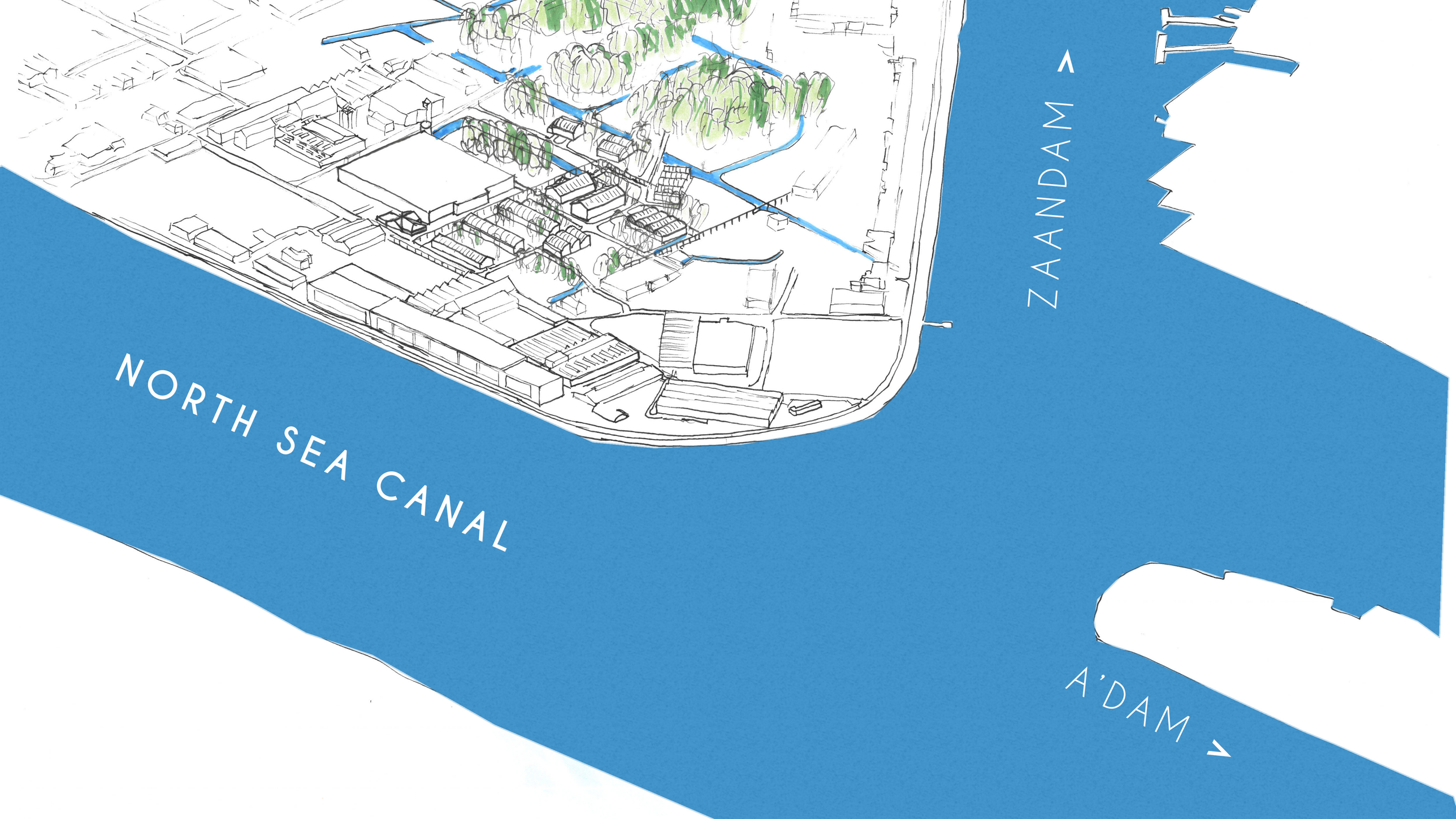
THE SOCIAL GREENHOUSE

Revitalising heritage through food :
An example of circular food production within urban areas

