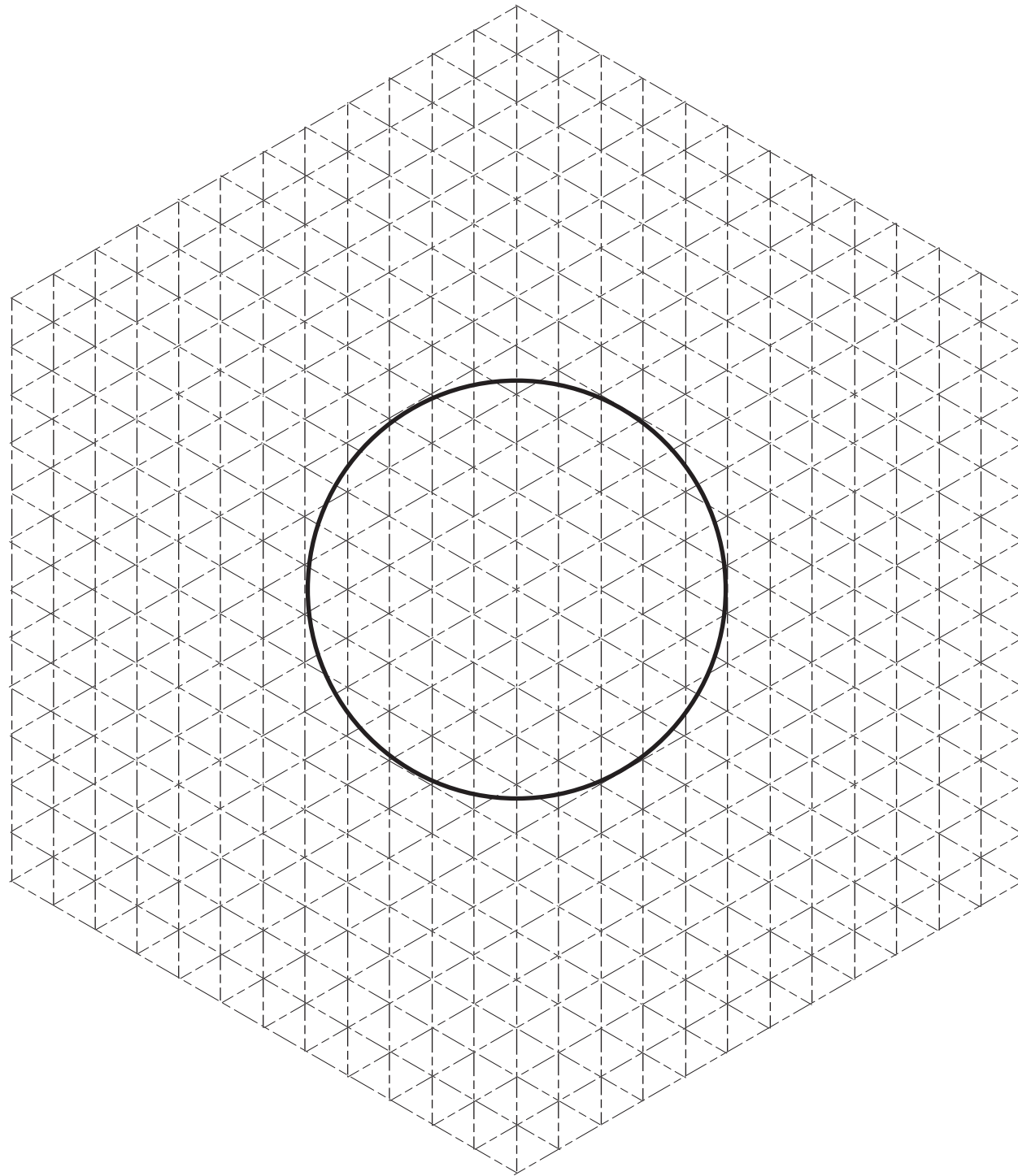
**SPIRAL STAIRS**  
INSIDE



**SPIRAL STAIRS**  
INSIDE + OUTSIDE (EXISTING)

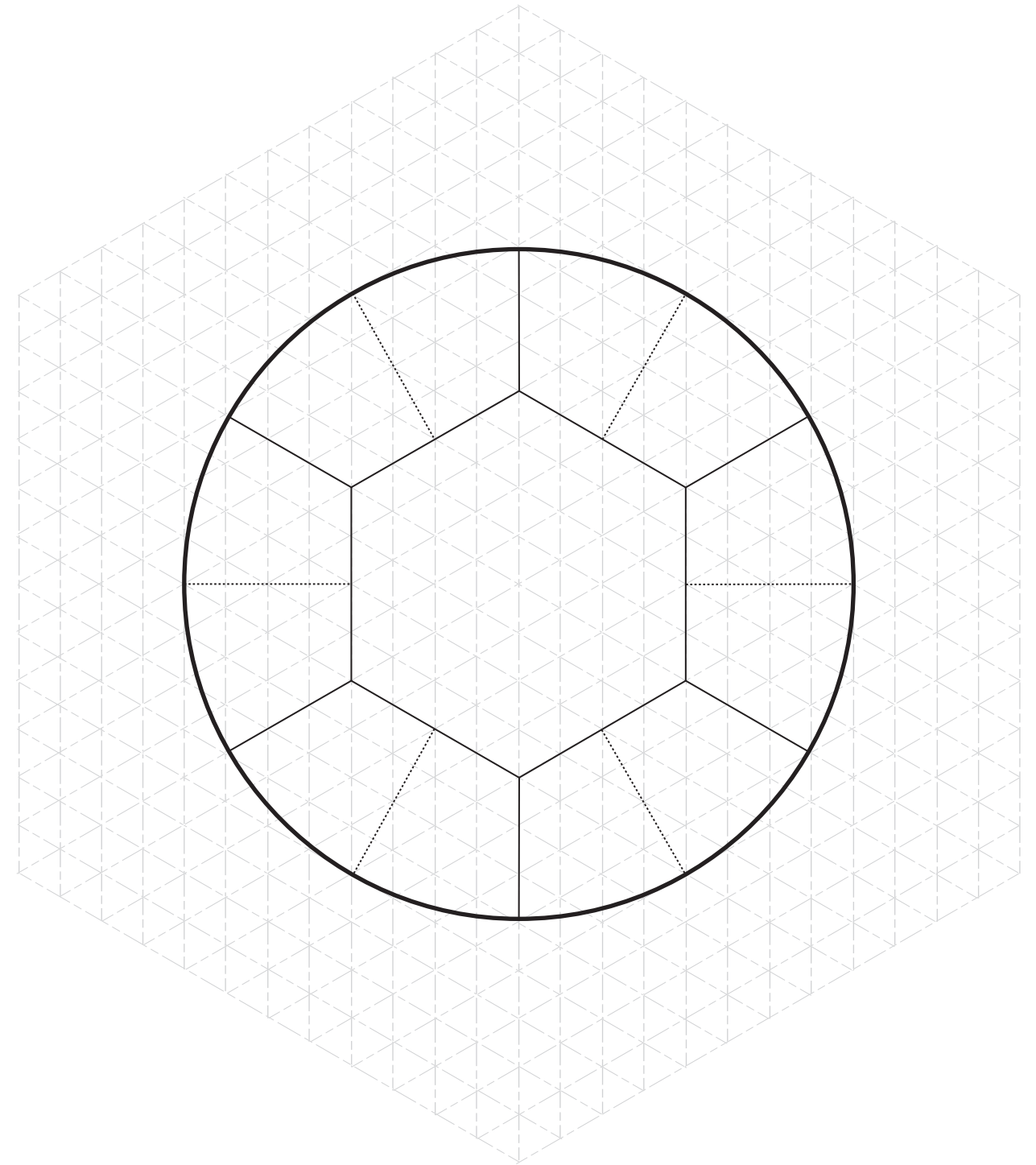
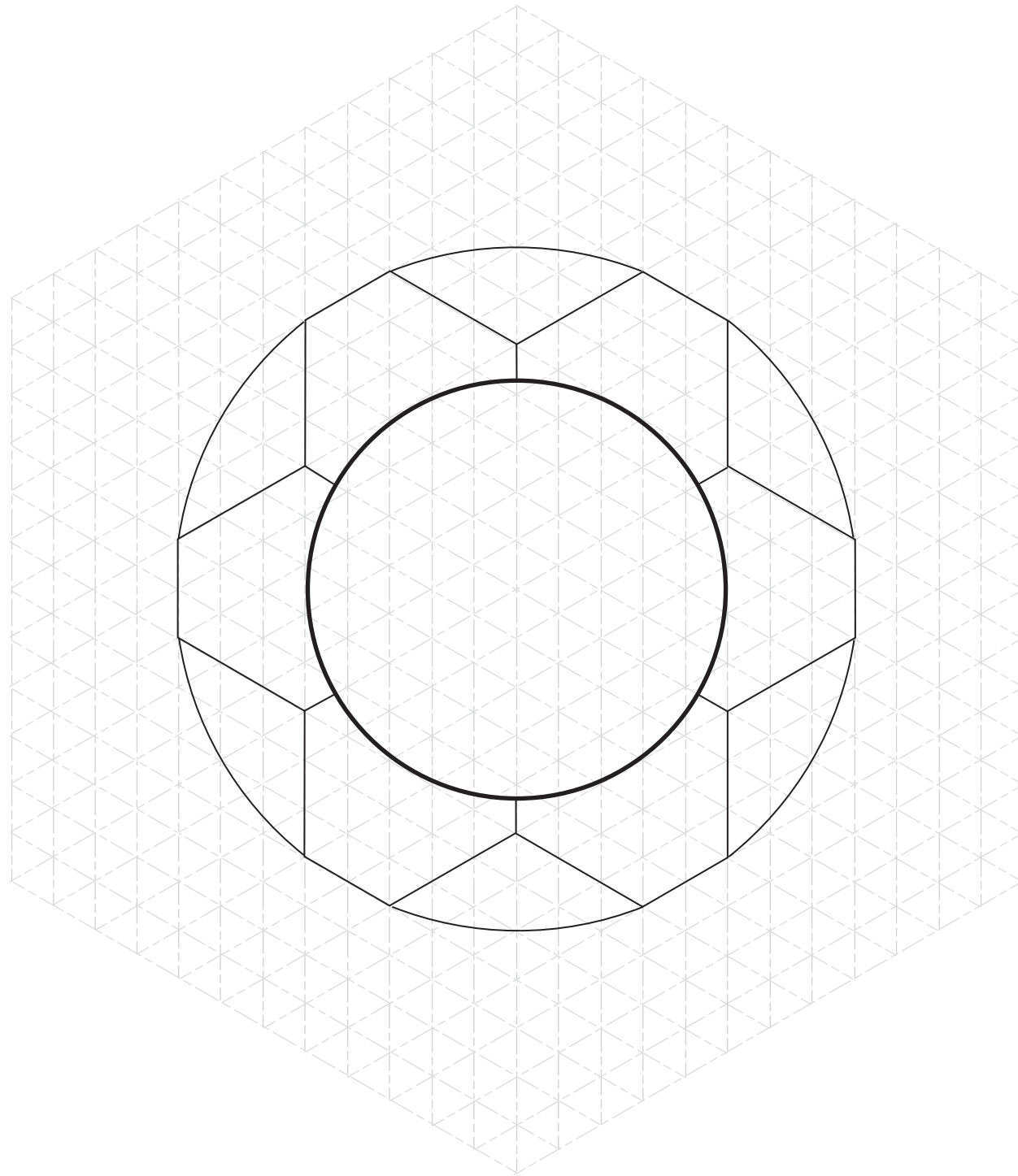


# One grid system



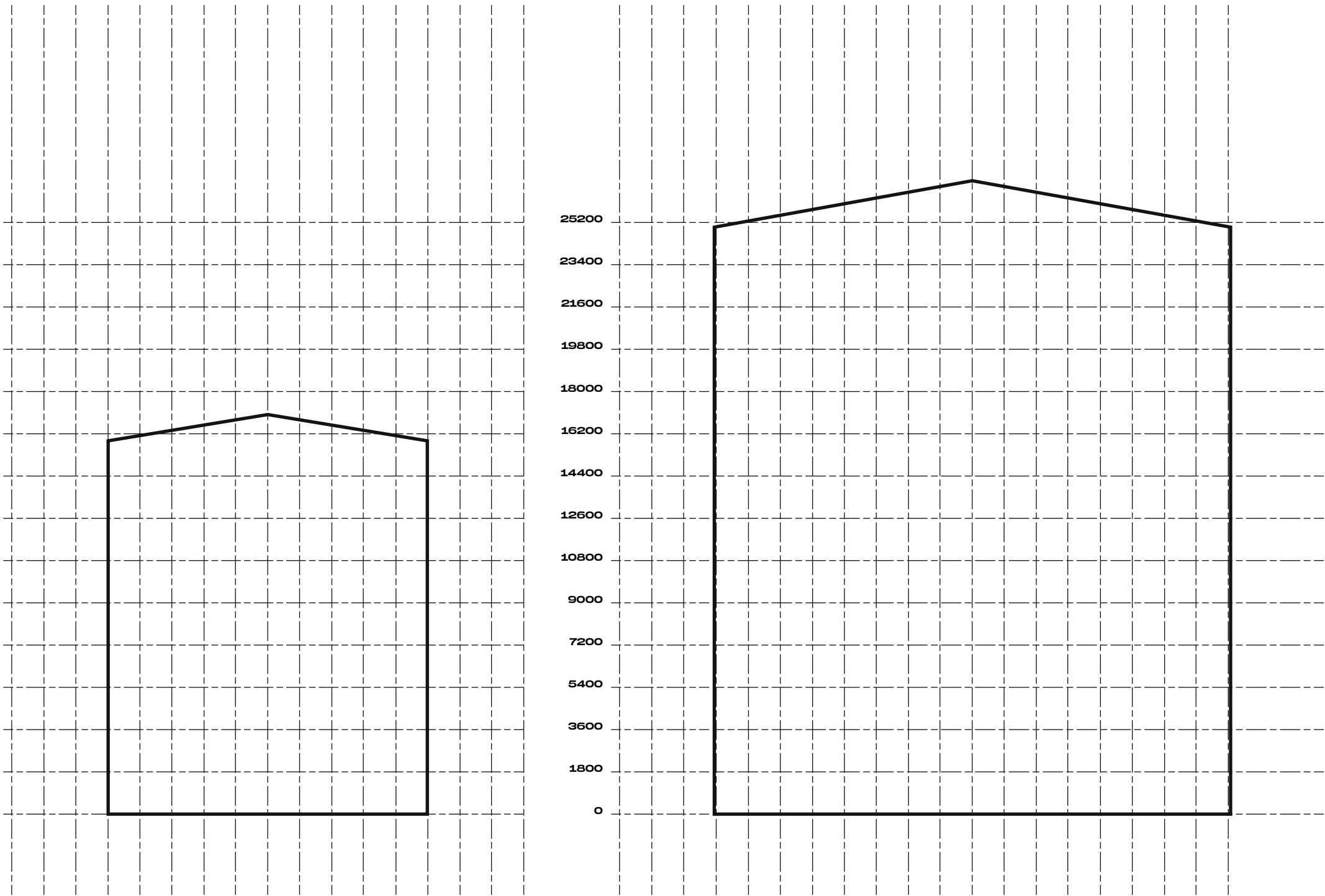


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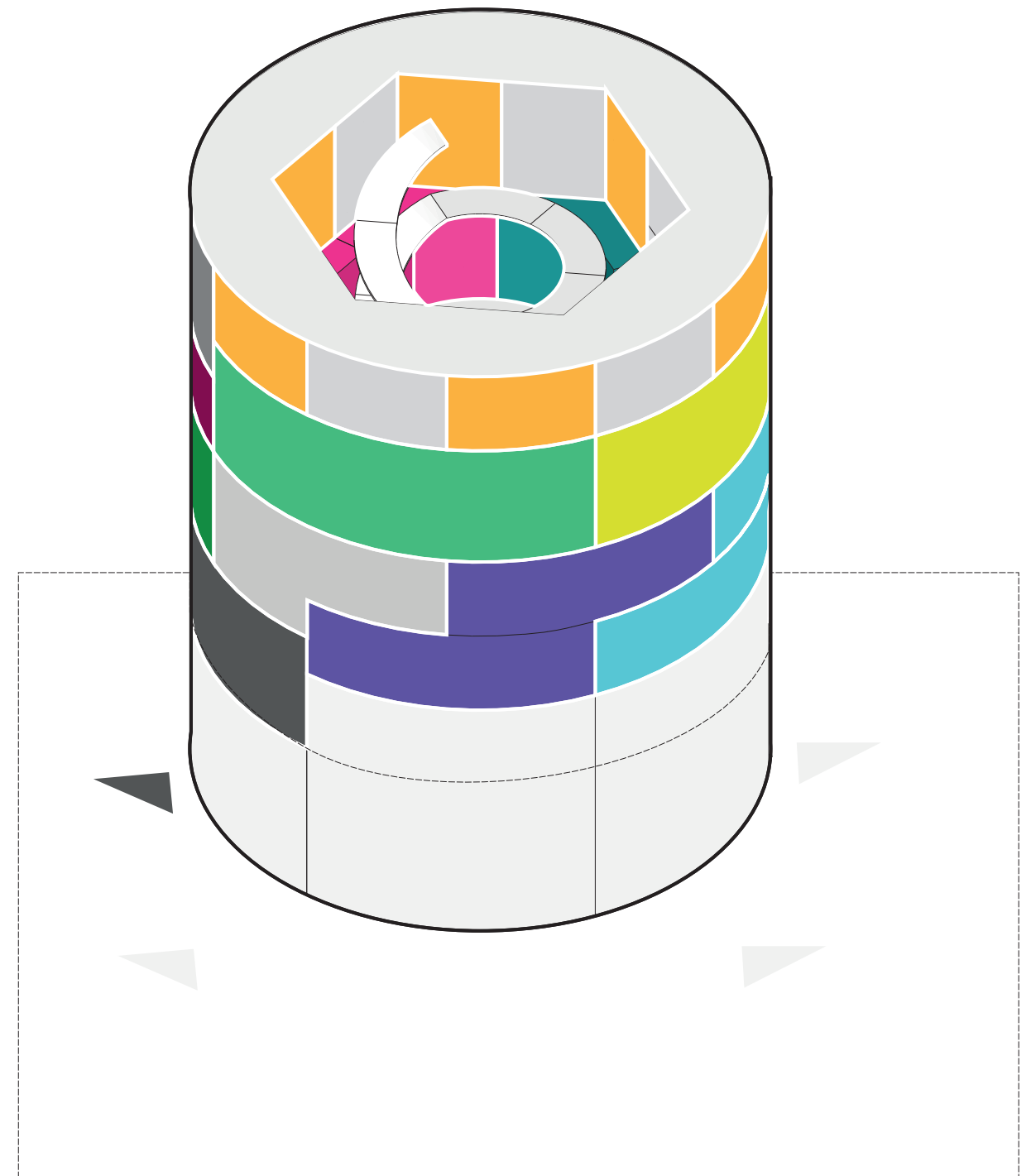
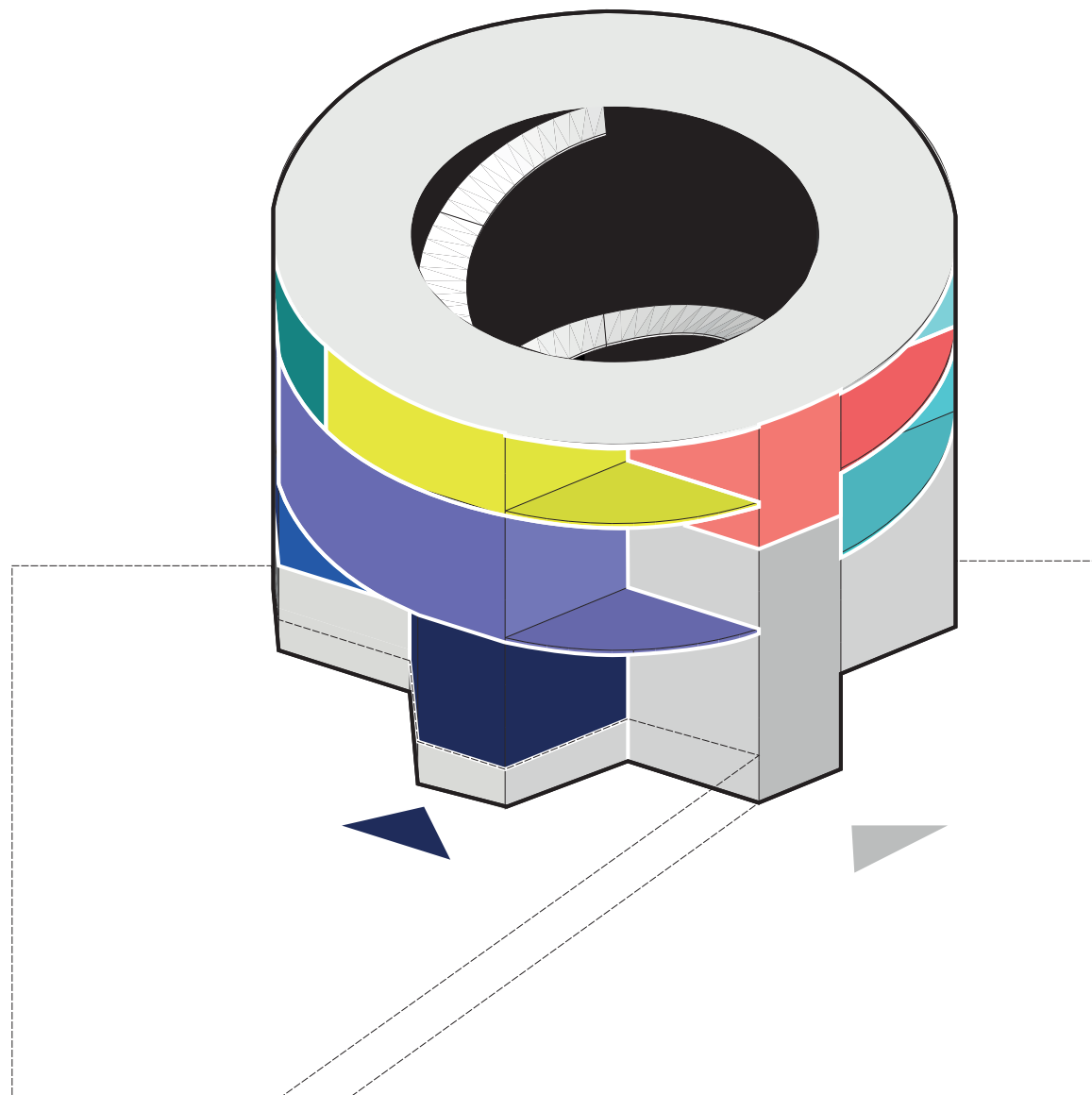


# One grid system



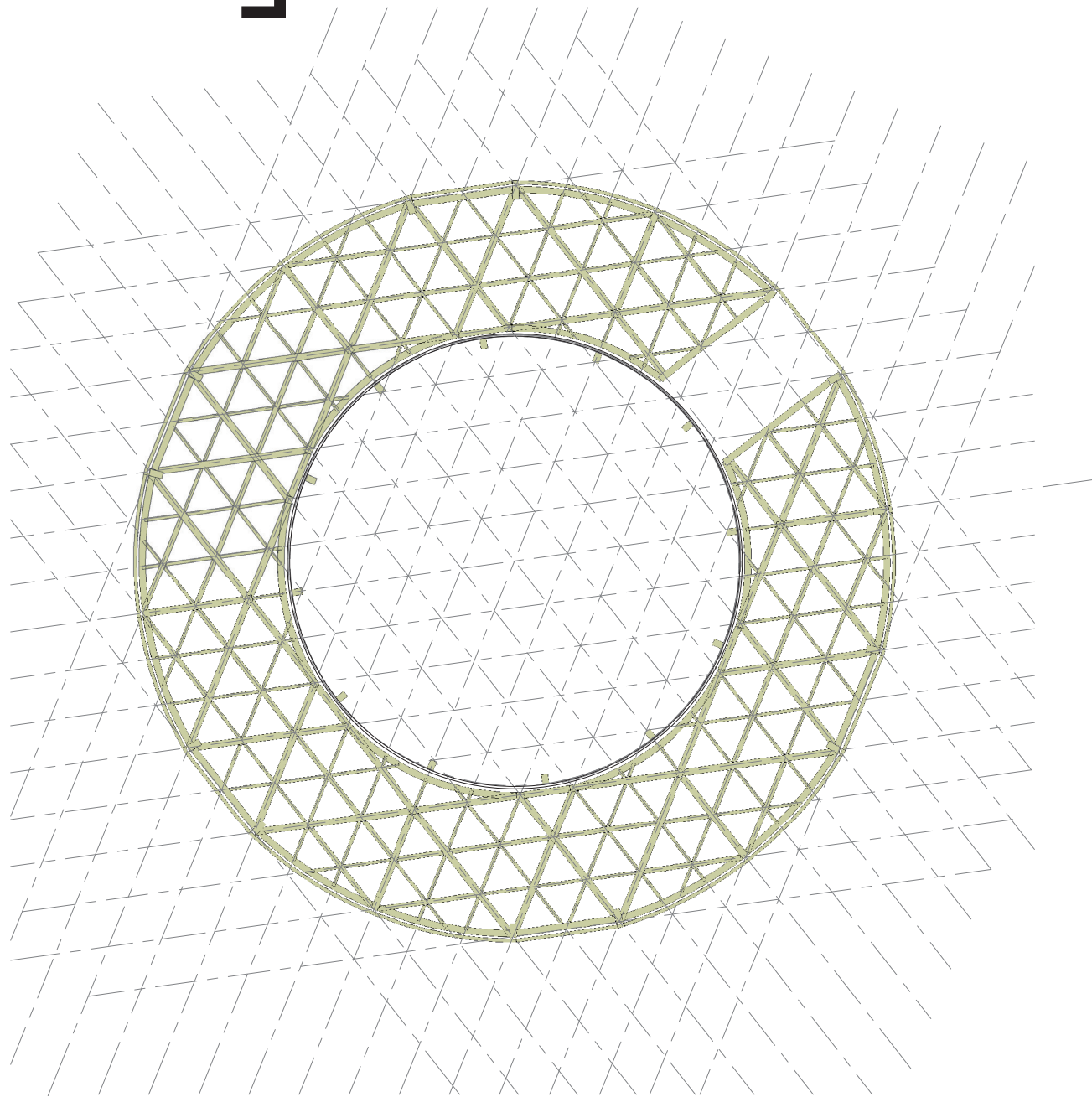


# One grid system

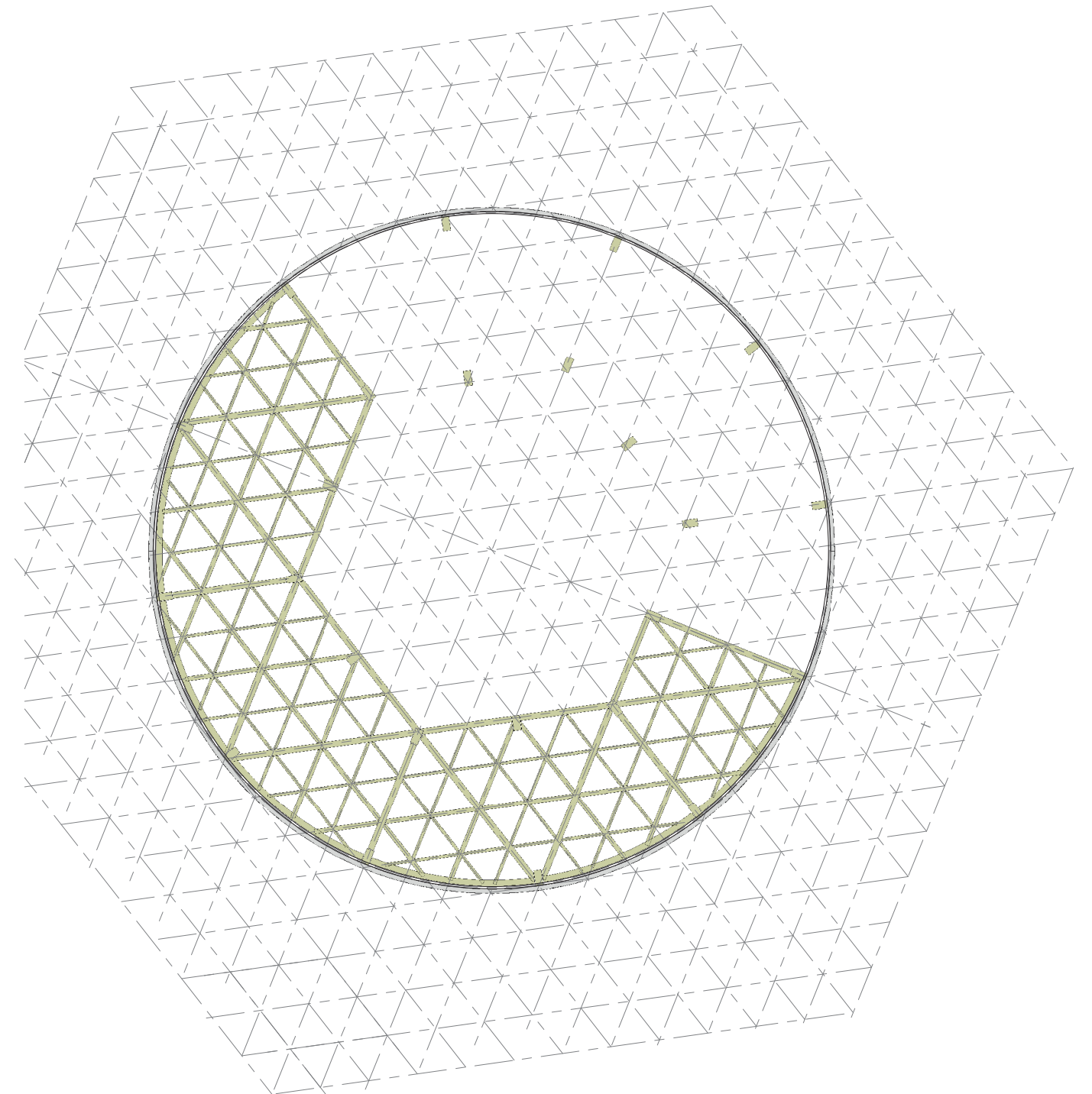




# One grid system



**MAIN-B1**  
12600



**MAIN-A1**  
10800



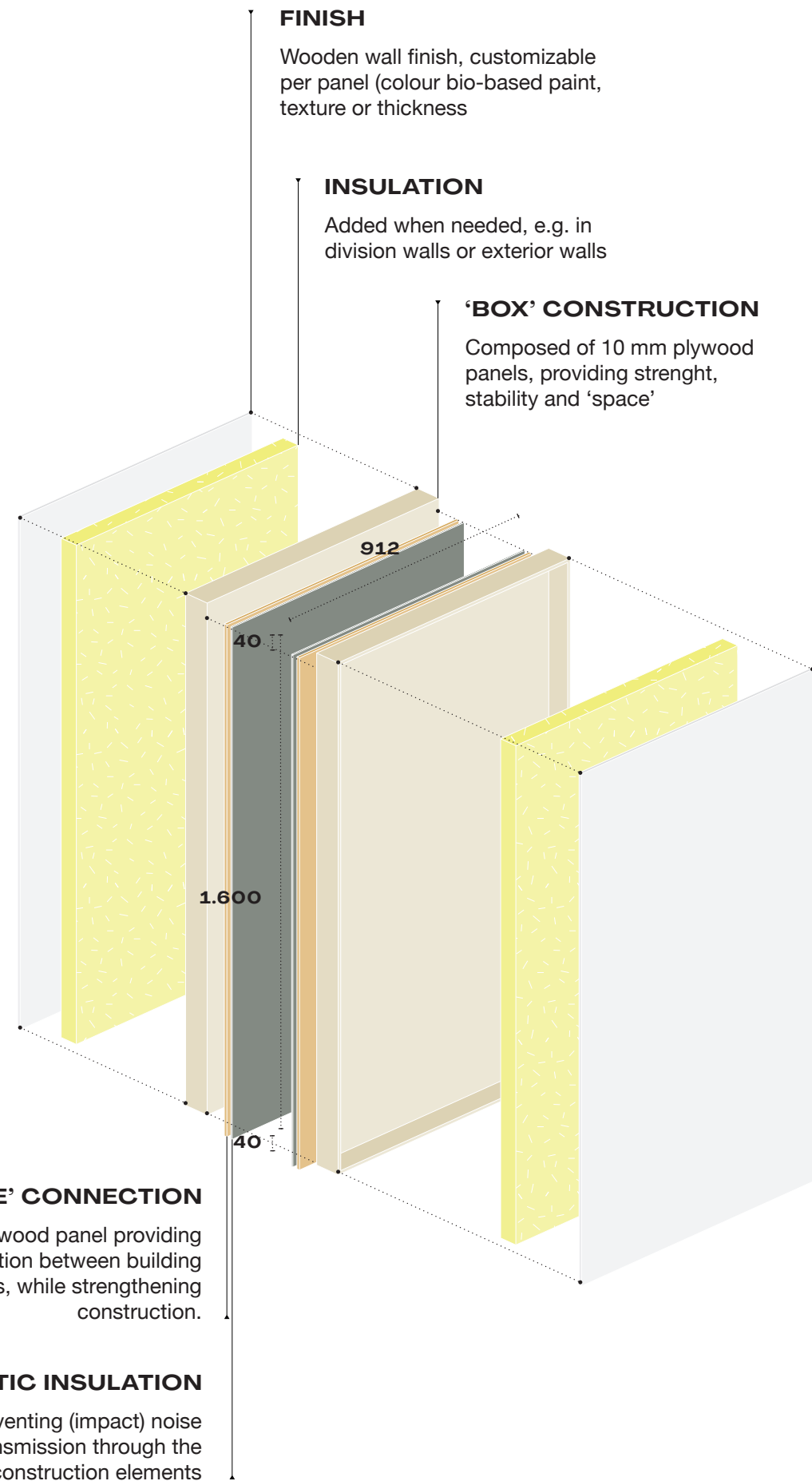
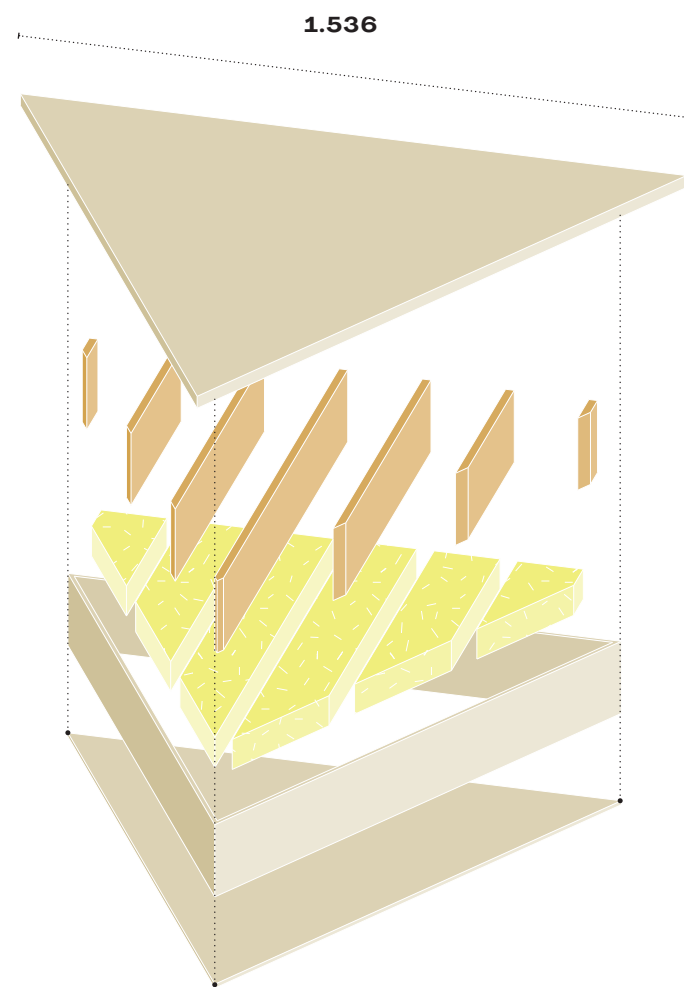


And that was one of the fundamental principles of the Segal process: **that houses are flexible to adapt to you, and you don't have to adapt to a prescribed house.**

Walter Segal

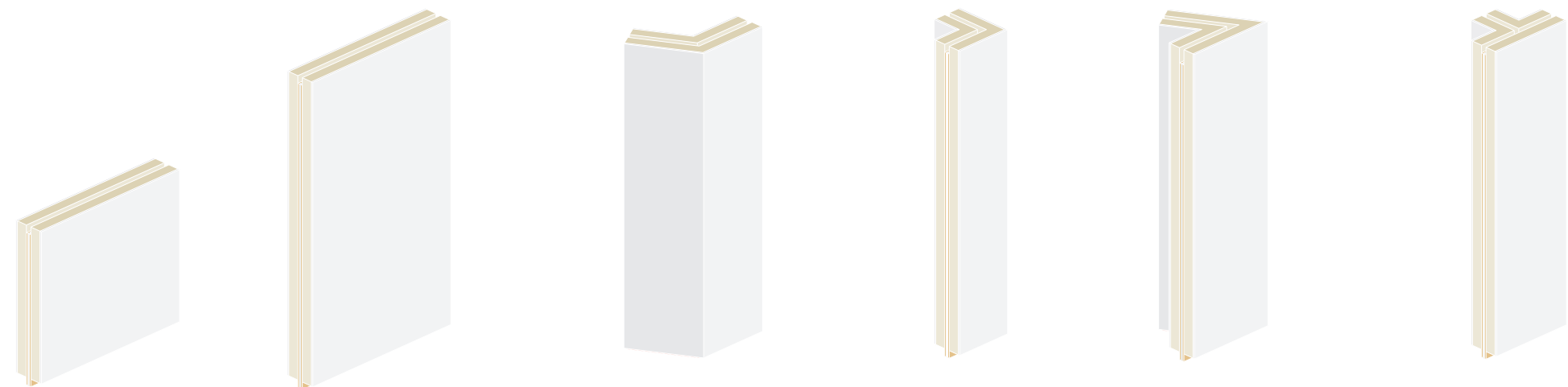


# One self-buildable system

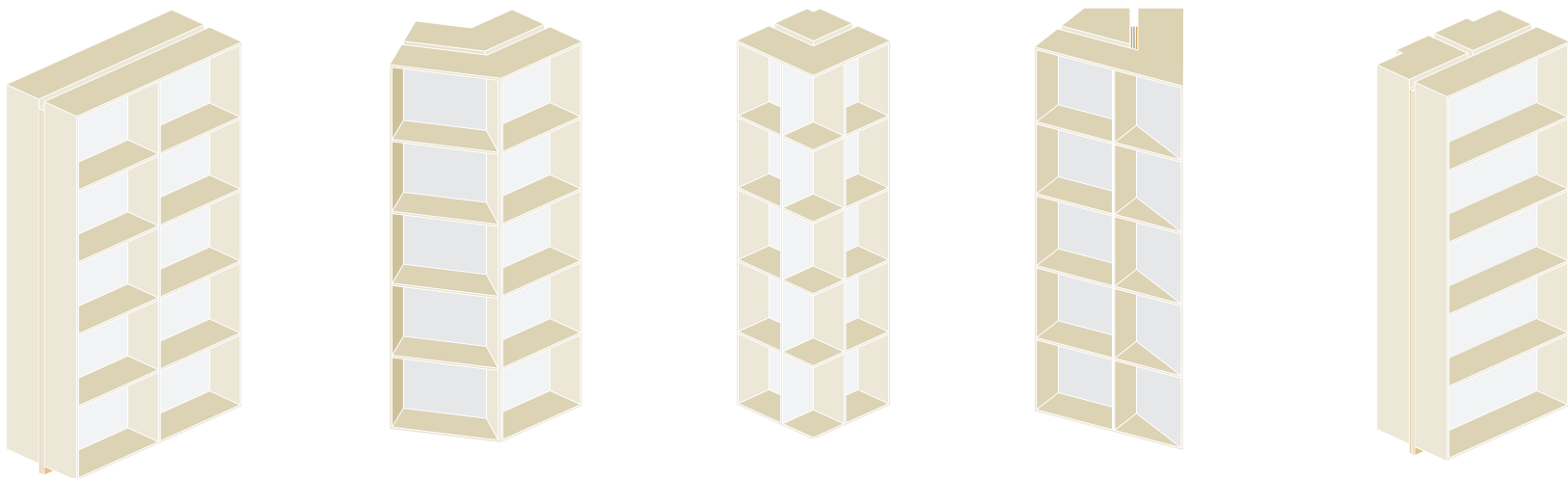




WALL PANELS



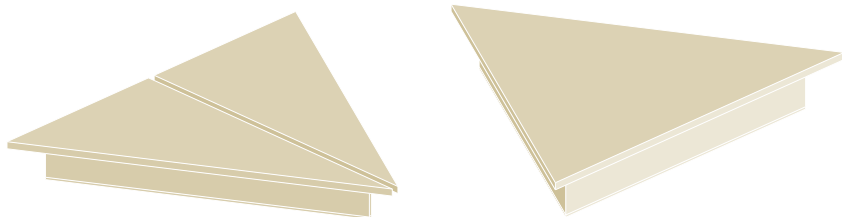
CUPBOARD WALL  
PANELS



WINDOWS + DOORS  
PANELS



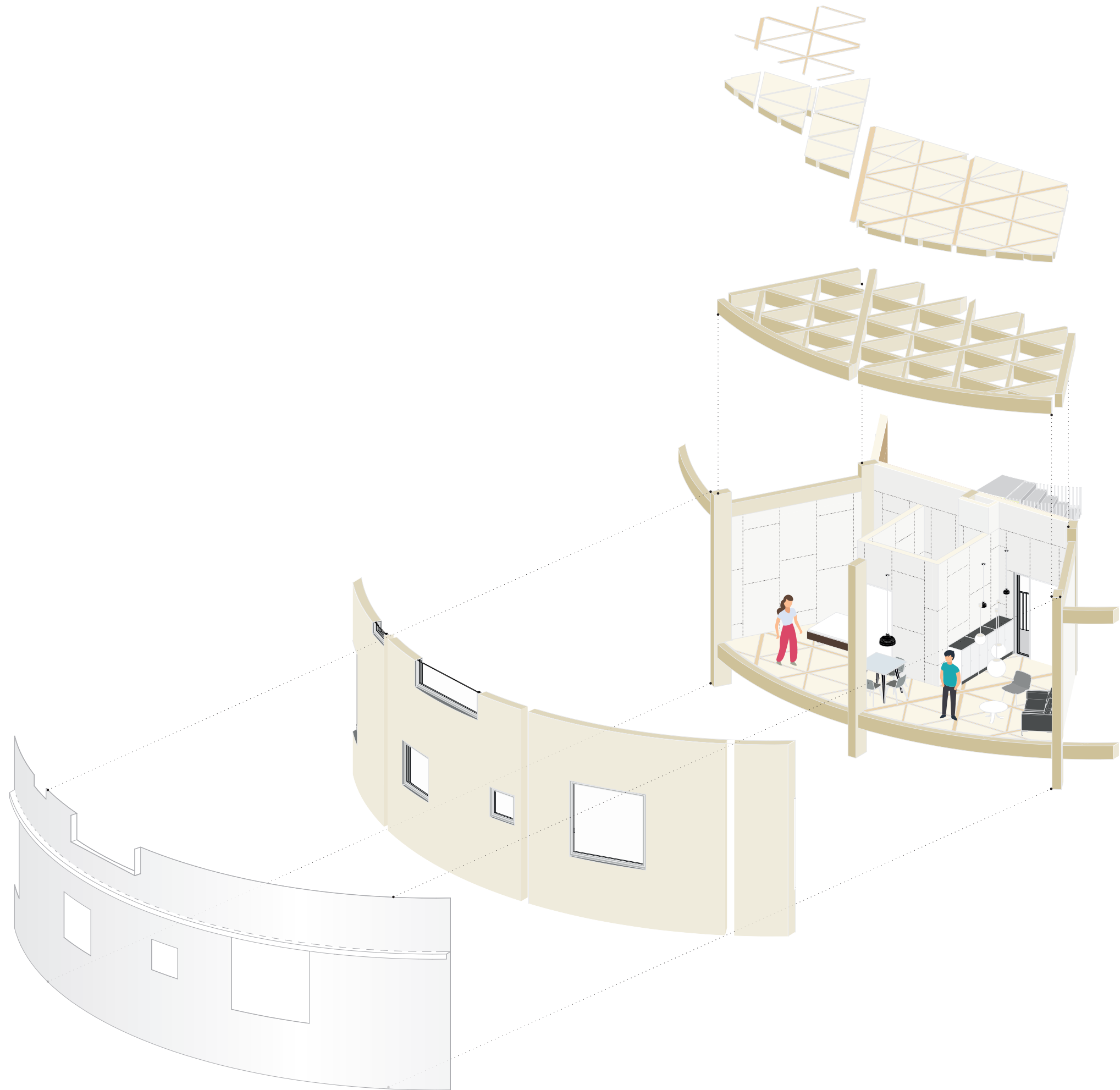
FLOORING ELEMENTS











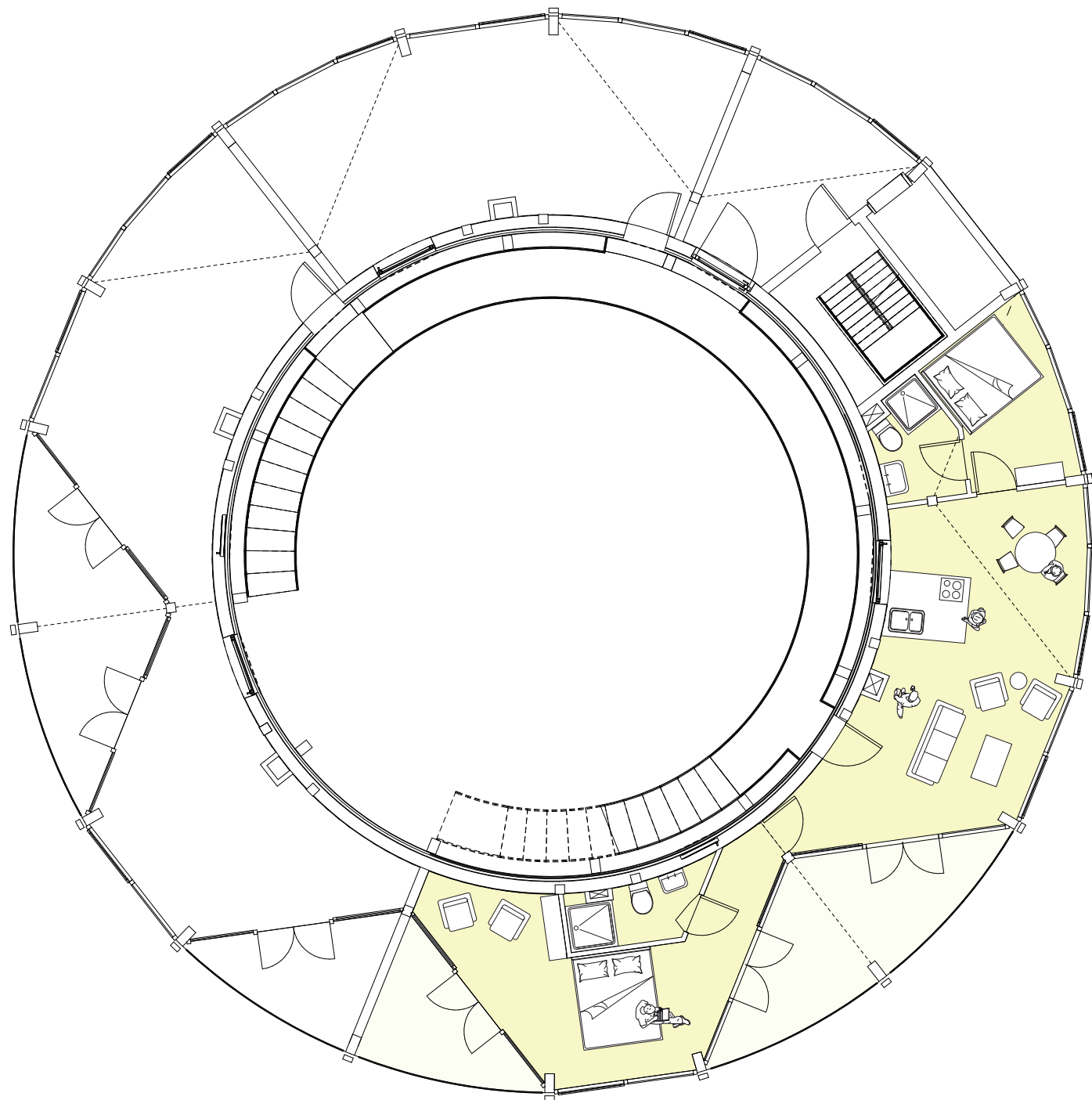




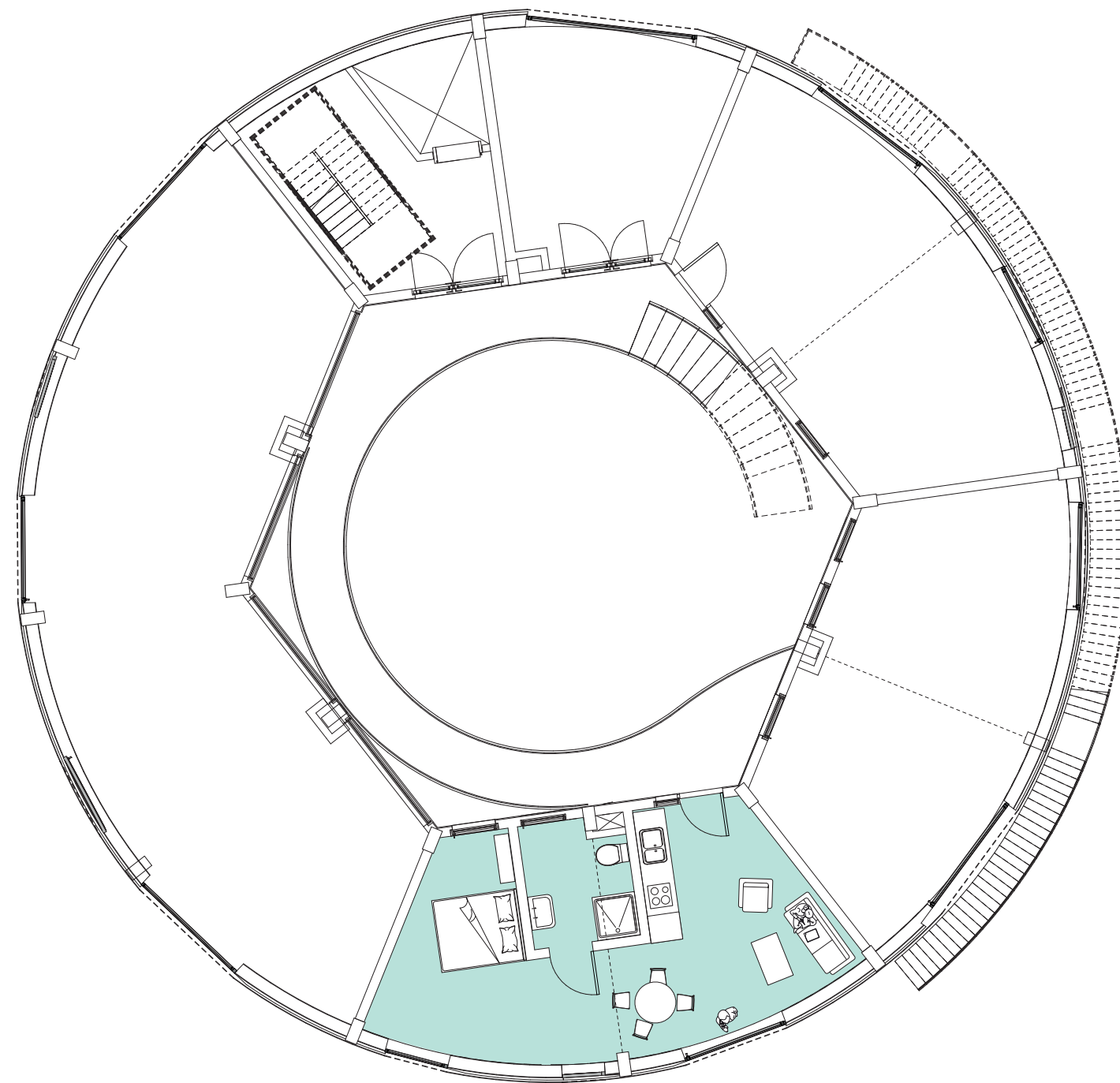
A SELF-BUILT INTERIOR

**2025**



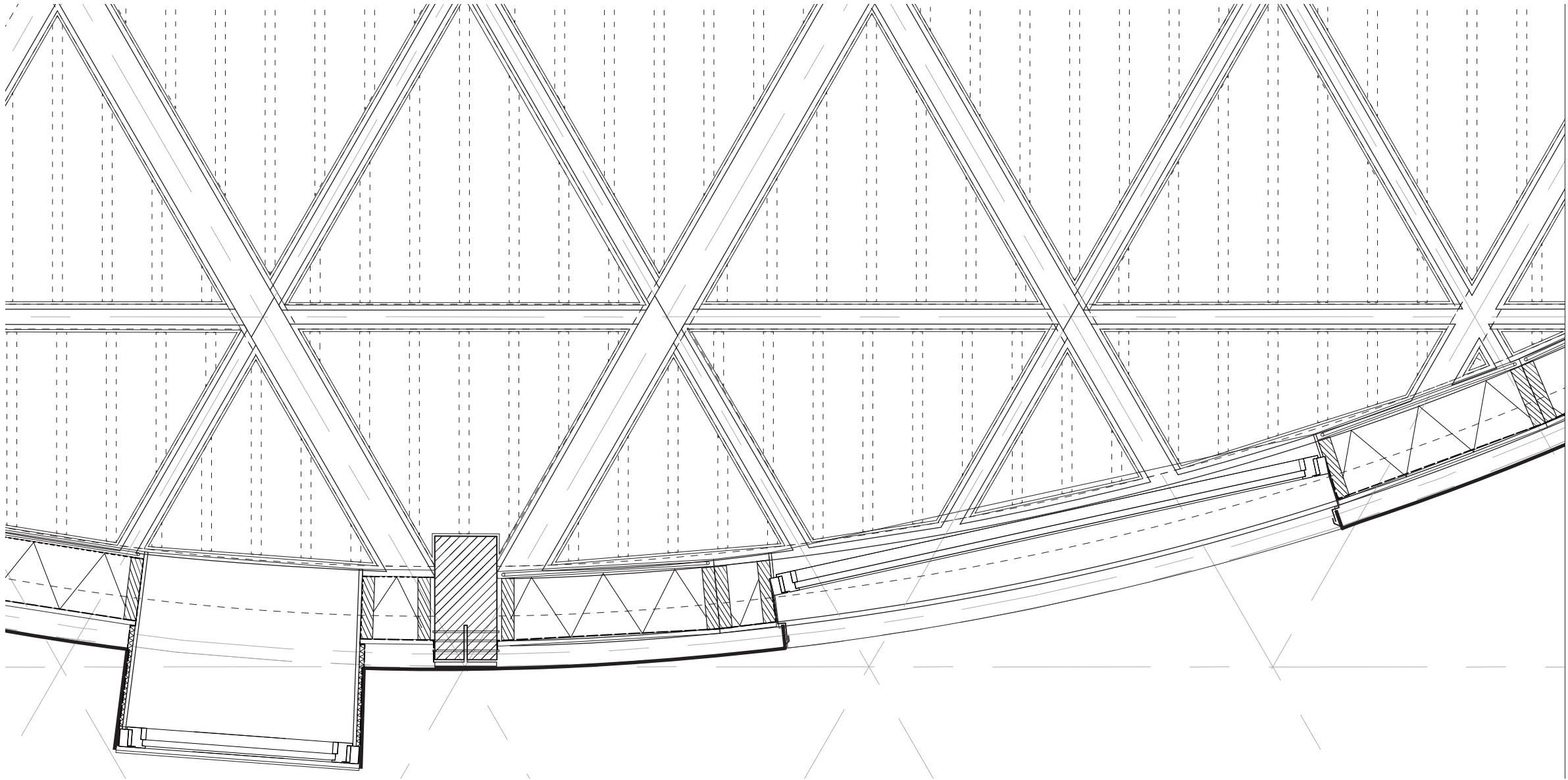


**MAIN-B1**  
71 M<sup>2</sup>  
LEVEL 9000

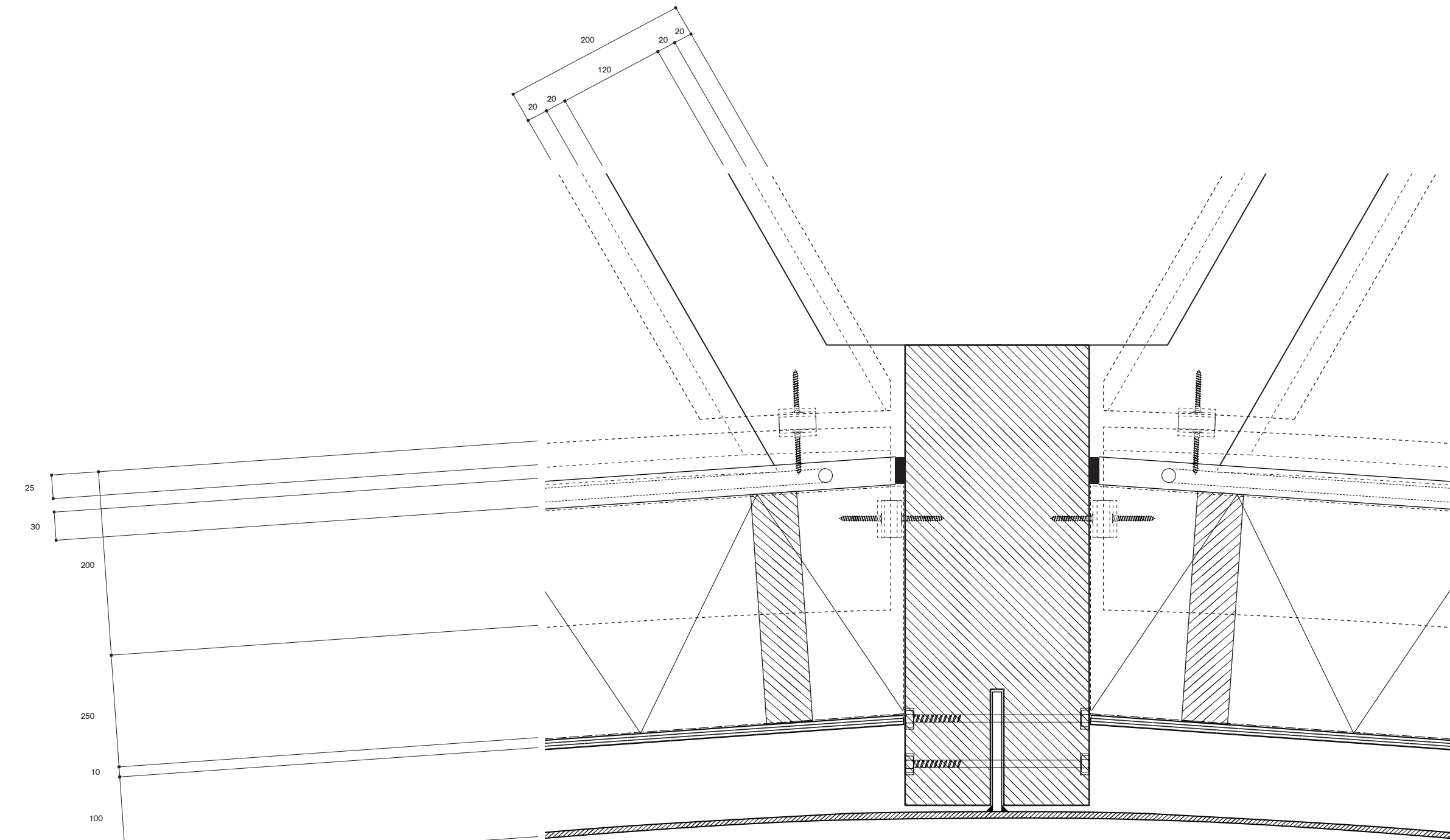


**MAIN-A1**  
45 M<sup>2</sup>  
LEVEL 7200

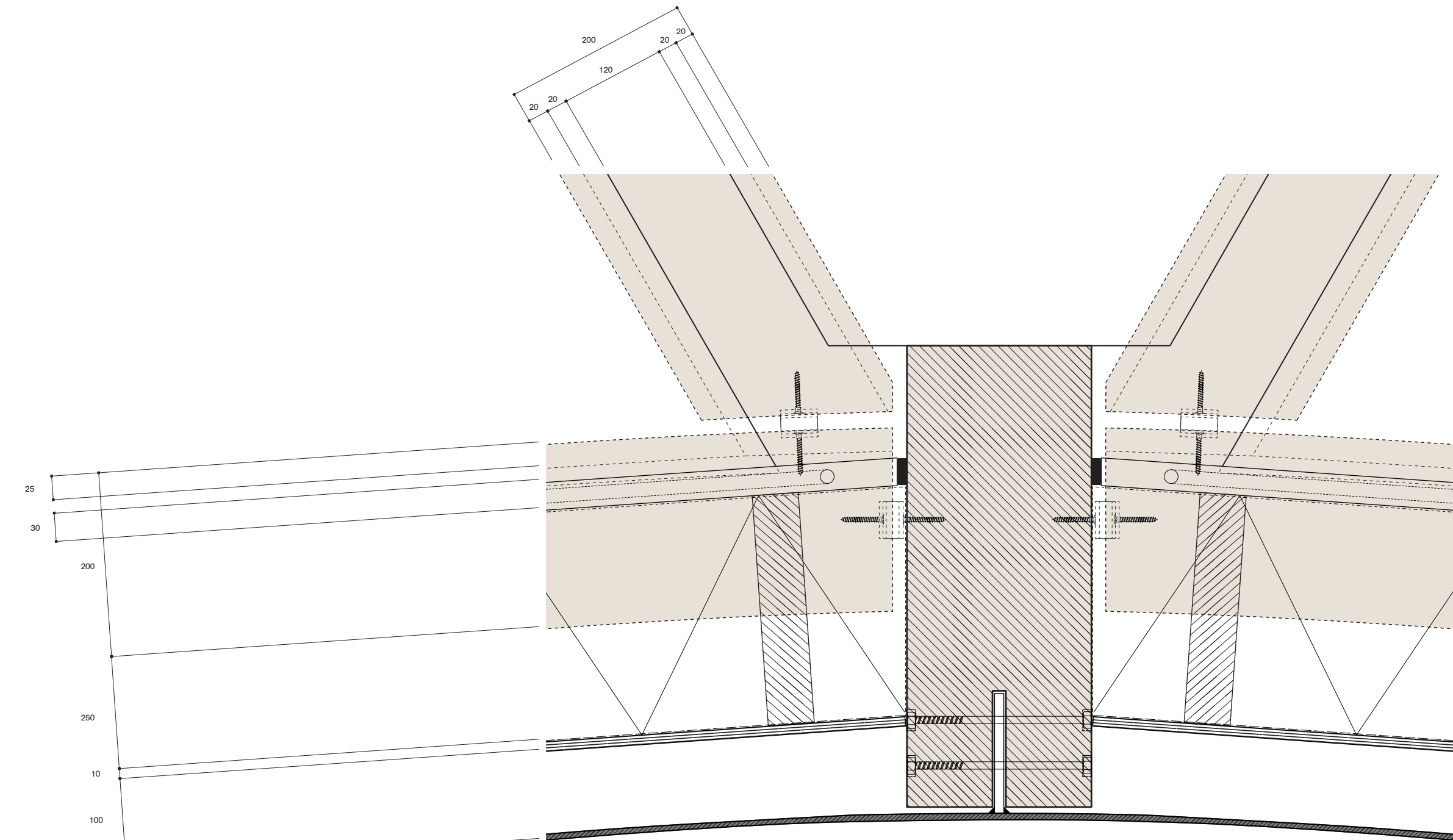






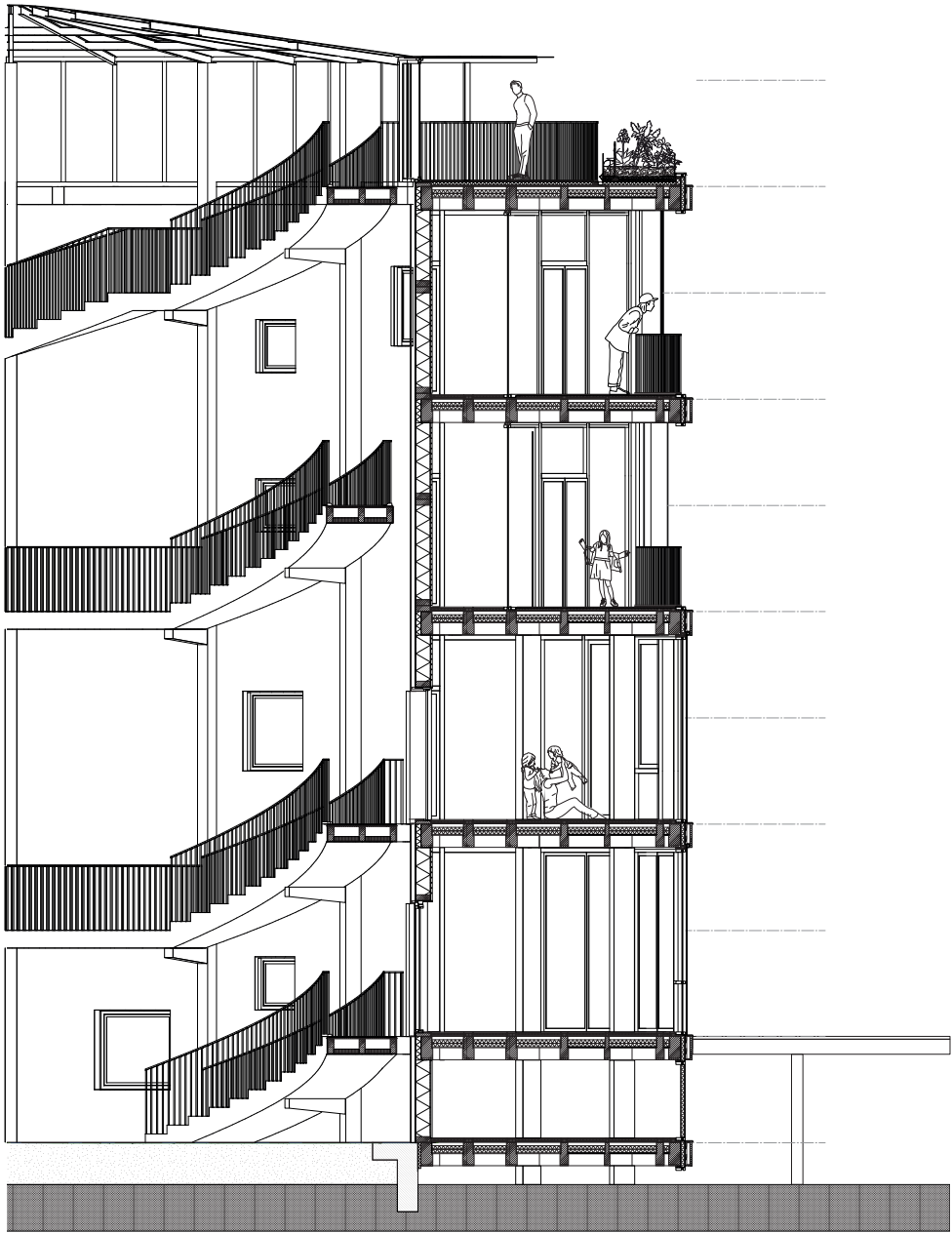




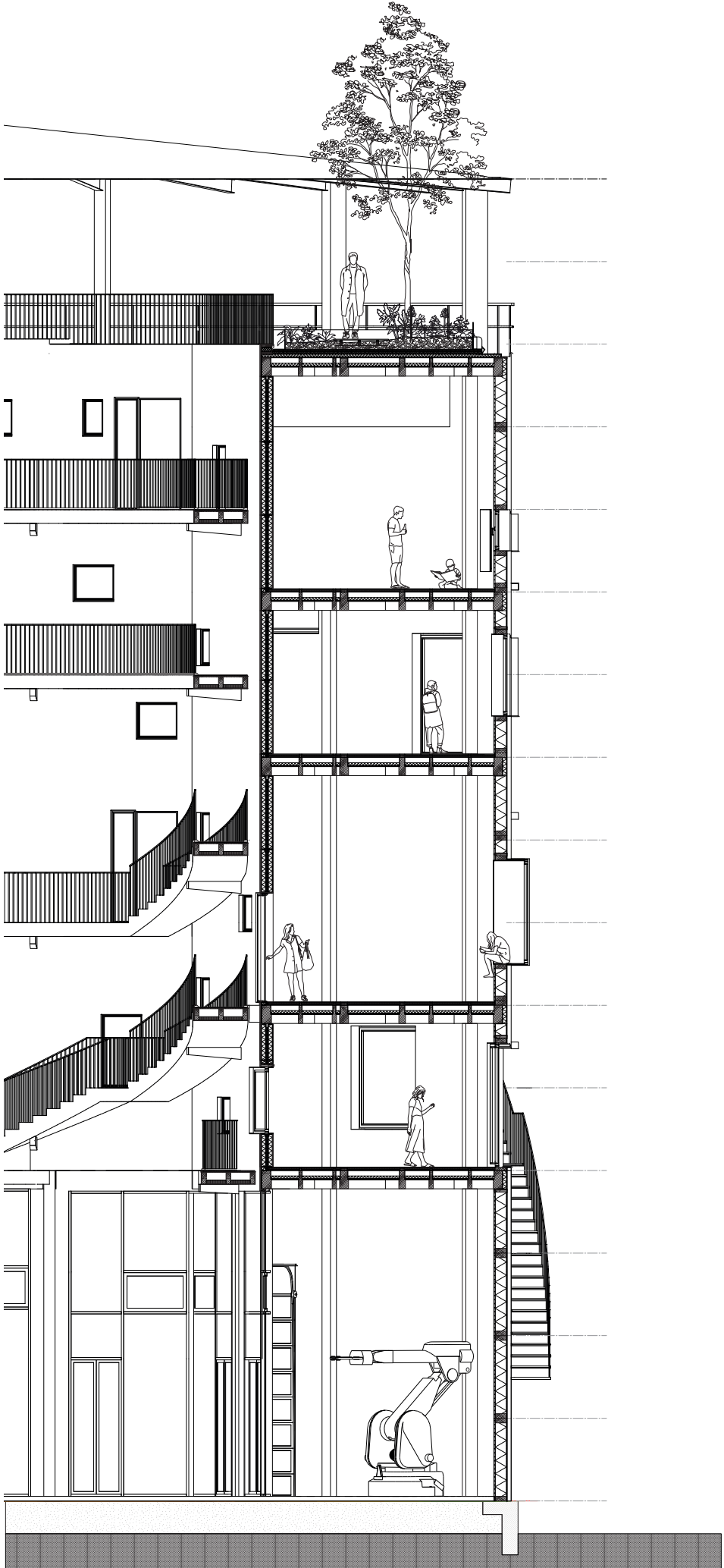




**MAIN-B1**  
EXTRAVERT

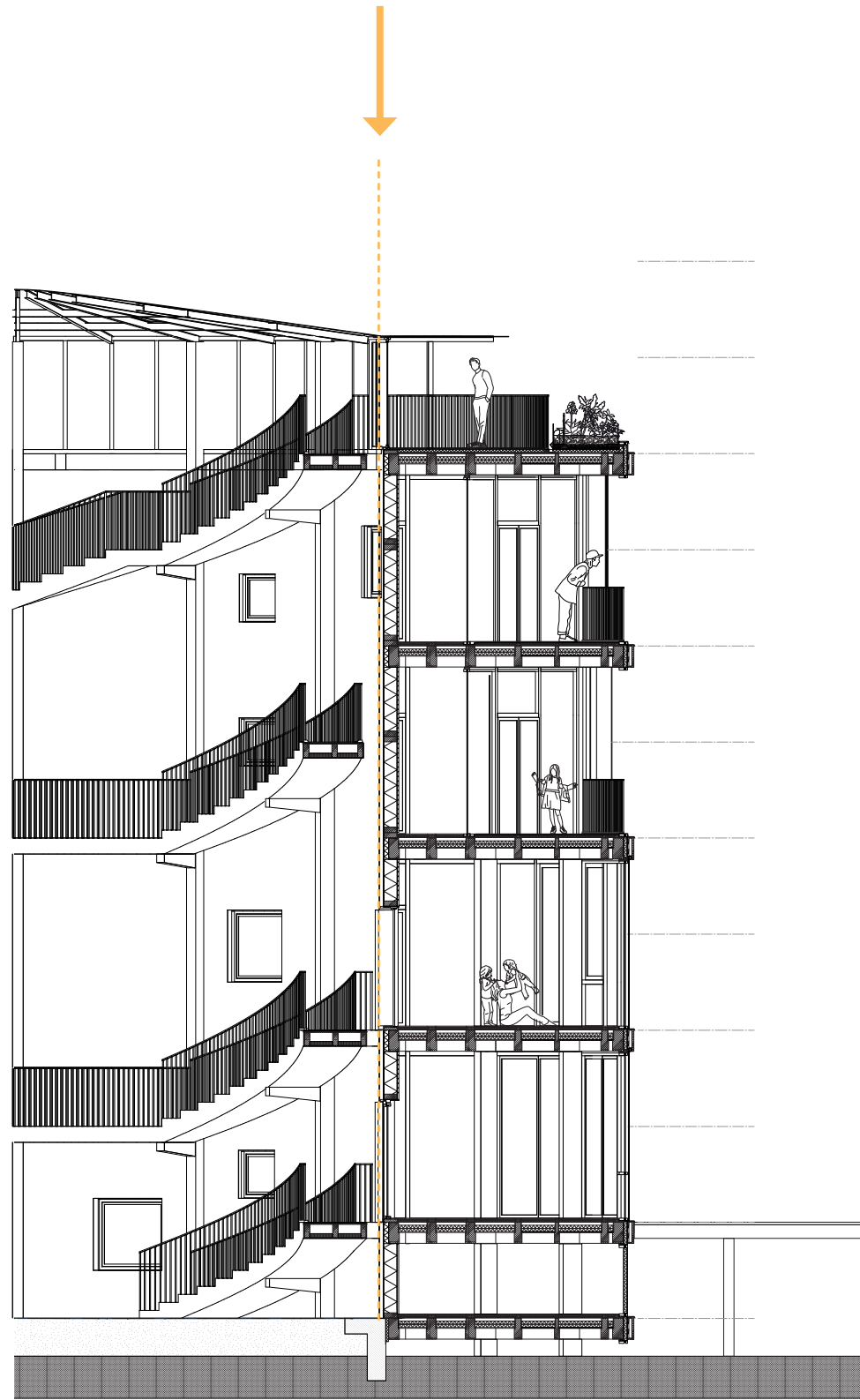


**MAIN-A1**  
INTROVERT

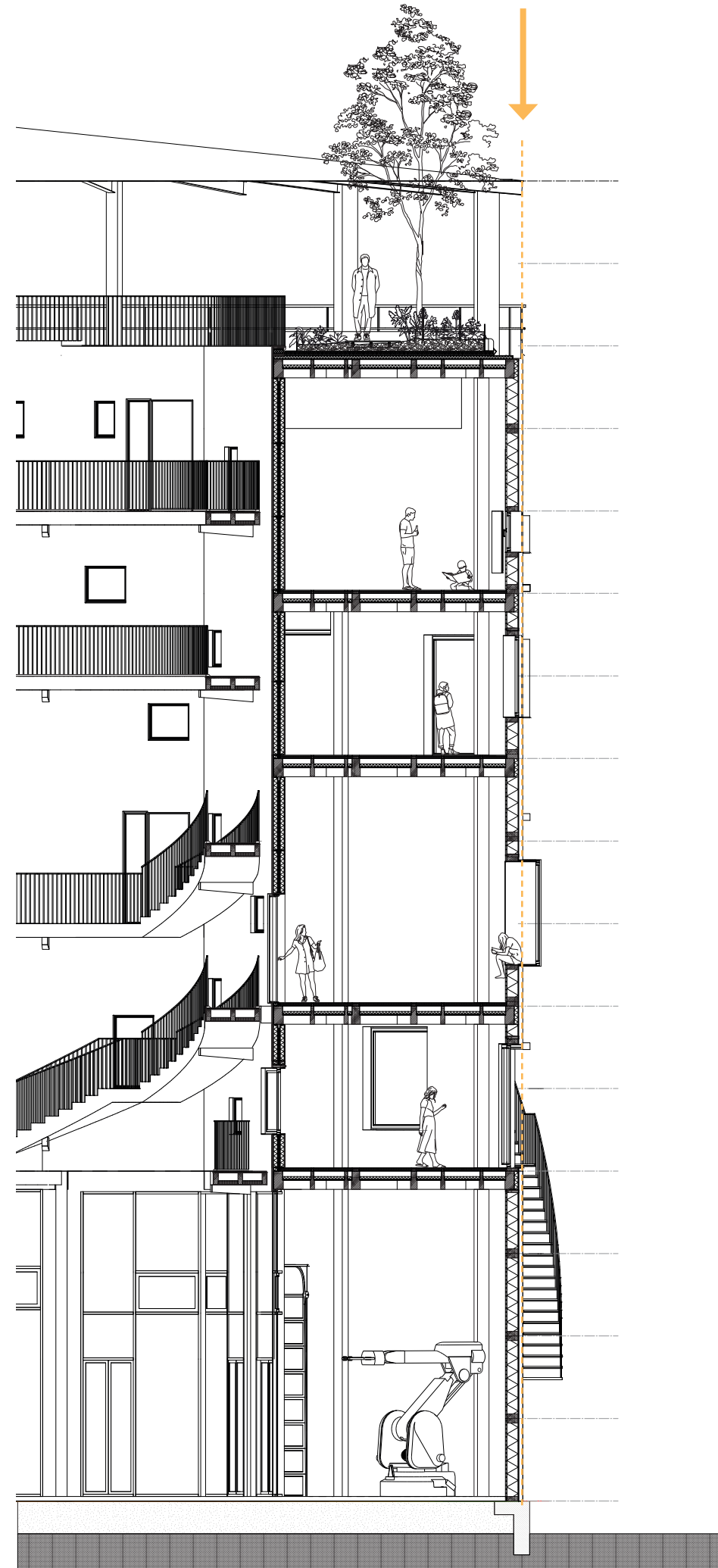




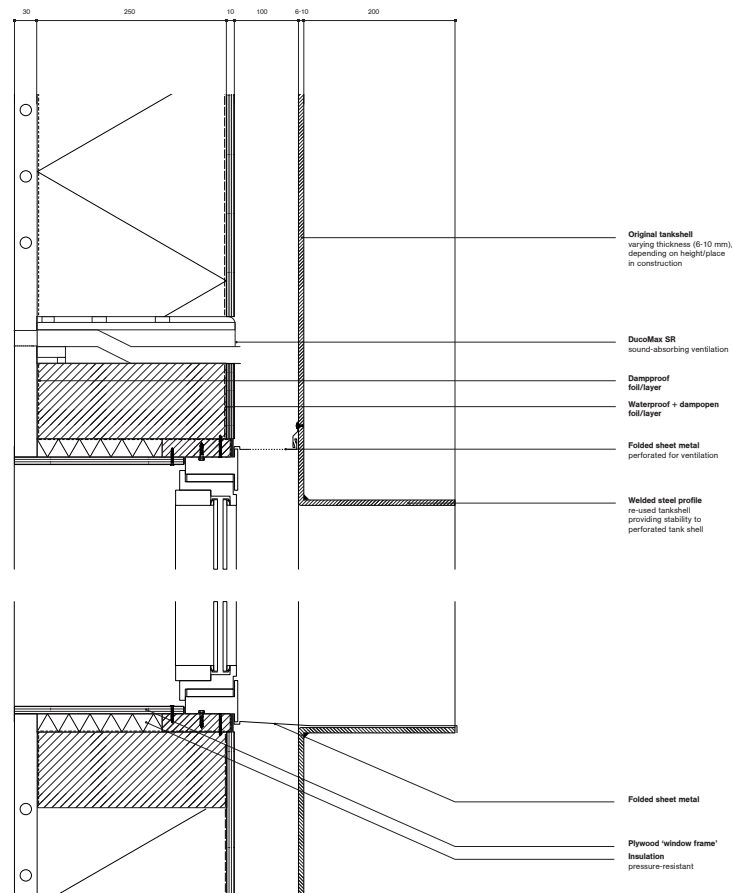
**MAIN-B1**  
EXTRAVERT



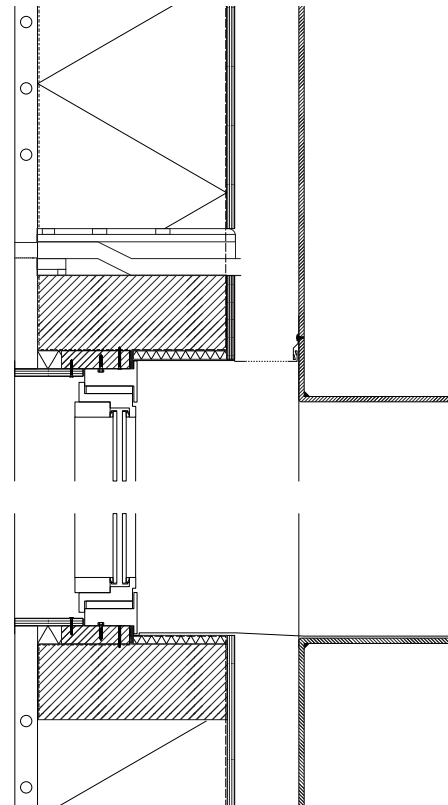
**MAIN-A1**  
INTROVERT



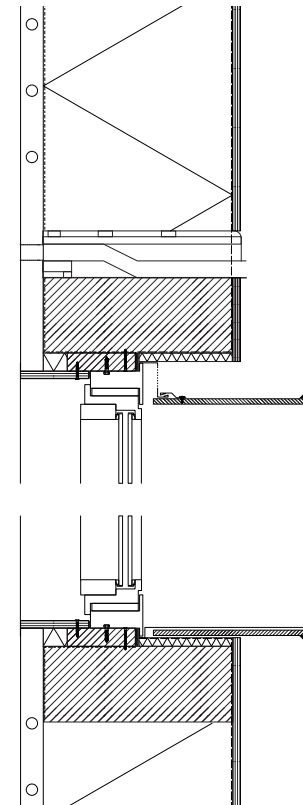




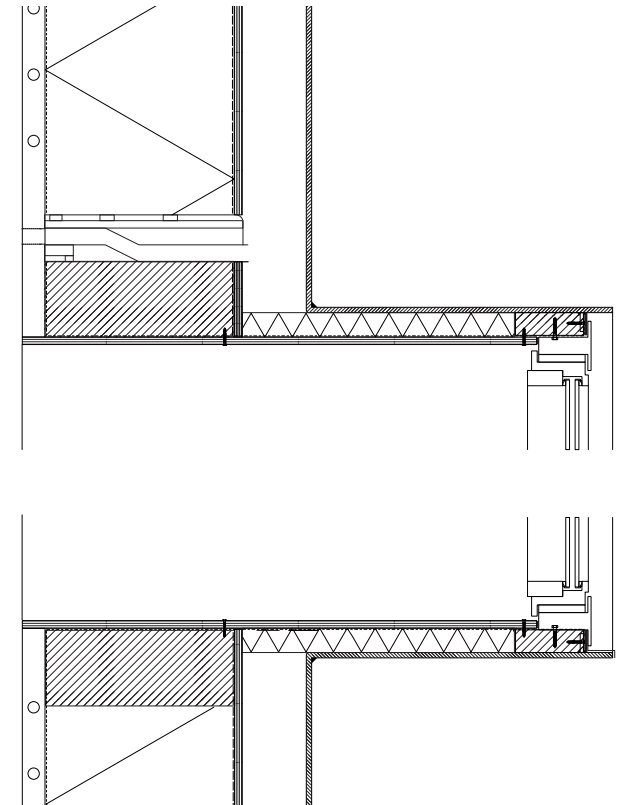
**OPENING WINDOW MID**  
TANKSHELL OUT  
1:10 | VERTICAL



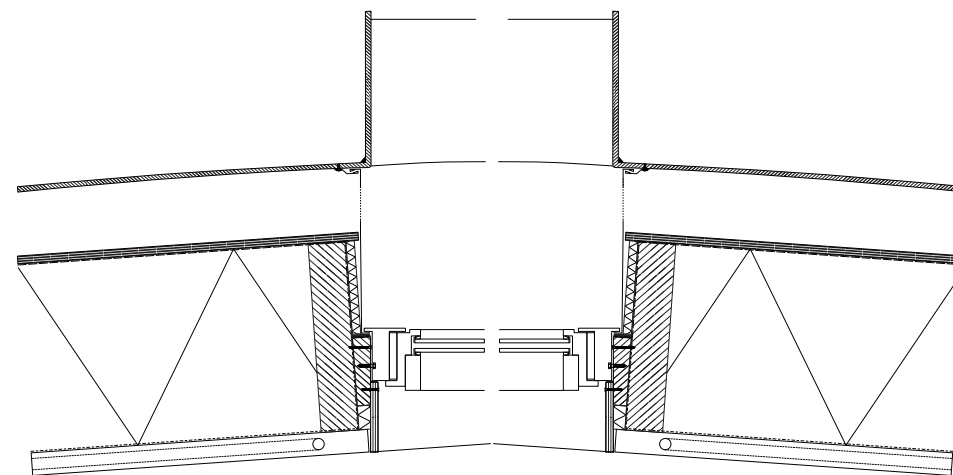
**OPENING WINDOW IN**  
TANKSHELL OUT  
1:10 | VERTICAL



**OPENING WINDOW IN**  
TANKSHELL IN  
1:10 | VERTICAL



**OPENING WINDOW OUT**  
TANKSHELL OUT  
1:10 | VERTICAL



**OPENING WINDOW IN**  
TANKSHELL OUT  
1:10 | HORIZONTAL





SAME SYSTEM, DIFFERENT APPEARANCE

**2025**

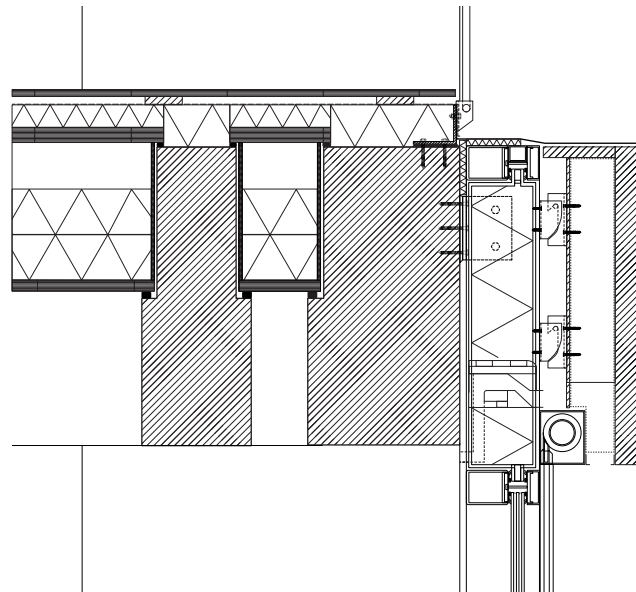




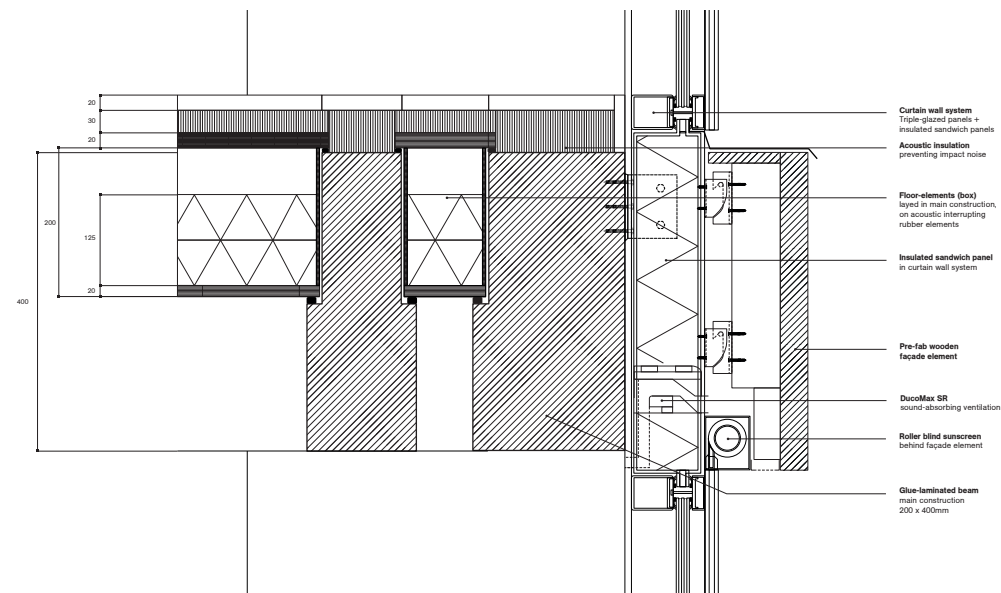
SAME SYSTEM, DIFFERENT APPEARANCE

**2025**



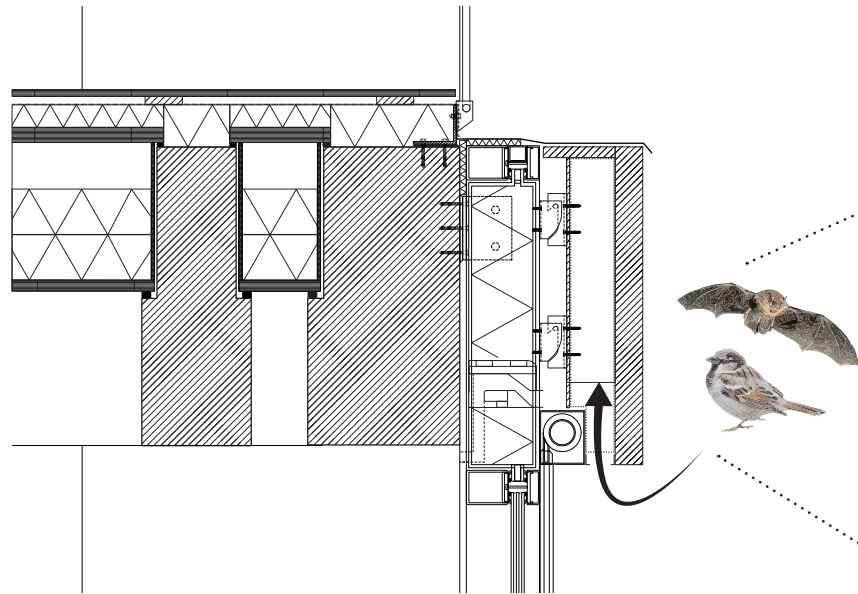


**CONNECTION FLOOR - FAÇADE (LOGGIA)**  
1:10 | VERTICAL

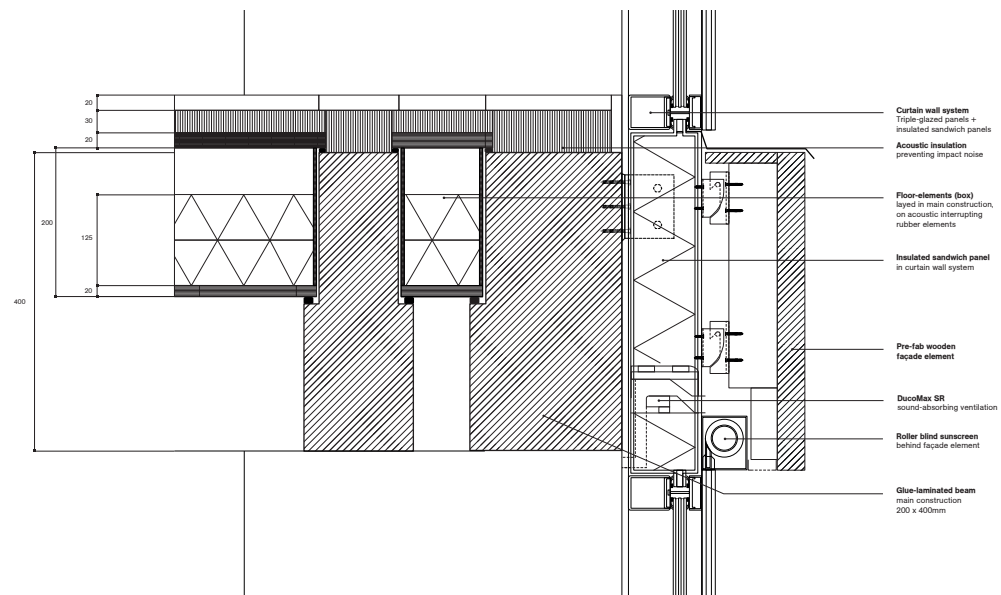


**CONNECTION FLOOR - FAÇADE**  
1:10 | VERTICAL





**CONNECTION FLOOR - FAÇADE (LOGGIA)**  
1:10 | VERTICAL



**CONNECTION FLOOR - FAÇADE**  
1:10 | VERTICAL





SAME SYSTEM, DIFFERENT APPEARANCE

**2025**

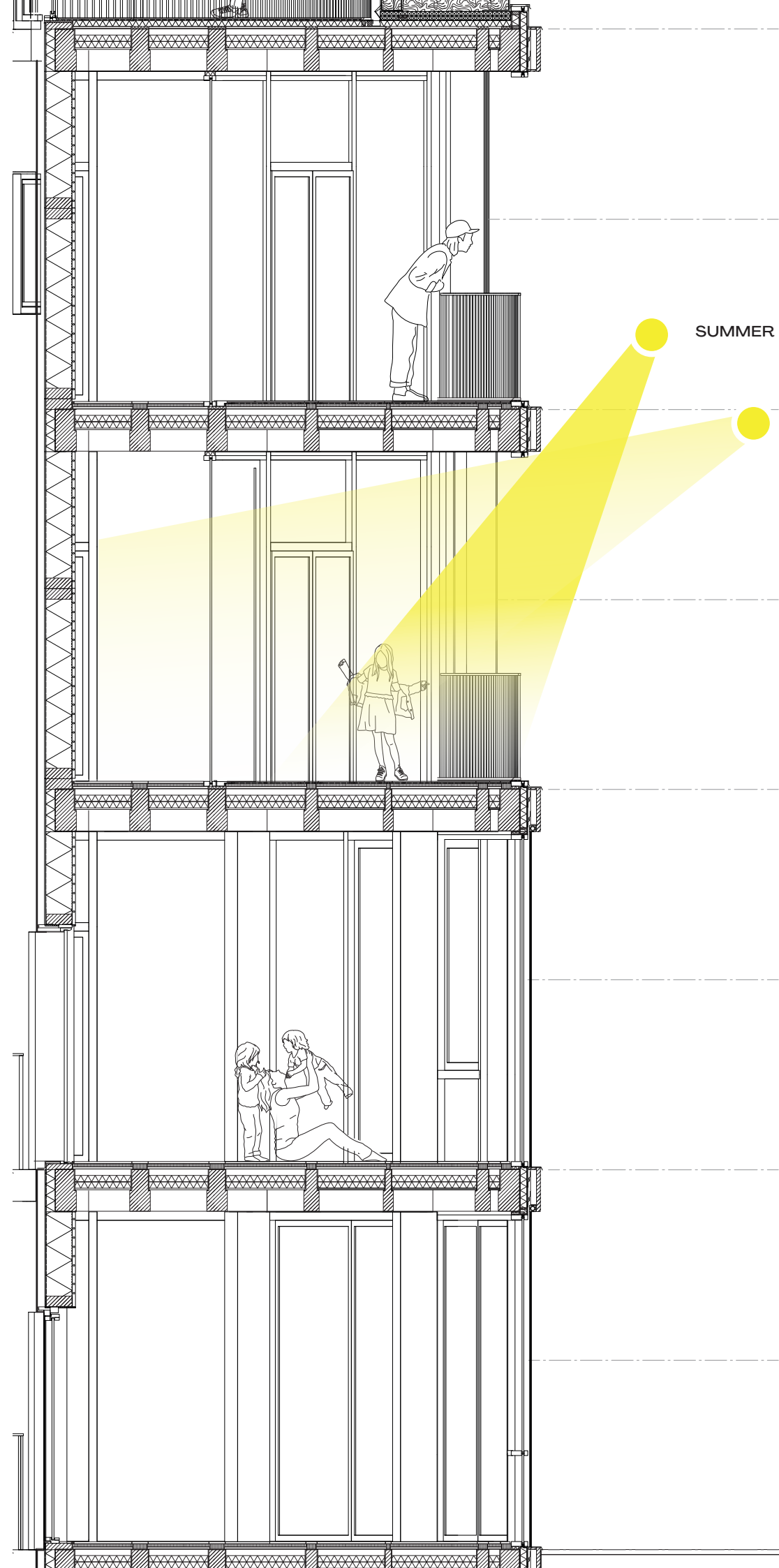




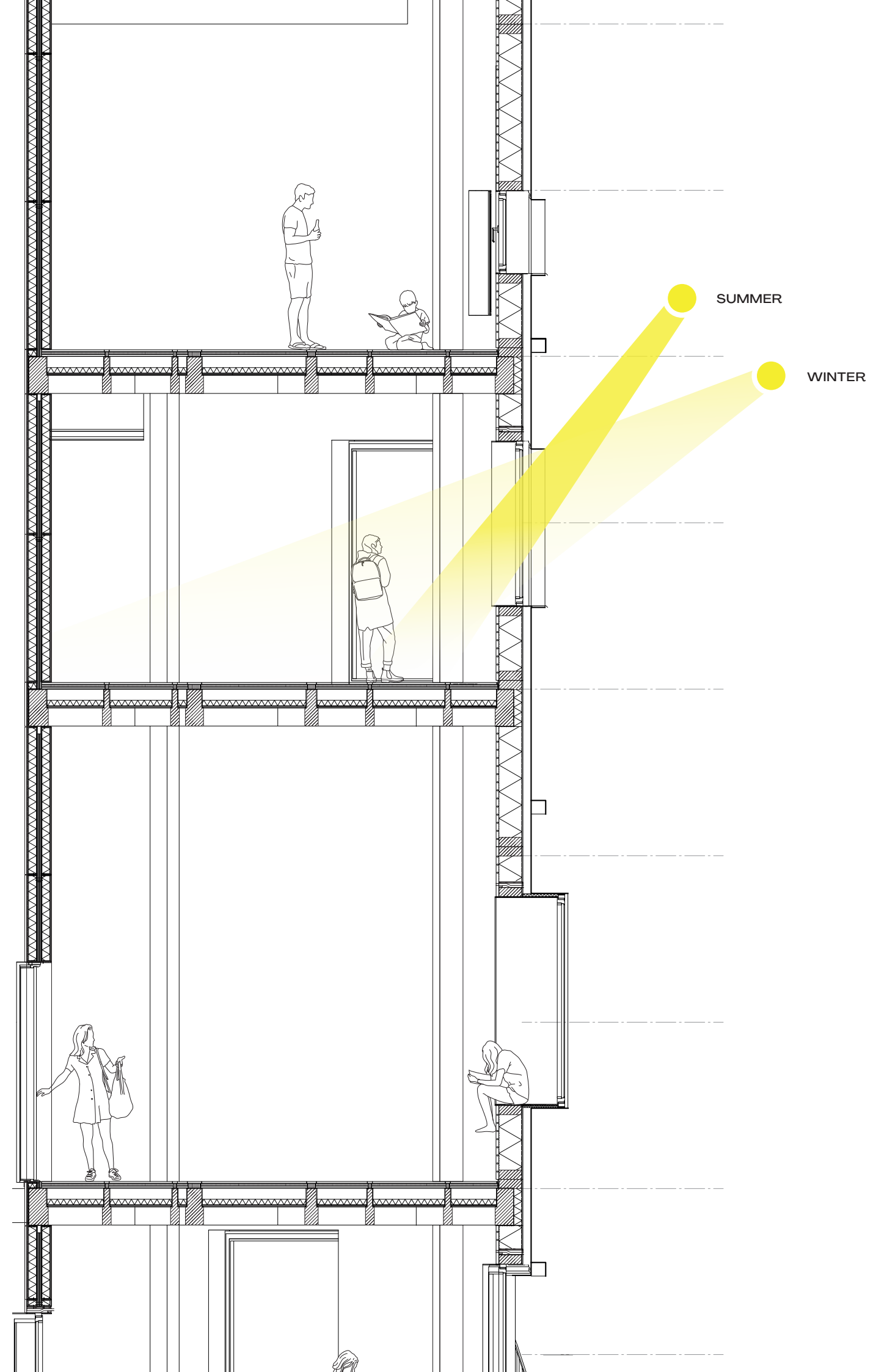
AN 'EXTRAVERT' DWELLING

**2025**



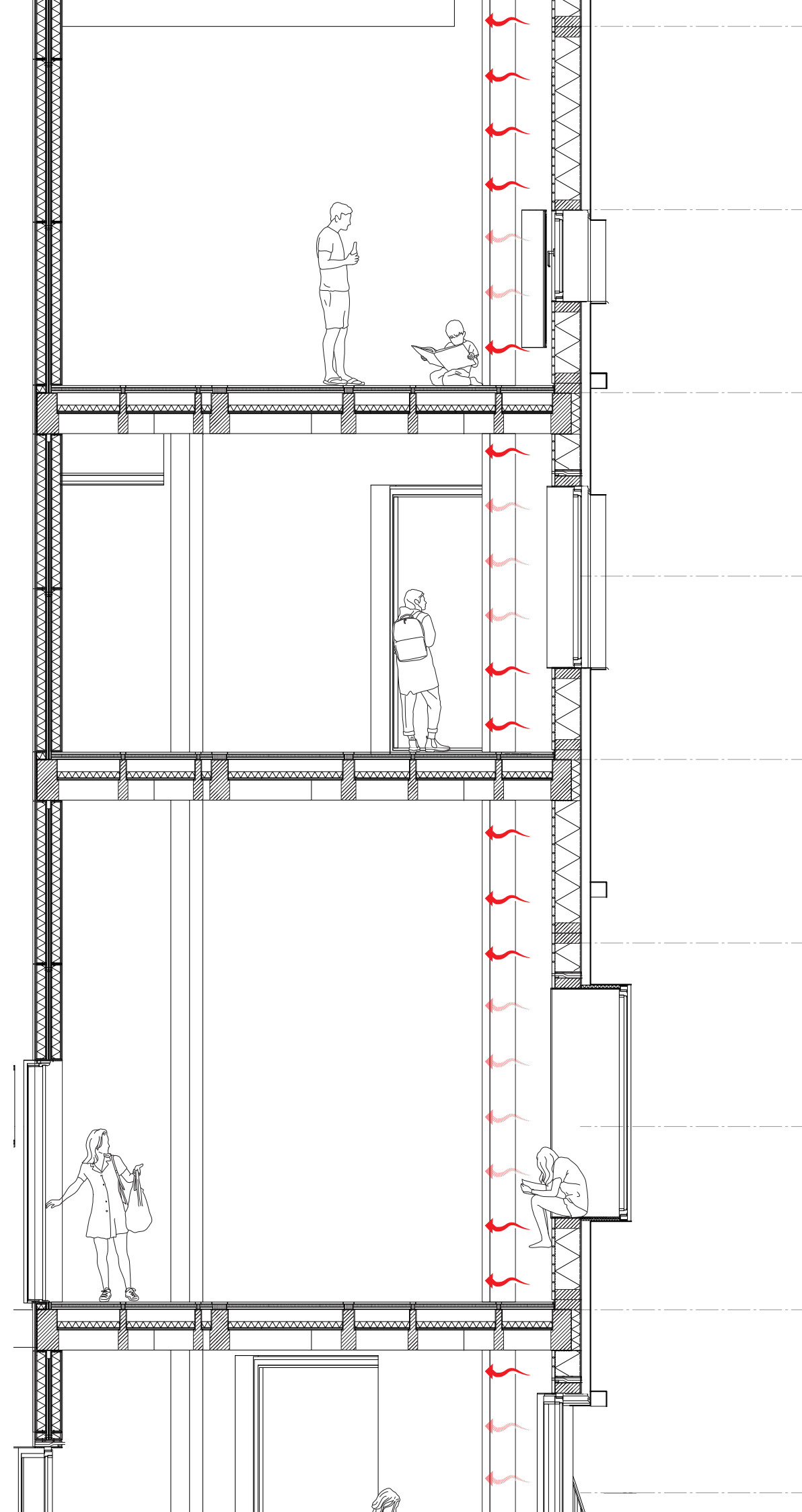
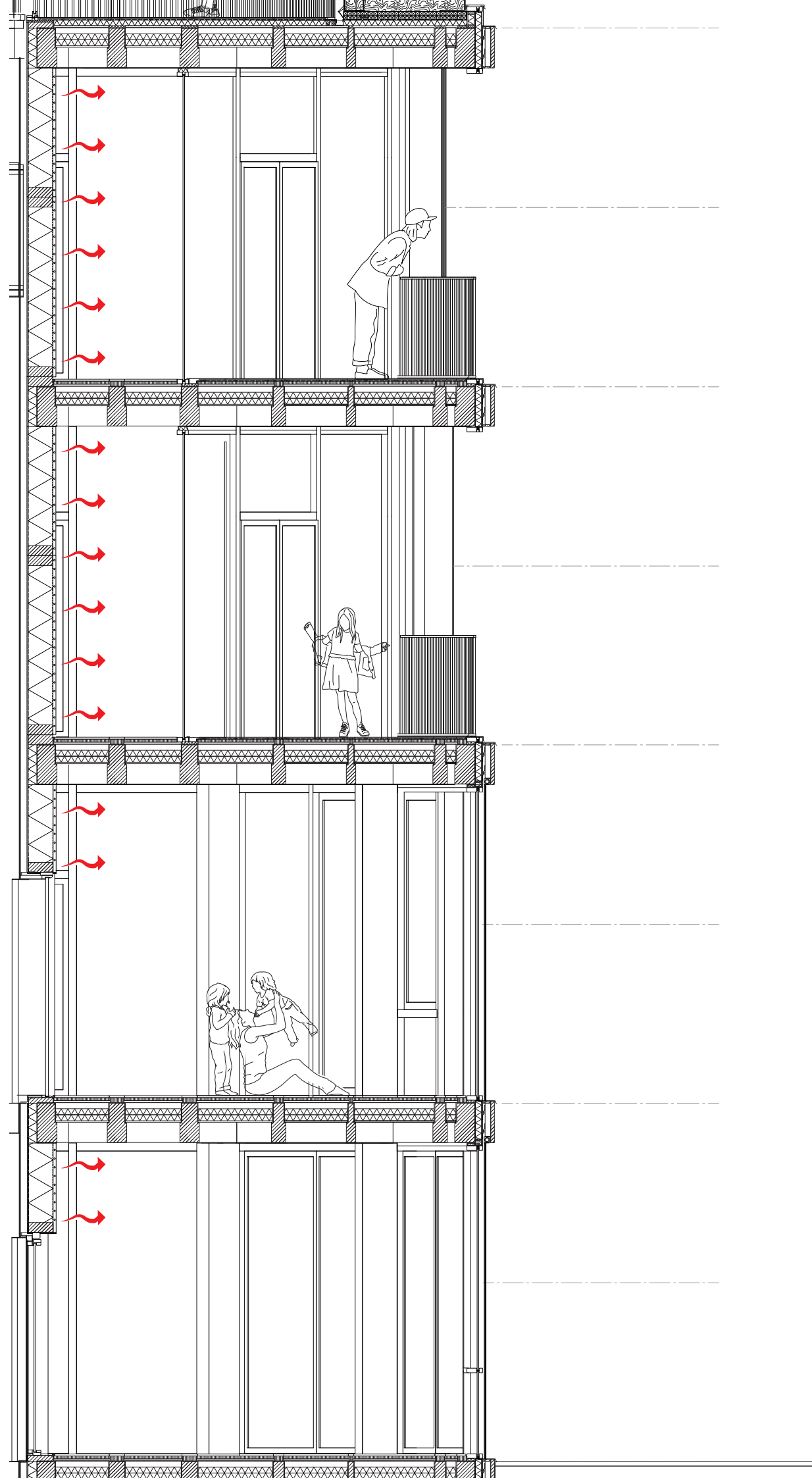


**SOUTH-ORIENTED  
FACADES**

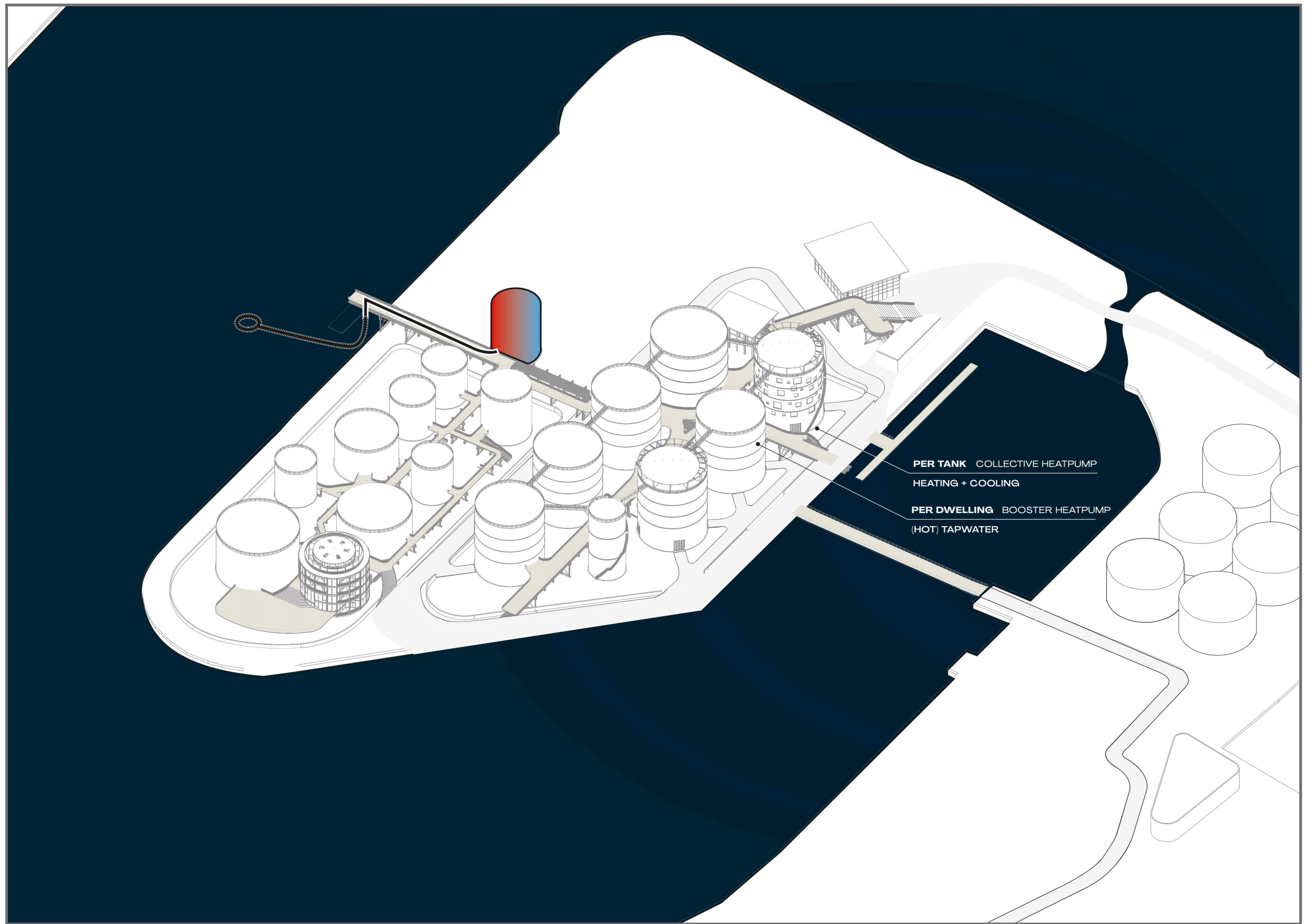


**NORTH-ORIENTED  
FACADES**





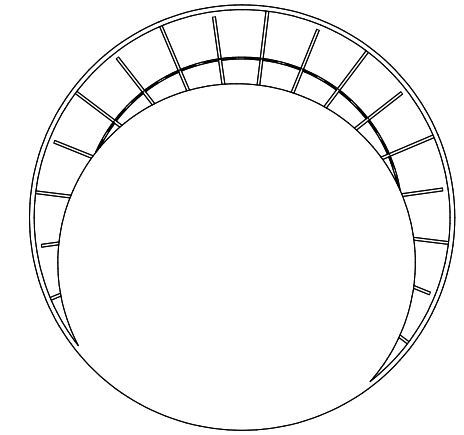
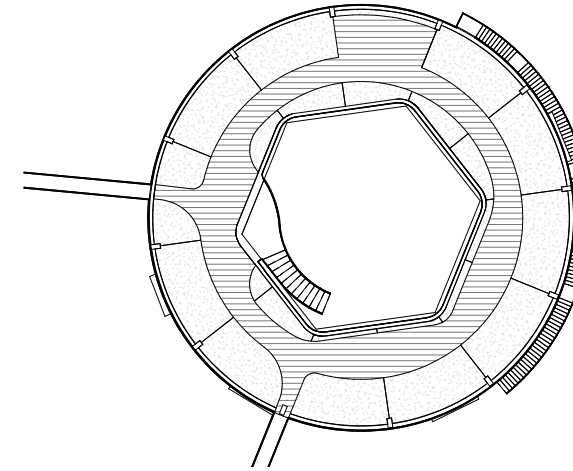
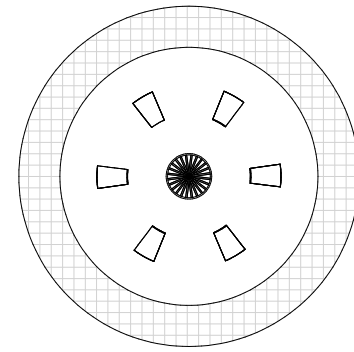
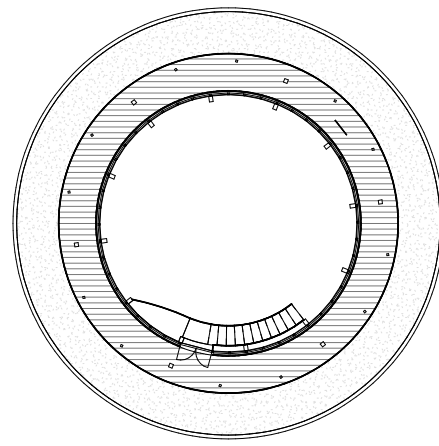




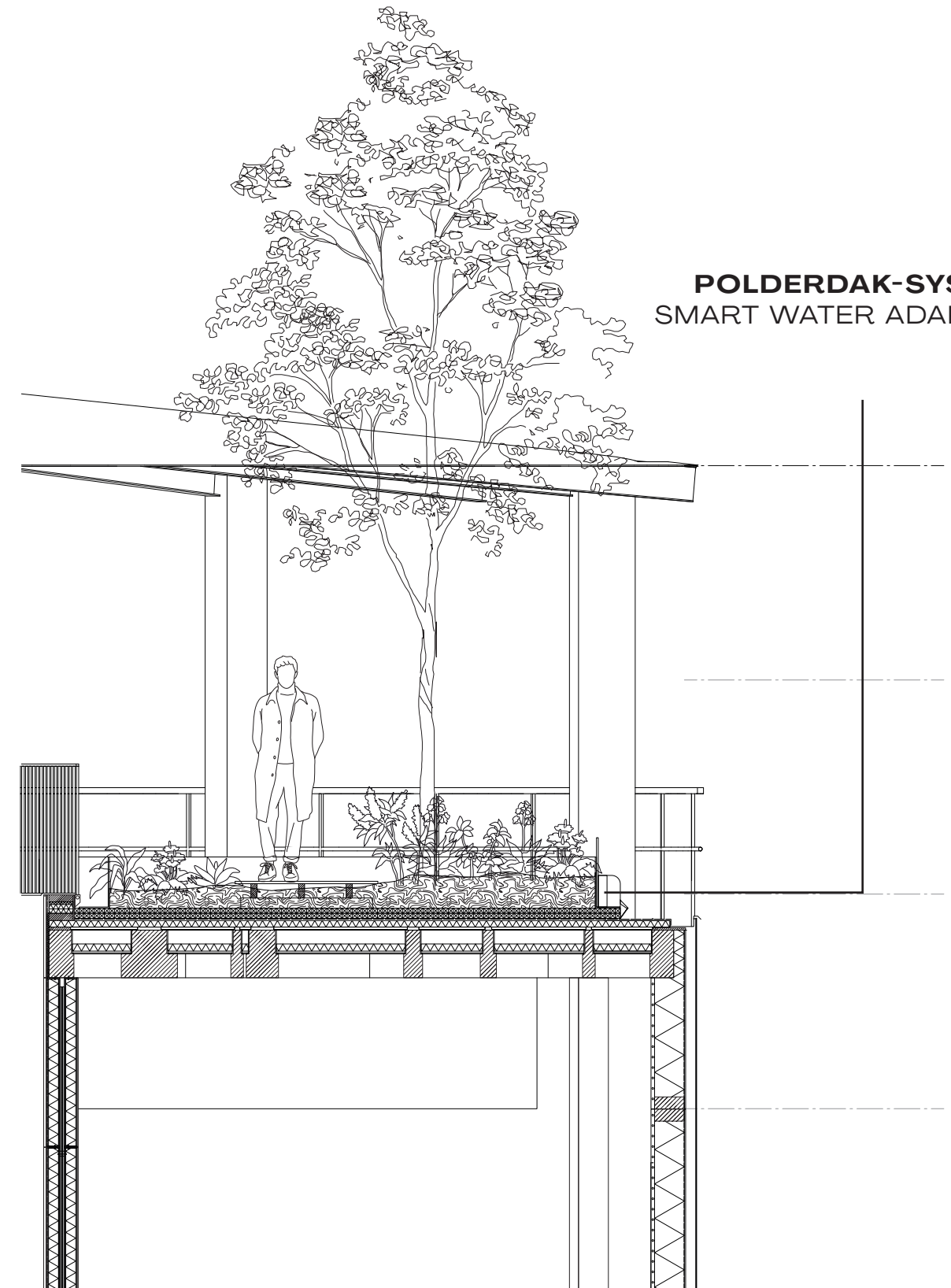
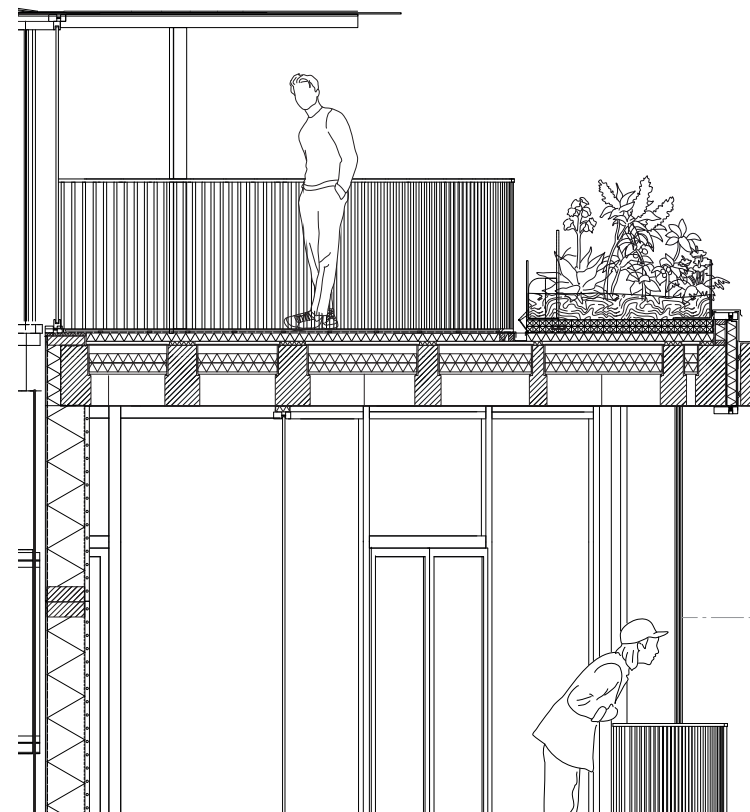
AQUATHERMIA

2025





**POLDERDAK-SYSTEM**  
SMART WATER ADAPTATION







ACCESSIBLE GREEN ROOF WITH A VIEW

**2025**

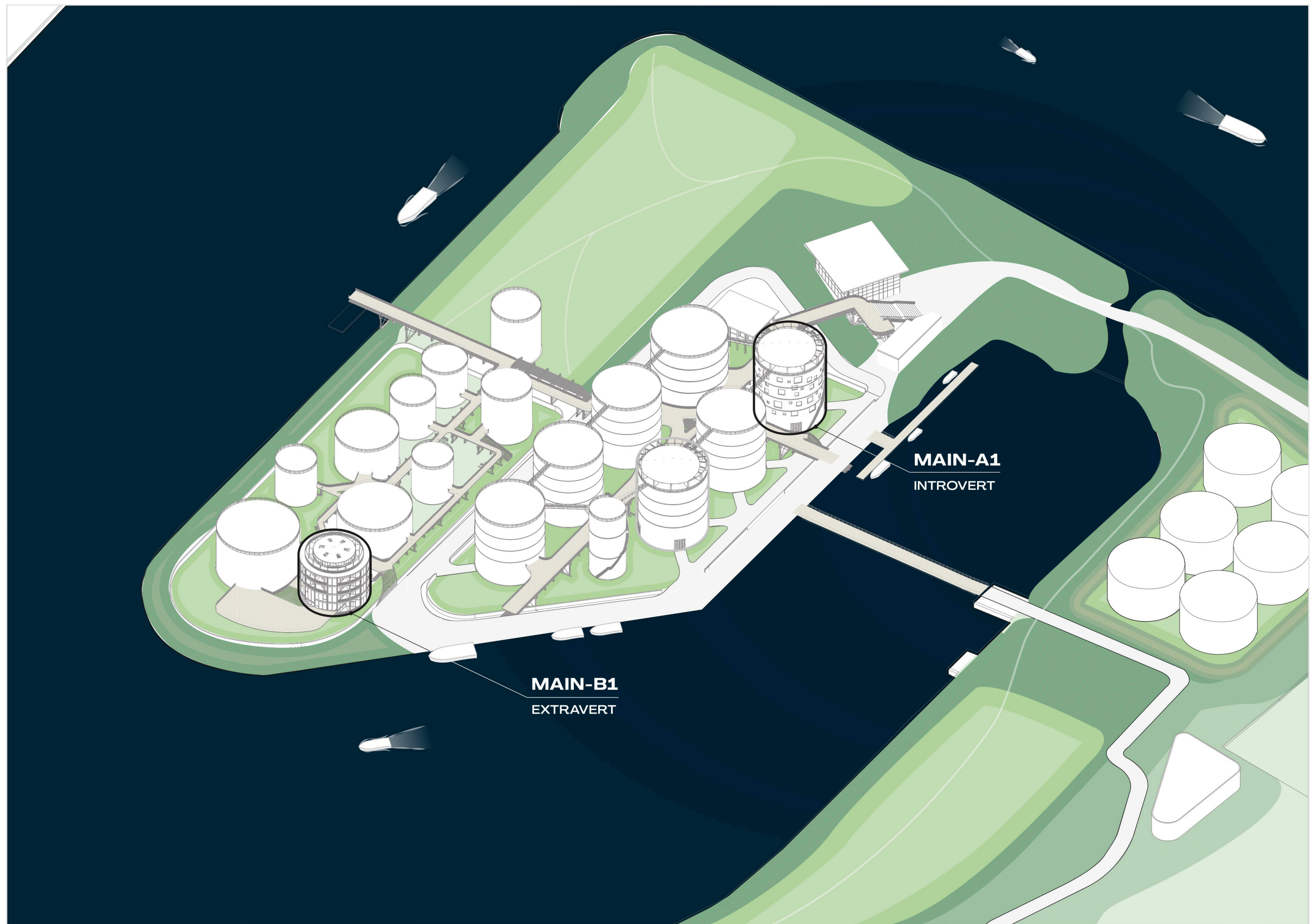




ACCESSIBLE GREEN ROOF WITH A VIEW

**2025**

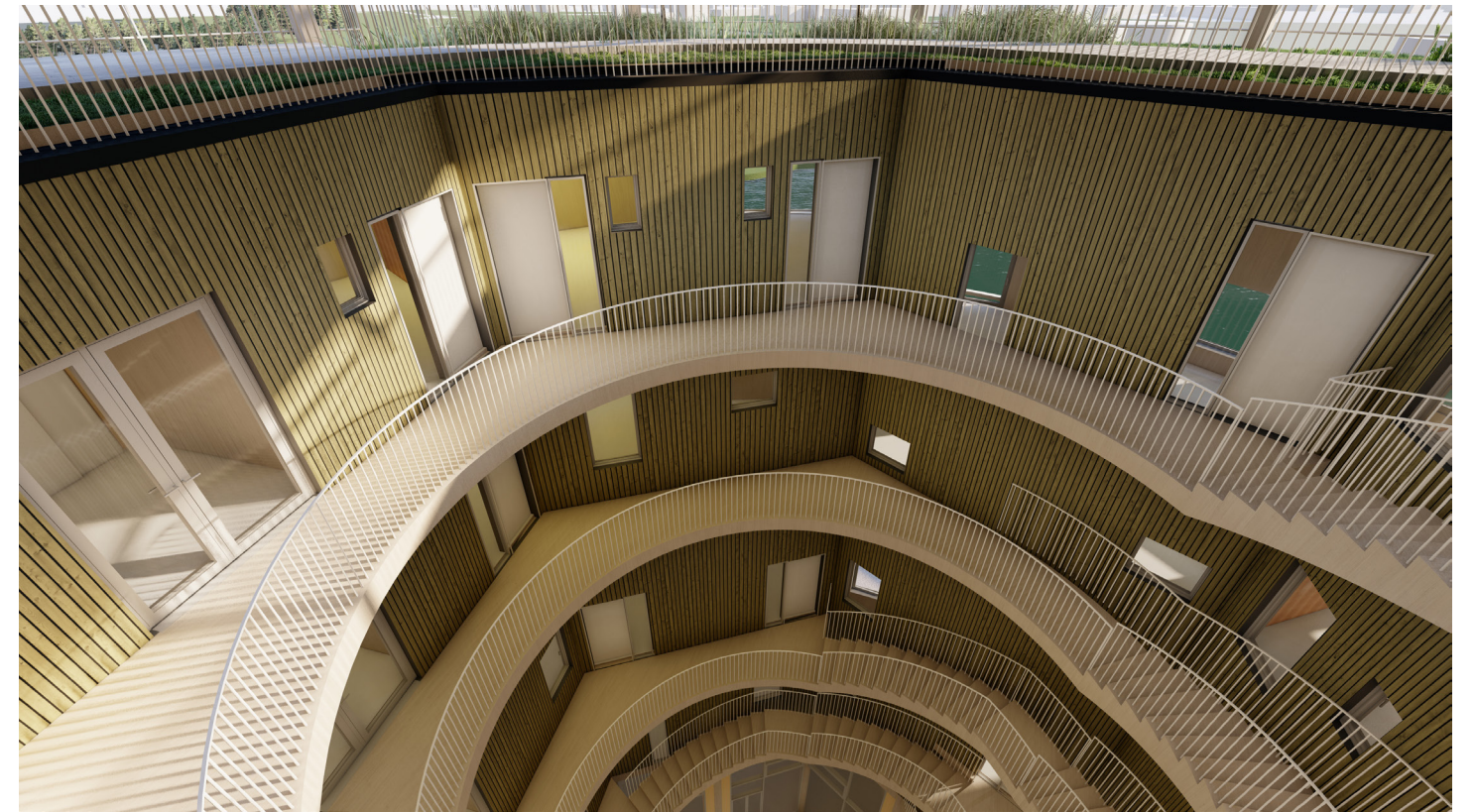




TWO TYPES OF TRANSFORMATION

**2025**





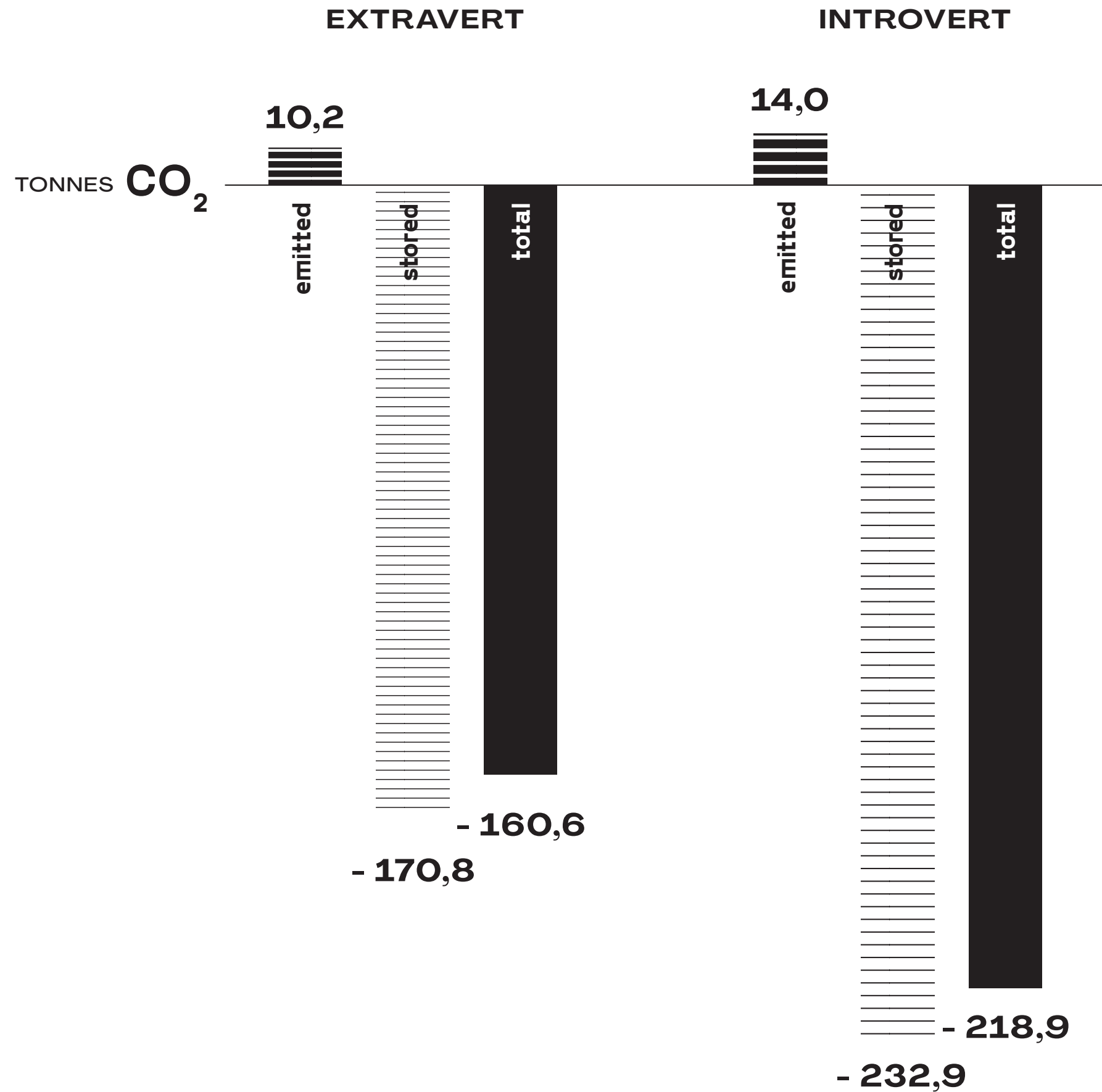
TWO TYPES OF TRANSFORMATION

**2025**

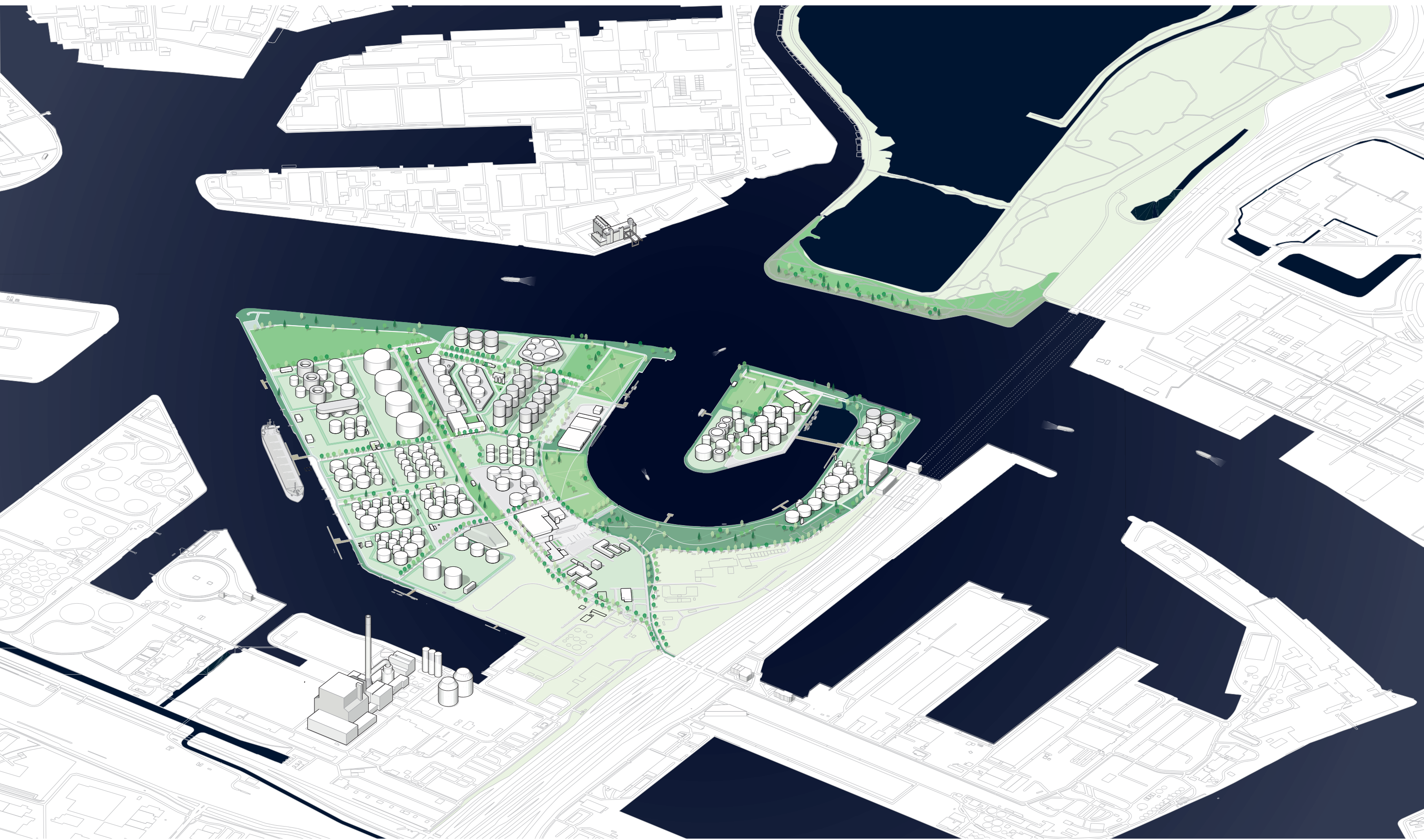


# CO<sub>2</sub> IMPACT OF WOOD CONSTRUCTION

A comparison of CO<sub>2</sub>-impact, based on CO<sub>2</sub>-impact (Idemat2021) en CO<sub>2</sub>-storage in wood (van der Lugt, 2020)

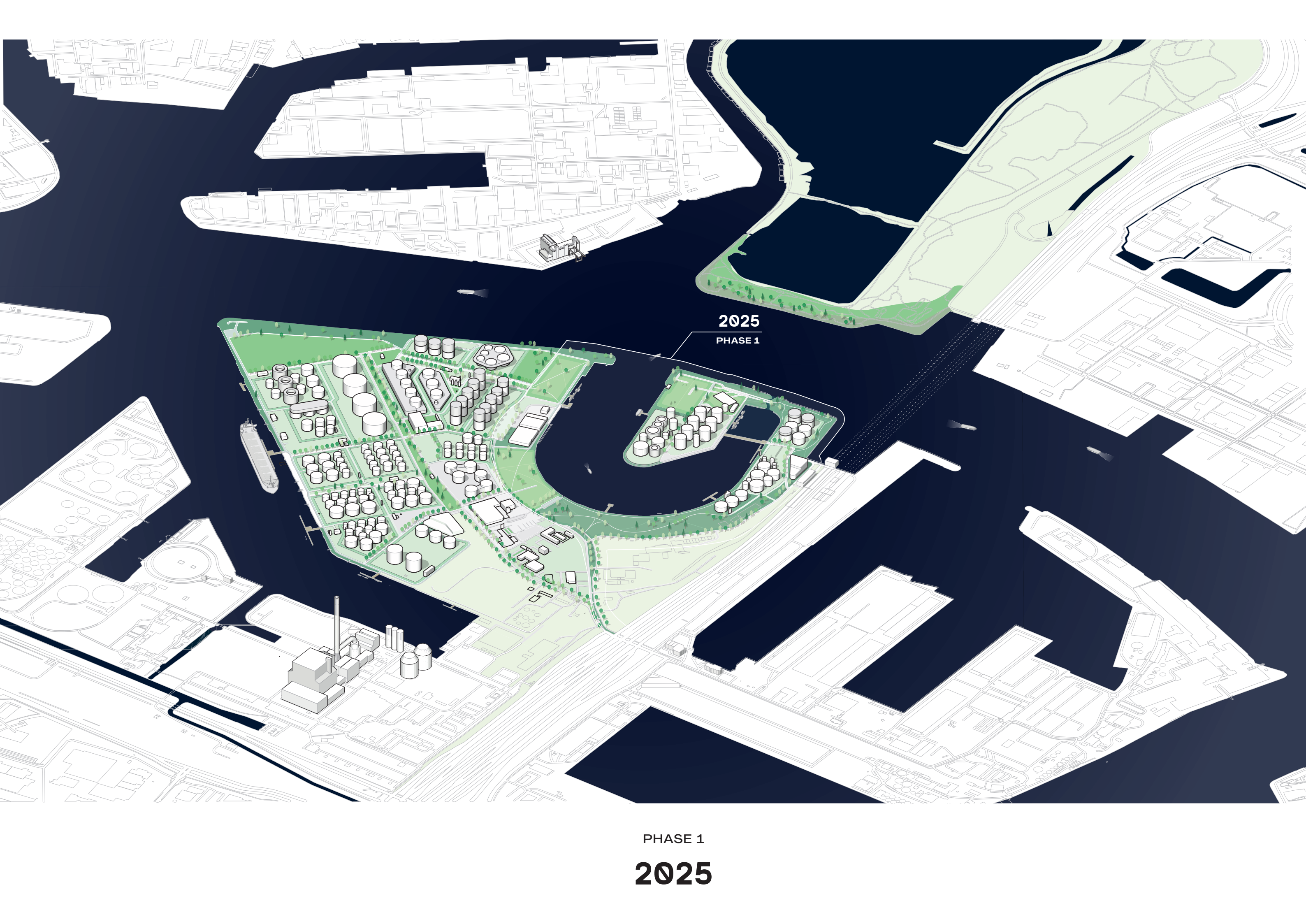






2050



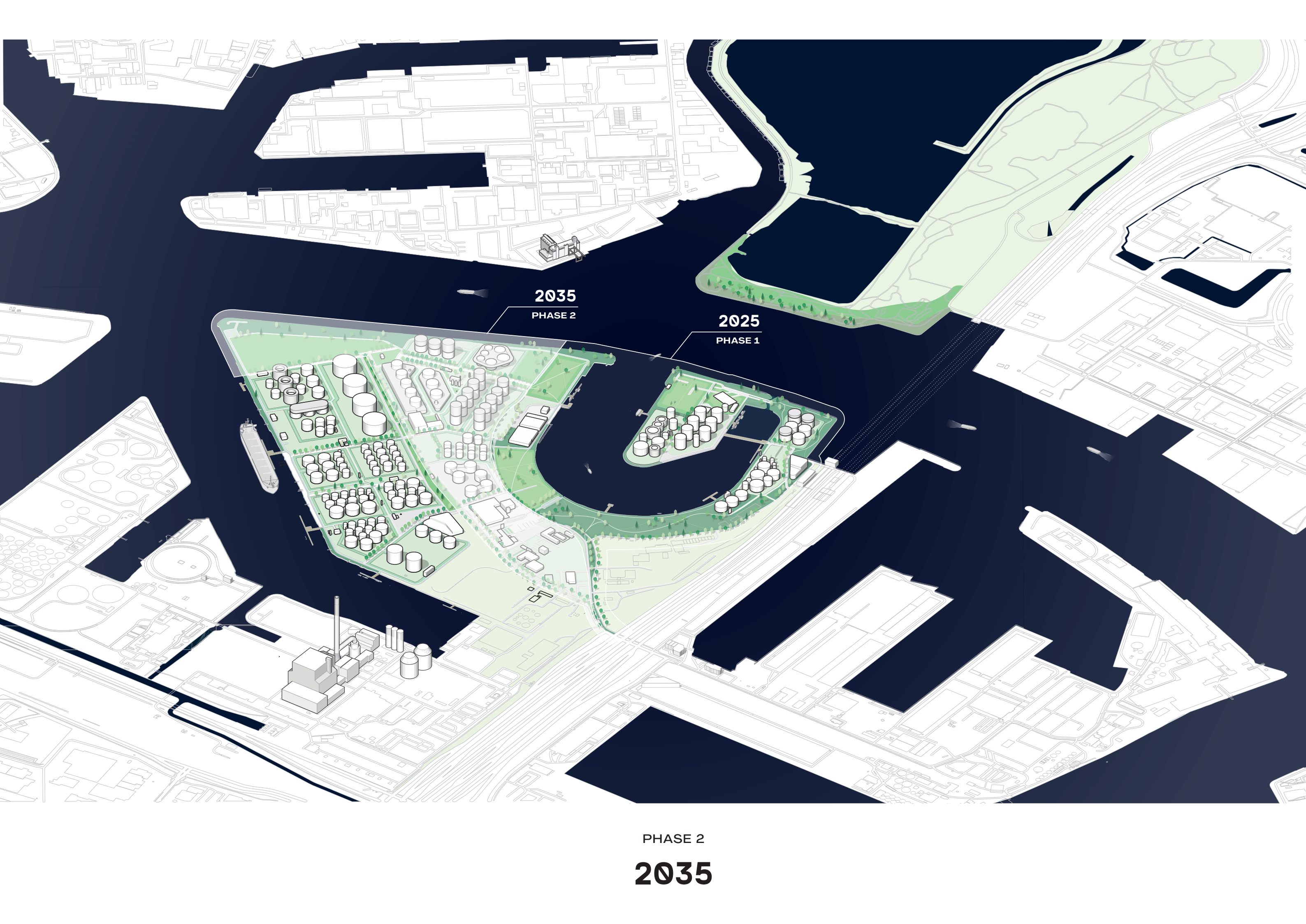


2025  
PHASE 1

PHASE 1

2025





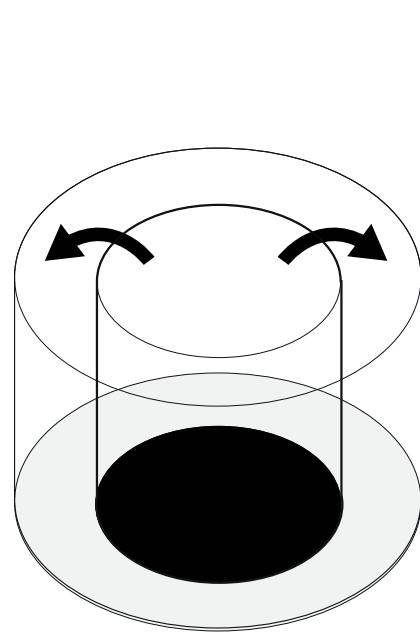
2035  
PHASE 2

2025  
PHASE 1

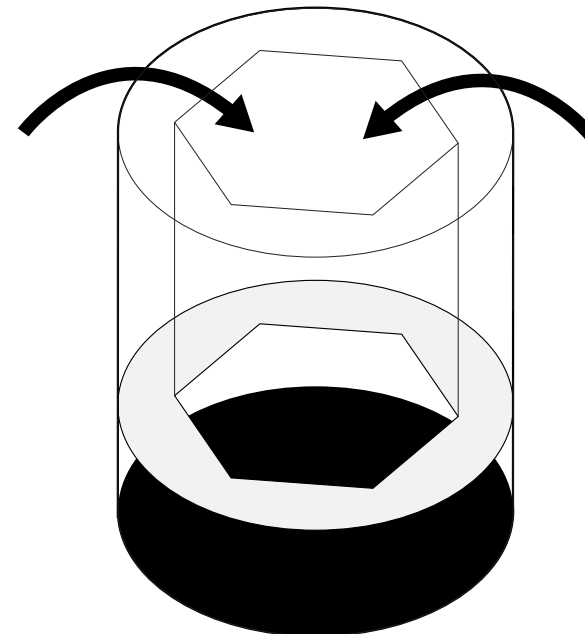
PHASE 2

2035

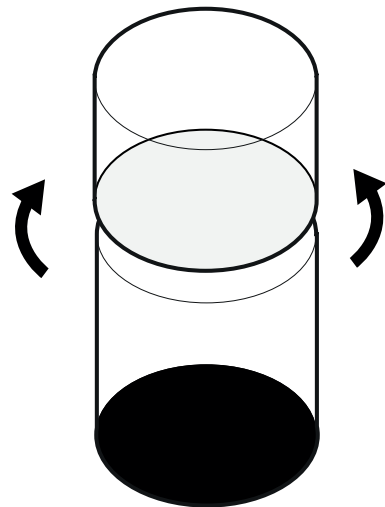




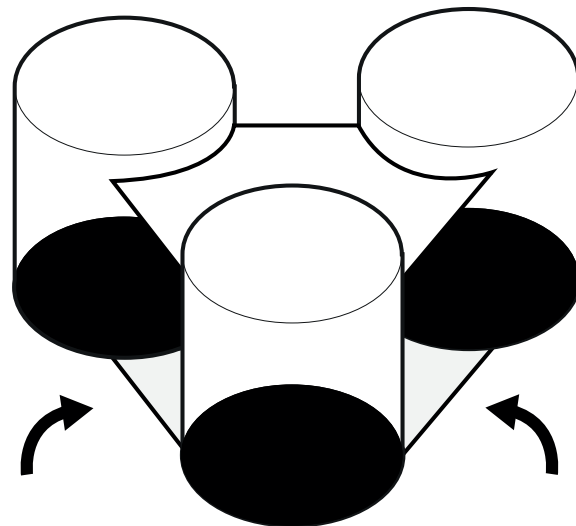
EXTRAVERT



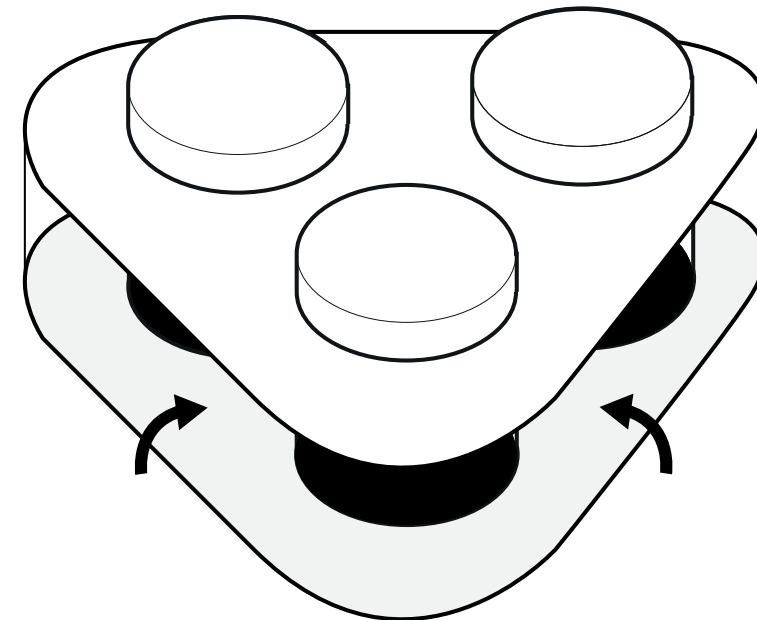
INTROVERT



TOP-UP

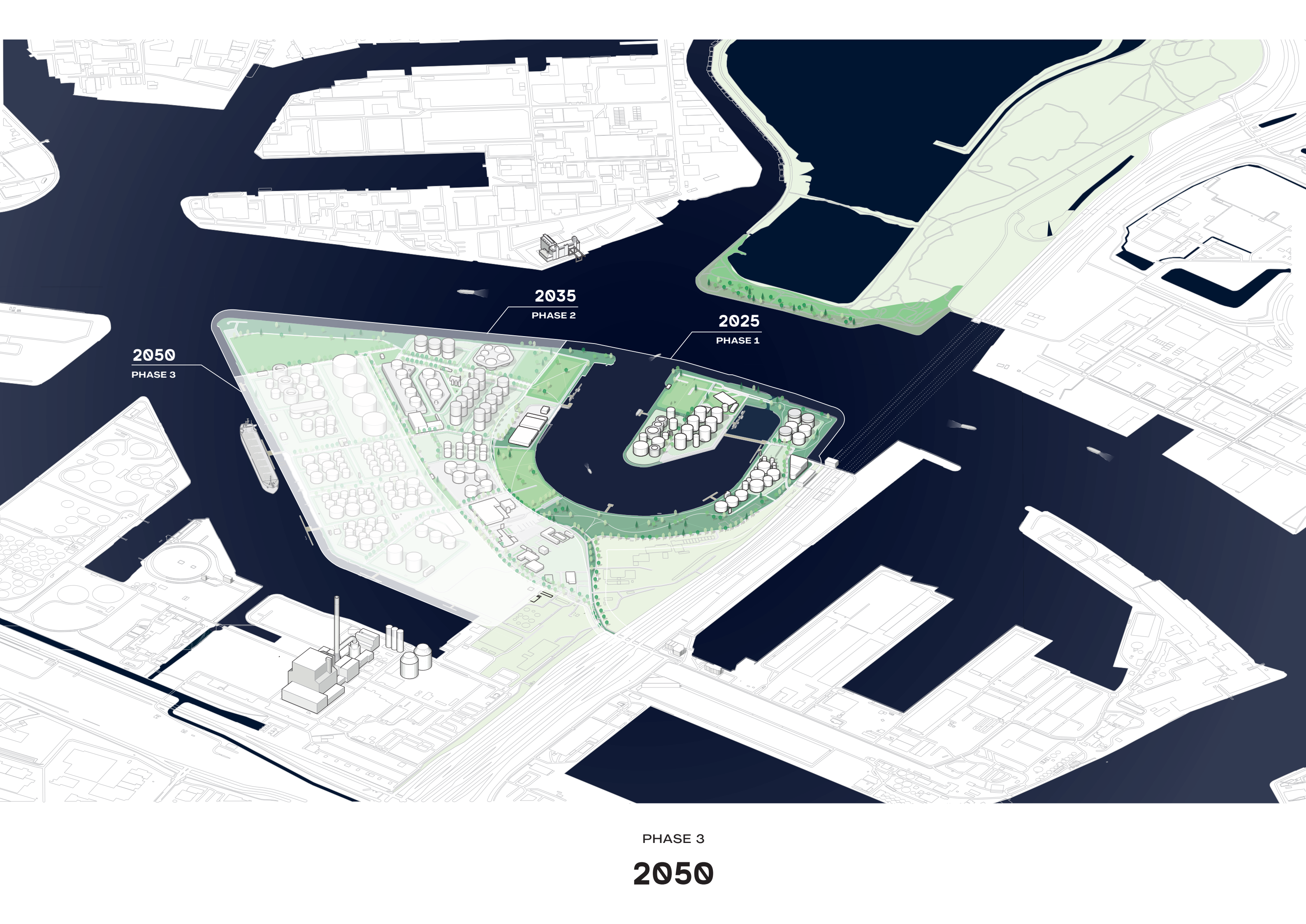


IN BETWEEN



SUPERBLOCK





2035  
PHASE 2

2025  
PHASE 1

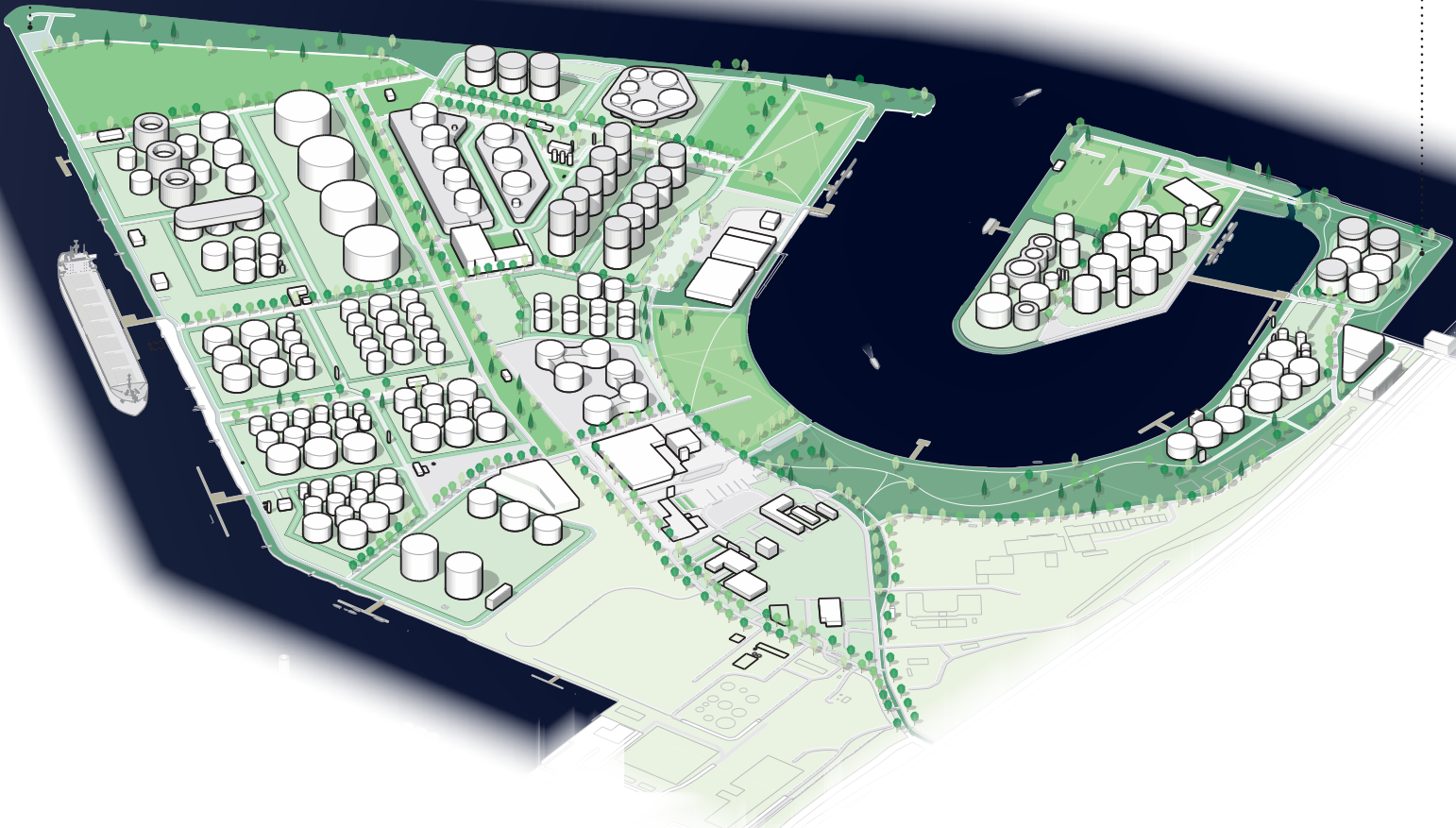
2050  
PHASE 3

PHASE 3

2050



Green structure

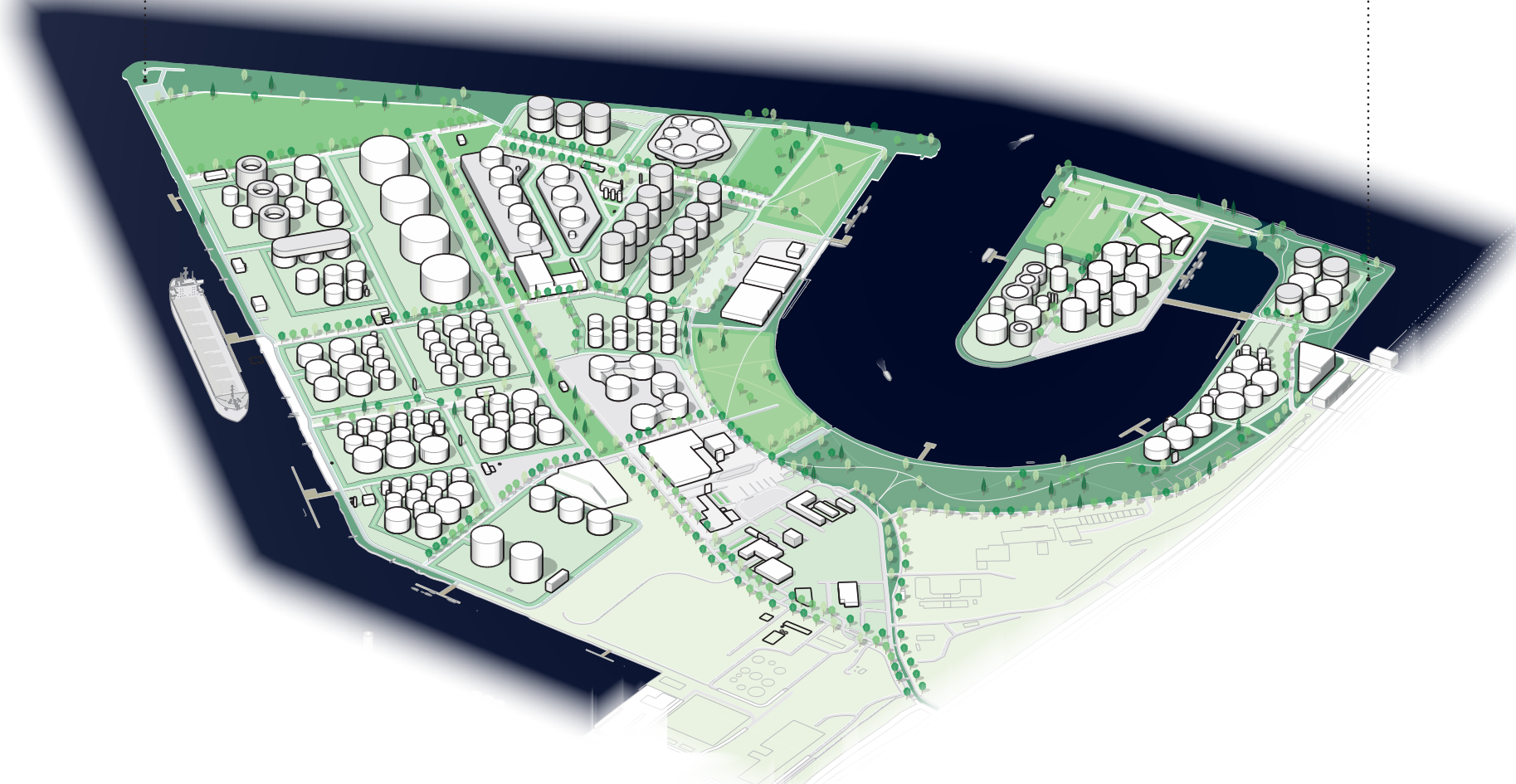
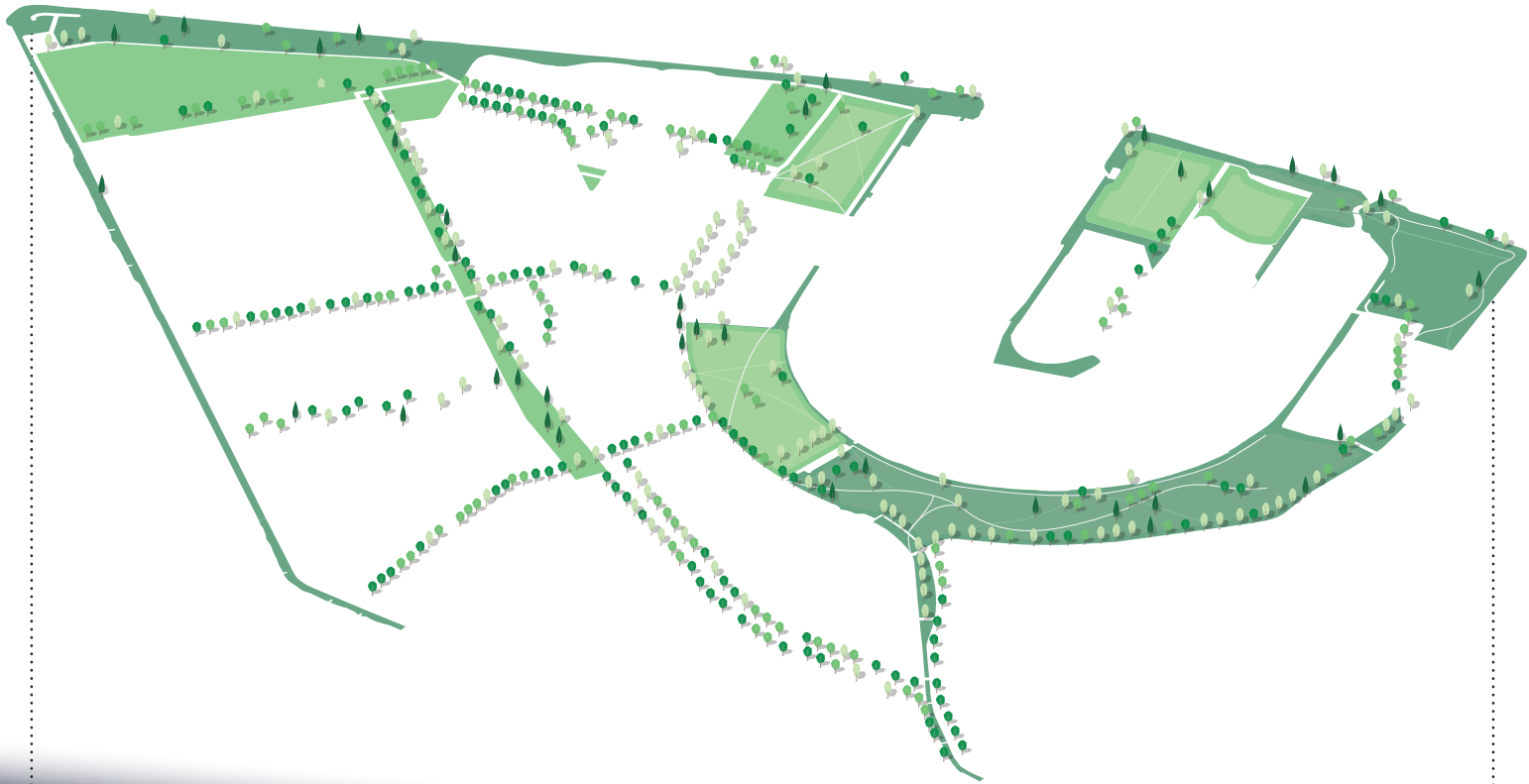


2050



Green structure

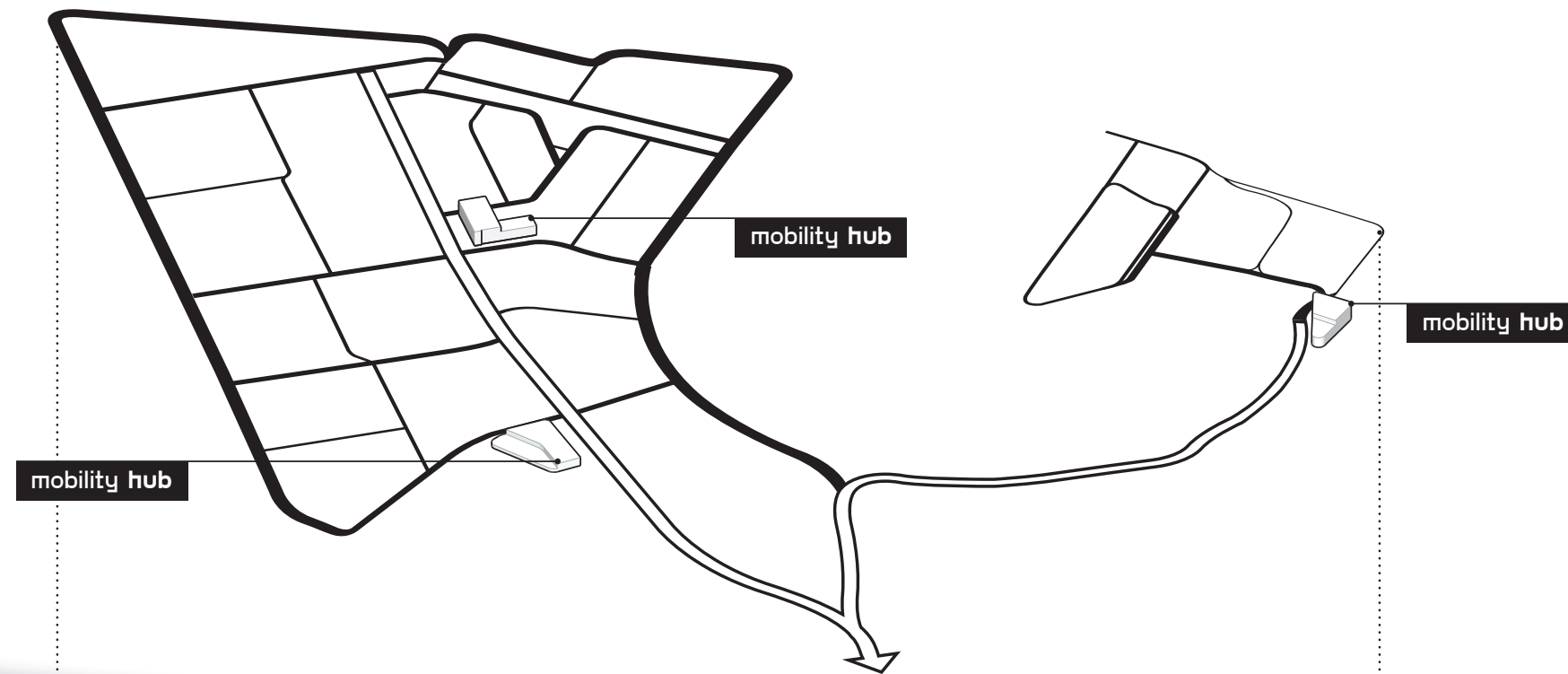
- PURIFYING
- RECREATIONAL
- URBAN ECOLOGY
- COOLING
- FOOD SUPPLY



2050



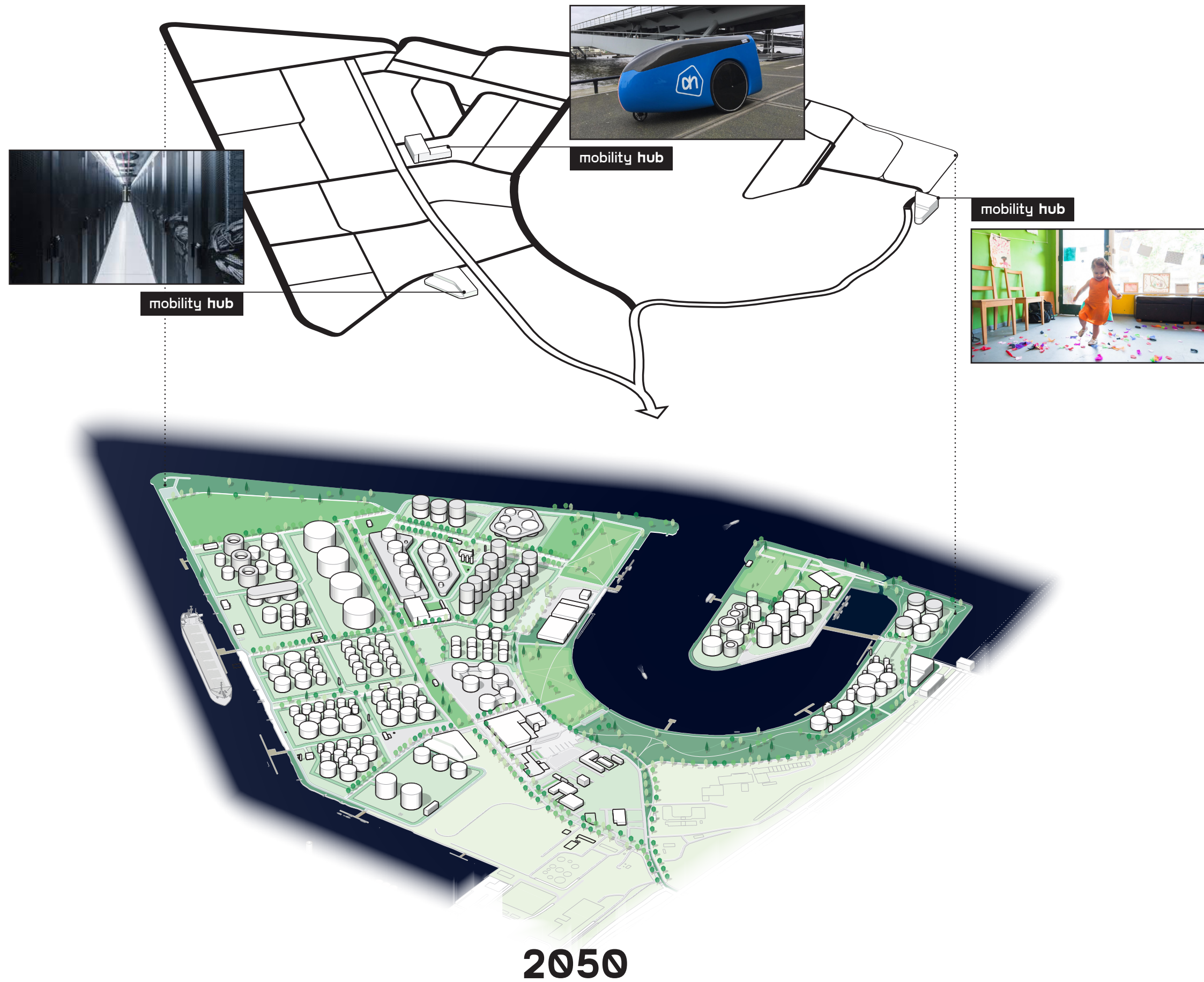
# Mobility



2050



# Mobility

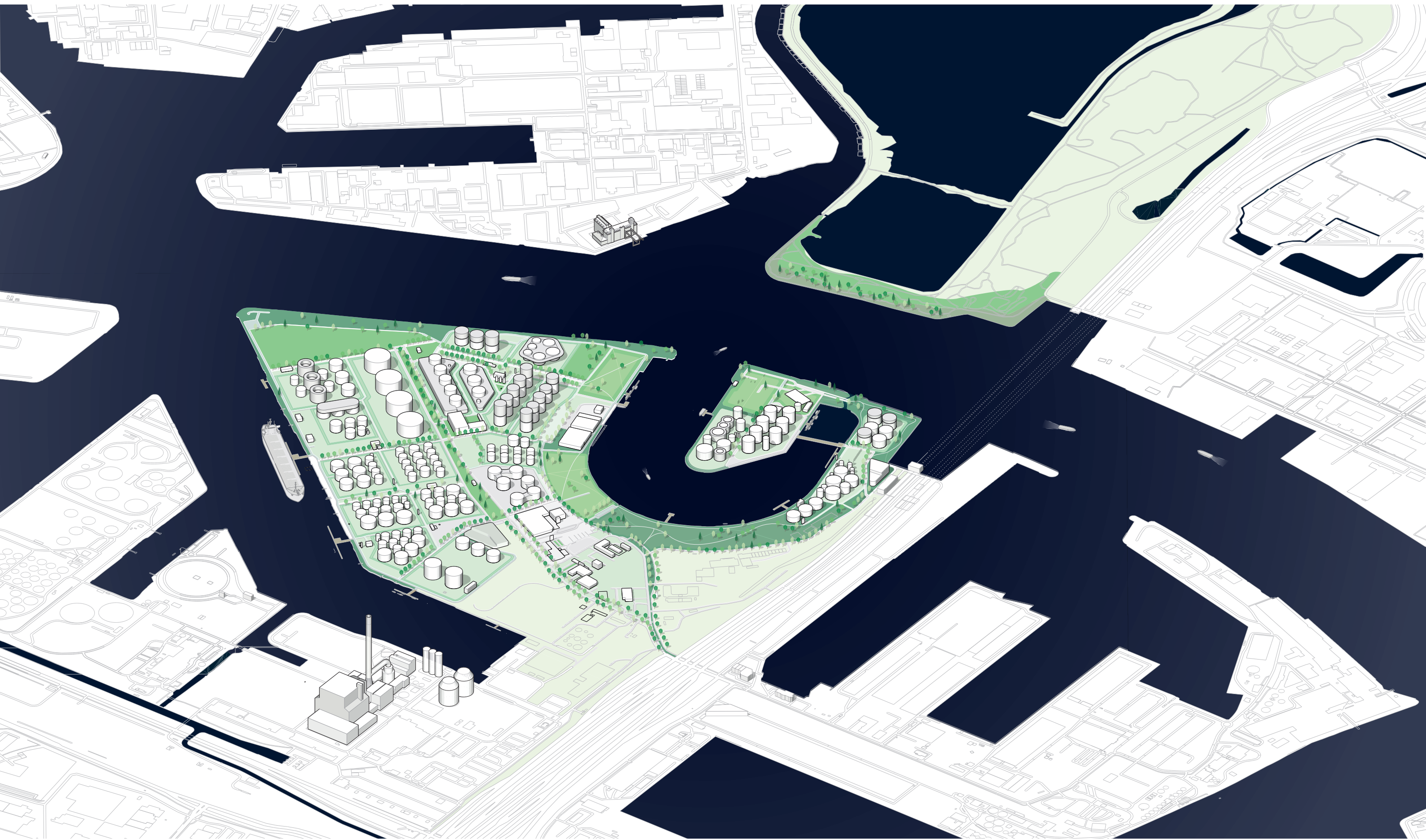




## Density & activity







A FUTURE-PROOF NEIGHBOURHOOD

**2050**



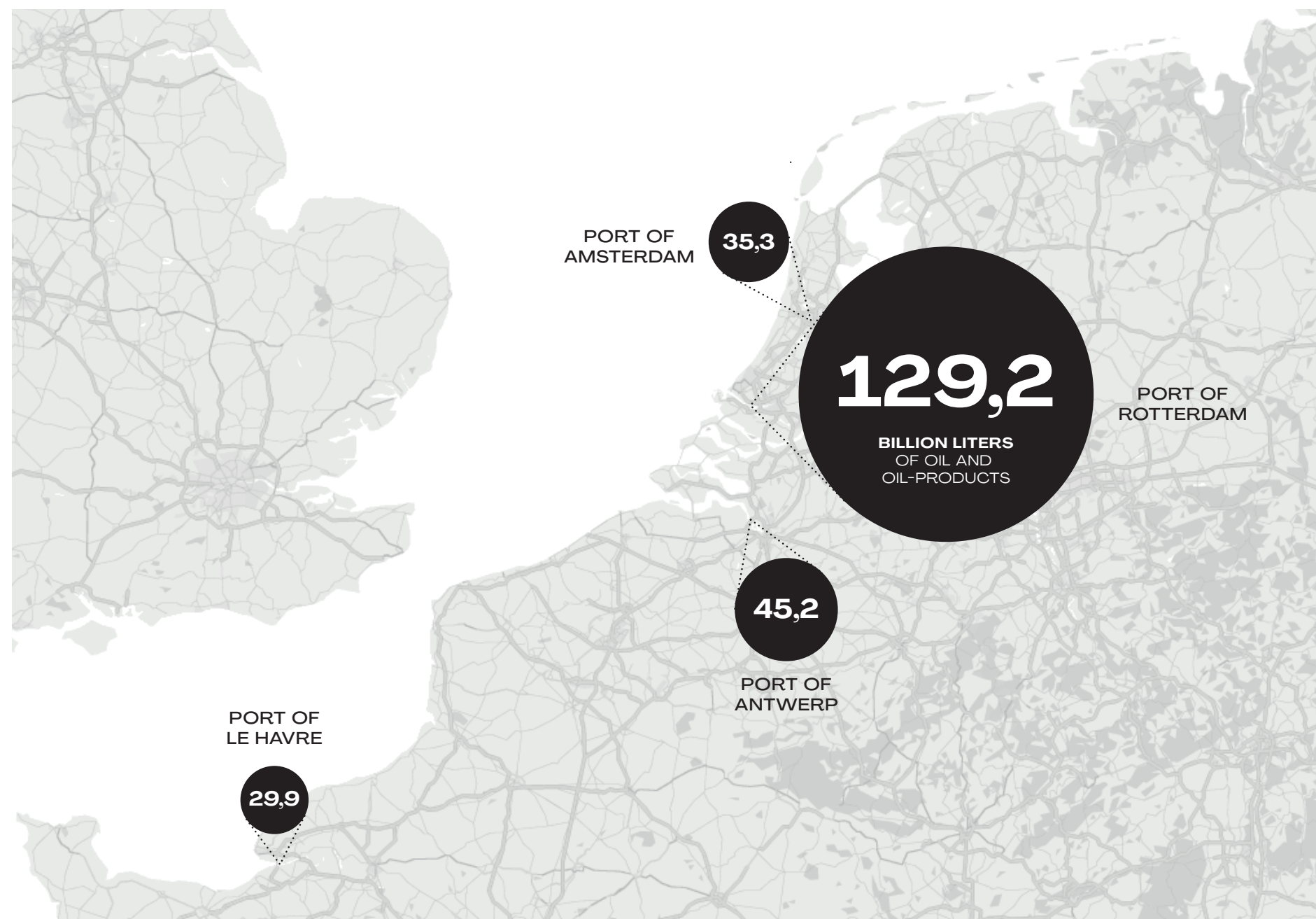


# Amsterdam Havenstad



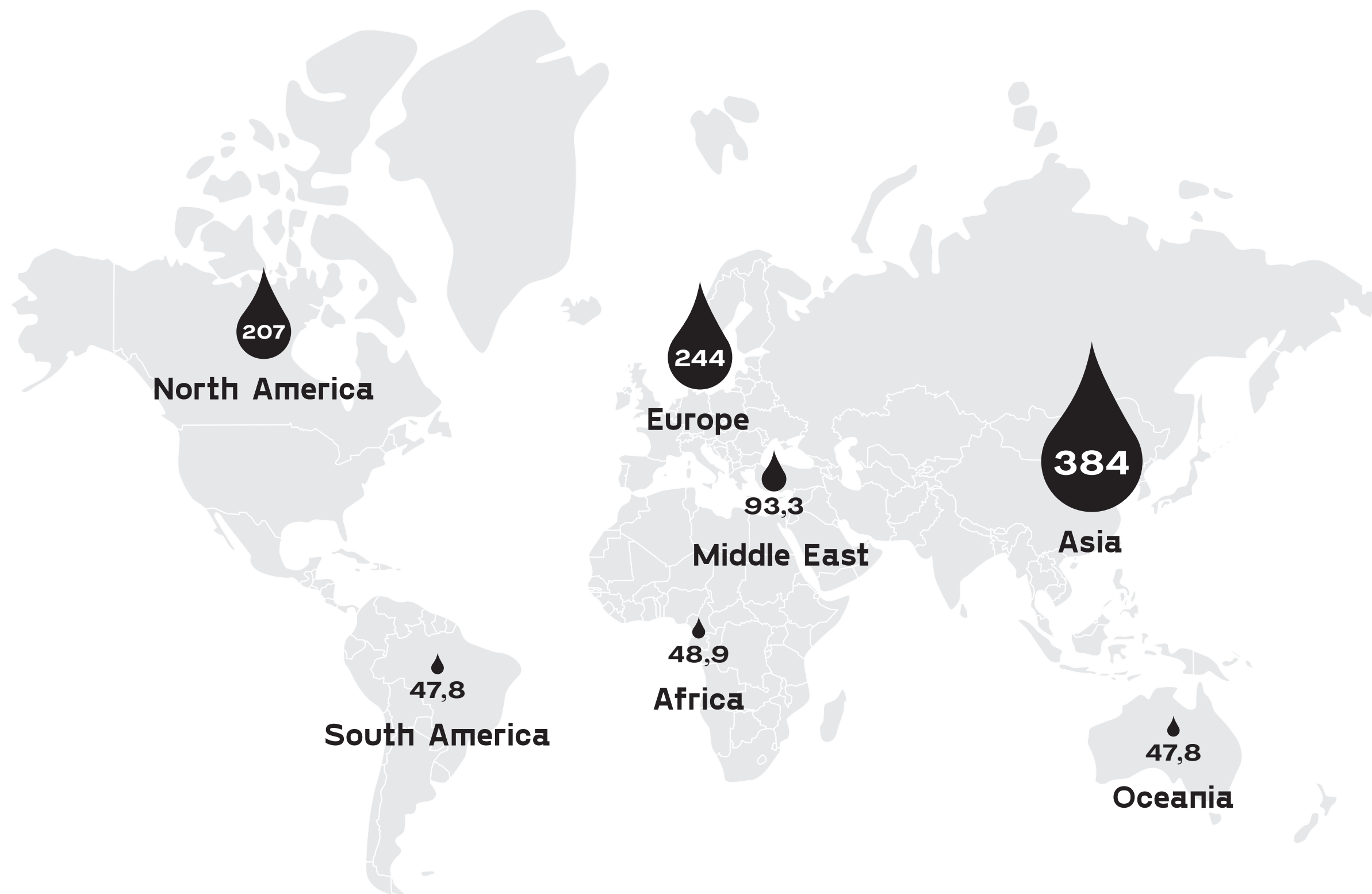






**AMOUNTS OF YEARLY TRADE OF OIL AND OIL-PRODUCTS IN 2019, IN BILLIONS OF LITRES**  
(2019 Feiten & Cijfers, 2019; Goederenoverslag in de haven van Rotterdam, 2020; Jaarverslag 2019, 2020)





**OIL STORAGE CAPACITY IN 2020 IN MILLIONS M<sup>3</sup>**  
(1worldenergy, 2020)





GEACHTE MEVROUW HALSEMA, BESTE FEMKE

**2025**





GEACHTE MEVROUW HALSEMA, BESTE FEMKE

**2025**



# Repurposing the port

4370074  
AE 2020-2021  
PADDY TOMESSEN  
JOS DE KRIEGER

COEN DE VRIES  
P5 PRESENTATION  
THIJS ASSELBERGS  
ANNEBREGJE SNIJDERS



# **BACK-UP SLIDES**





2025





2025





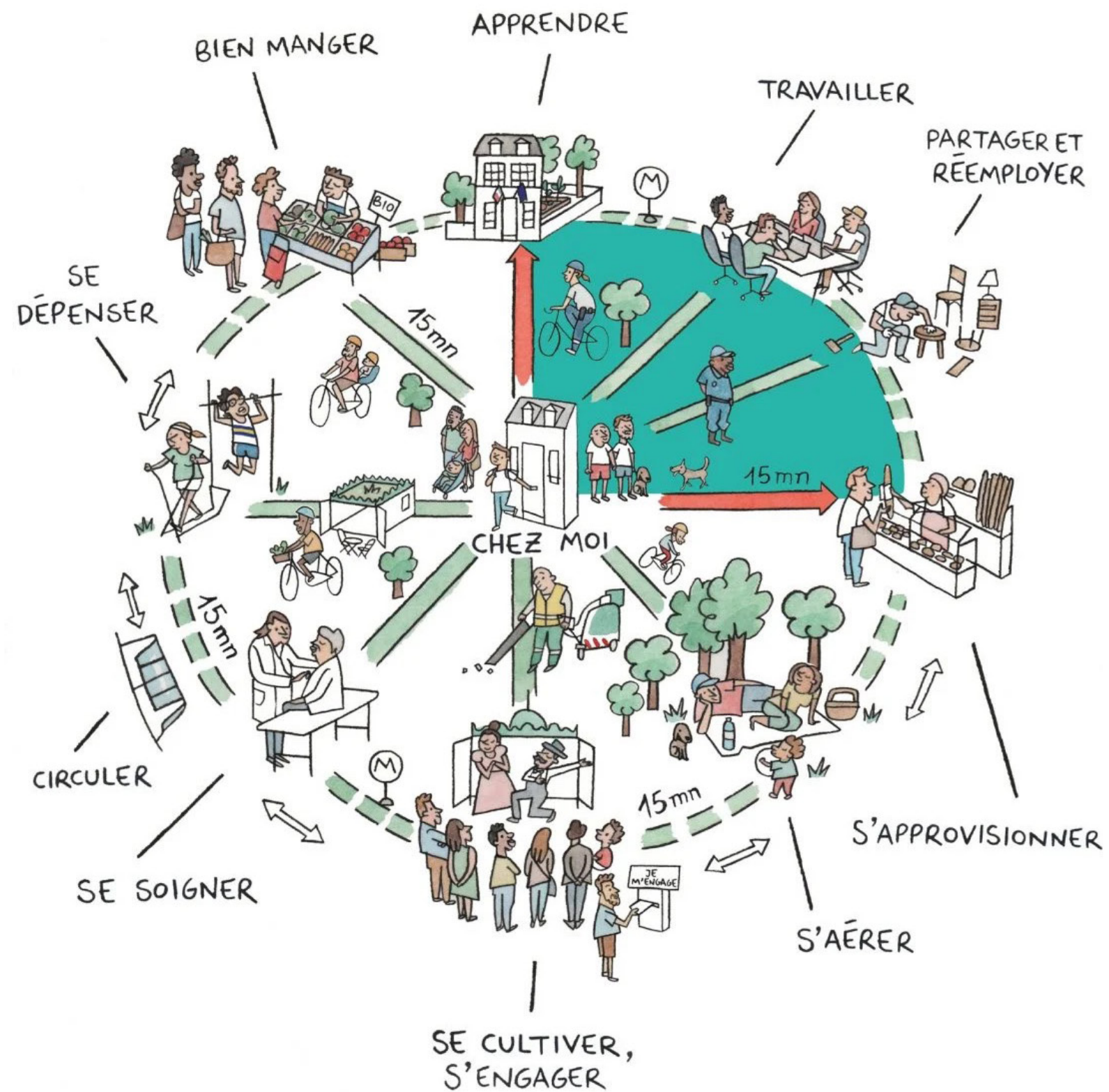
**2025**







# LE PARIS DU 1/4 HEURE



THE 15-MINUTE CITY

2050

SOURCE Ubique / Micaël

MICAËL



**“ An ambitious direction is set out in which the port will develop to an ecosystem with a strong focus on innovation, having a biobased and circular economy and accomodating and enhance the energy transition.**

CLUSTER AMSTERDAM NOORDZEEKANAALGEBIED  
ONTWERP HAVENNOTA 2020-2030



## WATERFRONT DEVELOPMENT

**“ The waterfront is one of the most significant public assets in the built environment, featuring so-called port-cities with a large potential of developing these areas. Williams 2004**

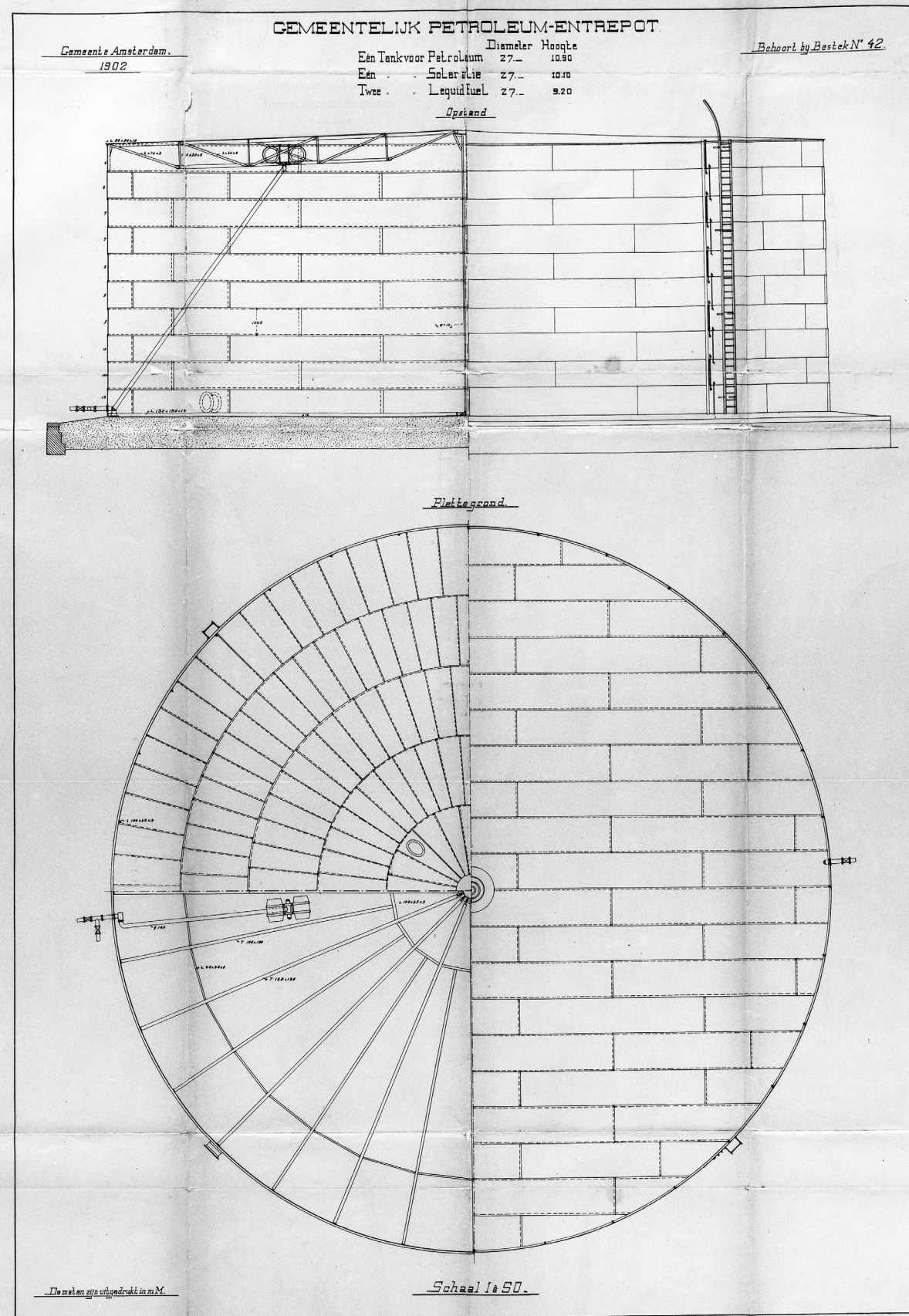


## WATERFRONT DEVELOPMENT

**“ Not to densify or gentrify, but more creative and quality-oriented, more green and community-based: an experimental field for ecological urbanism, creating new circular values**

Carta 2016





1902

SOURCE Stadsarchief Amsterdam





**1934 - 1936**

SOURCE Stadsarchief Amsterdam

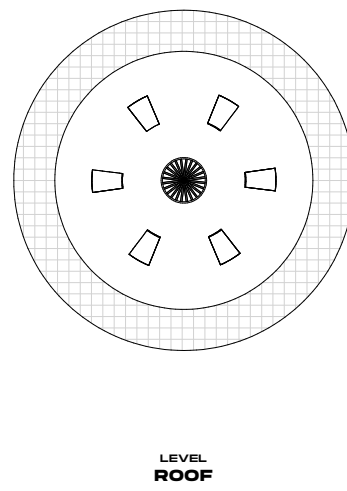
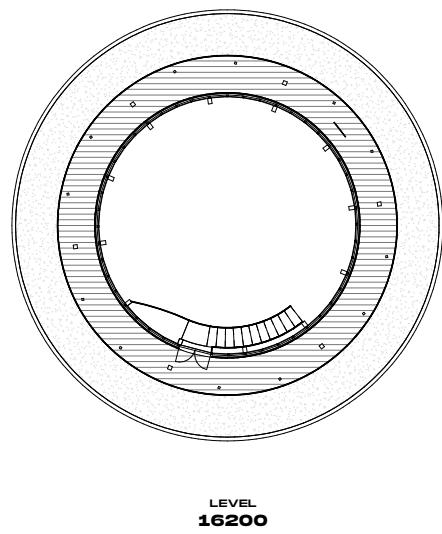
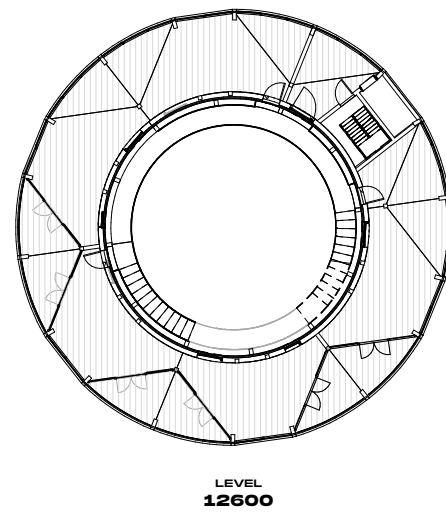
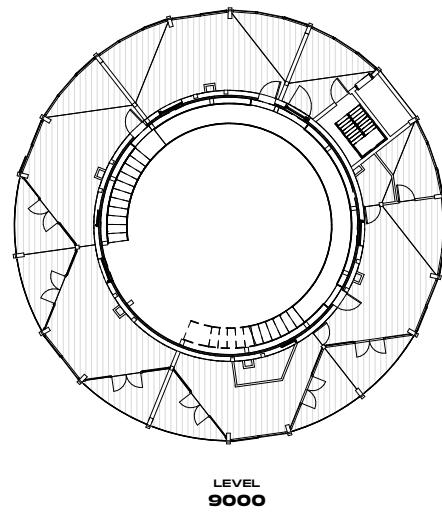
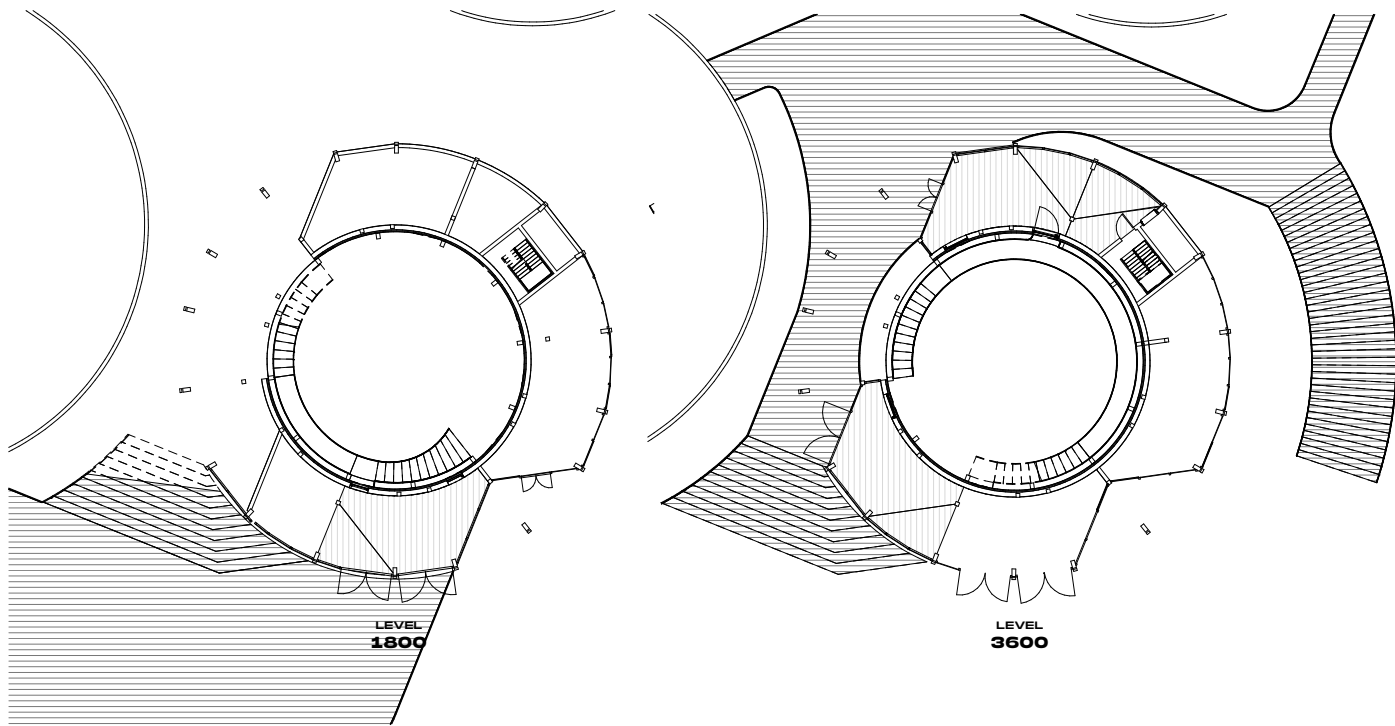




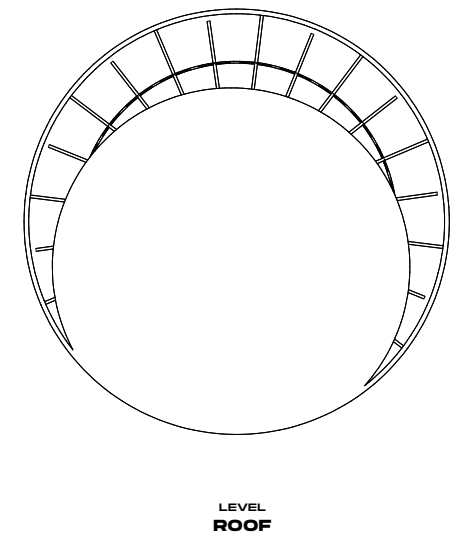
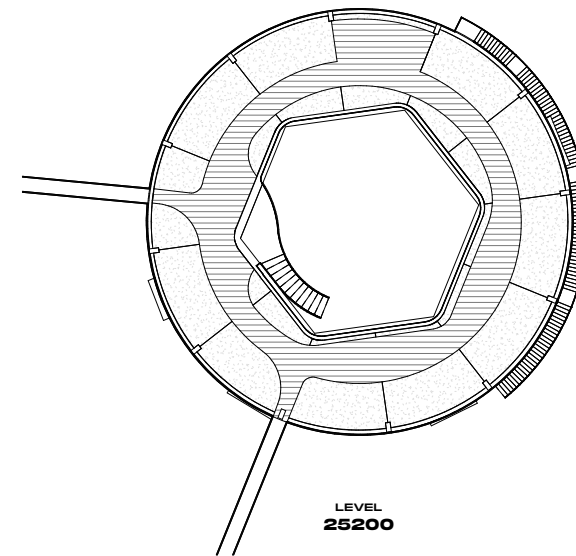
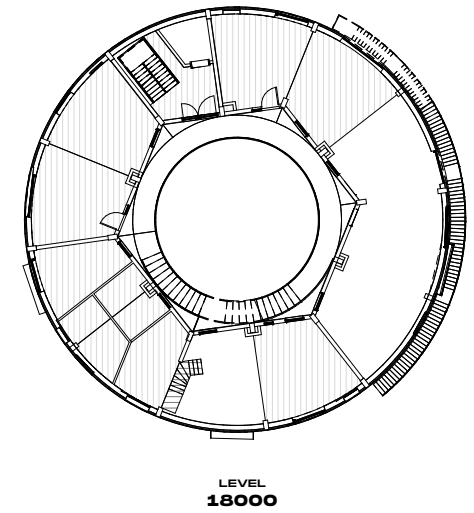
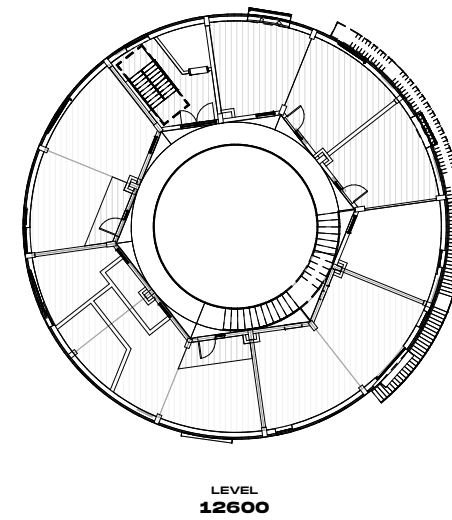
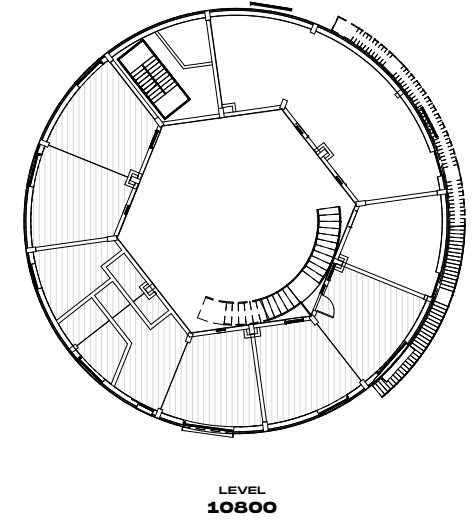
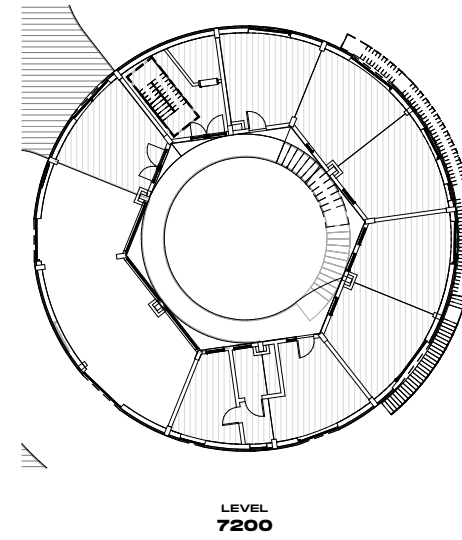
2006

SOURCE Stadsarchief Amsterdam





**MAIN-B1**  
PLANS  
1:200



**MAIN-A1**  
PLANS  
1:200









**2025**