Graduation studio
Architecture & Heritage
30/01/2020

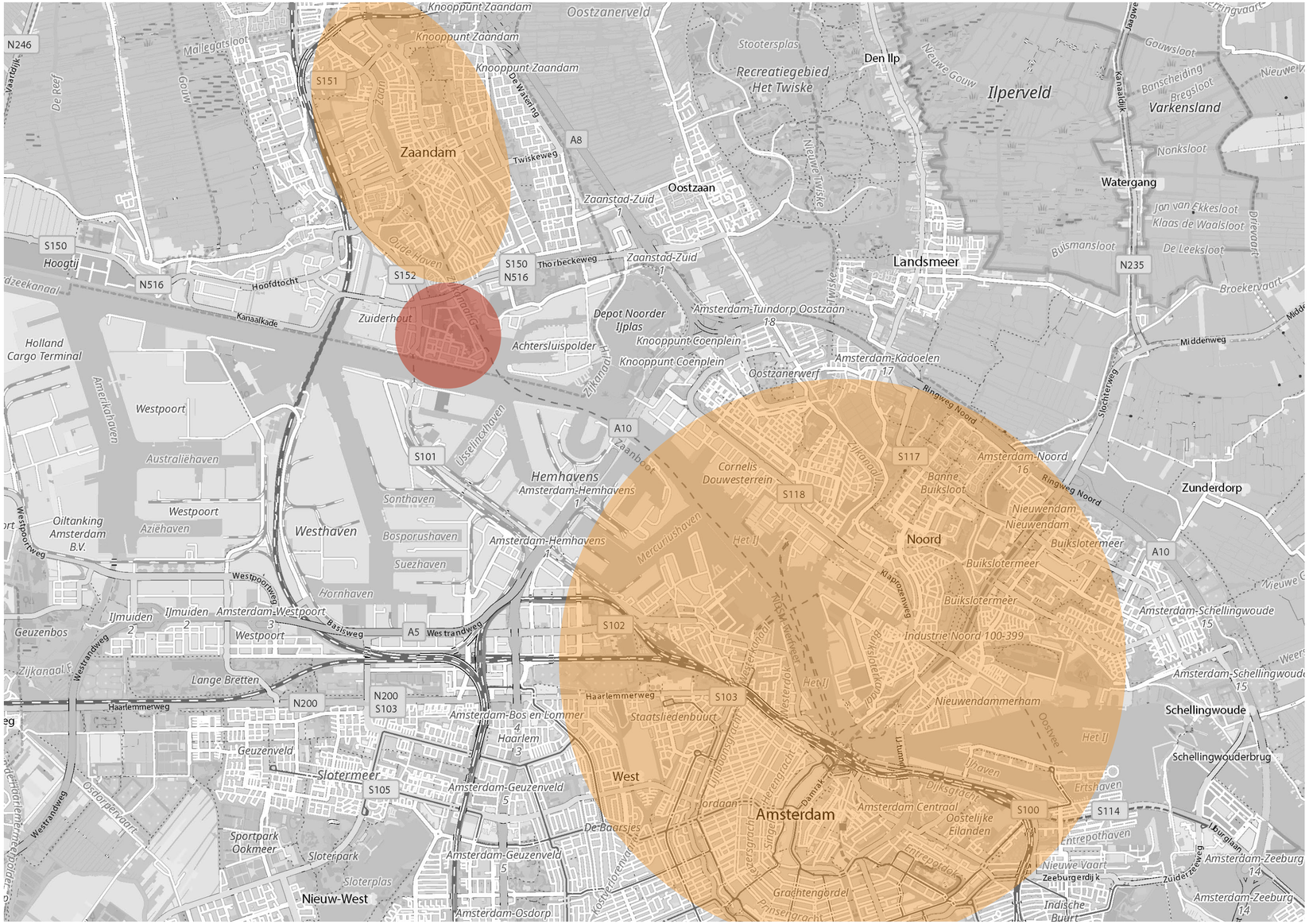
Amanda Verschuur
4636694


HEMBRUG
HIJ WERKT BIJ HEM
HEMBRUG
HEMBRUGONTWIKKELT.NL


NORTH SEA CANAL
ZAANDAM >
A'DAM >

CONTENTS

LOCATION

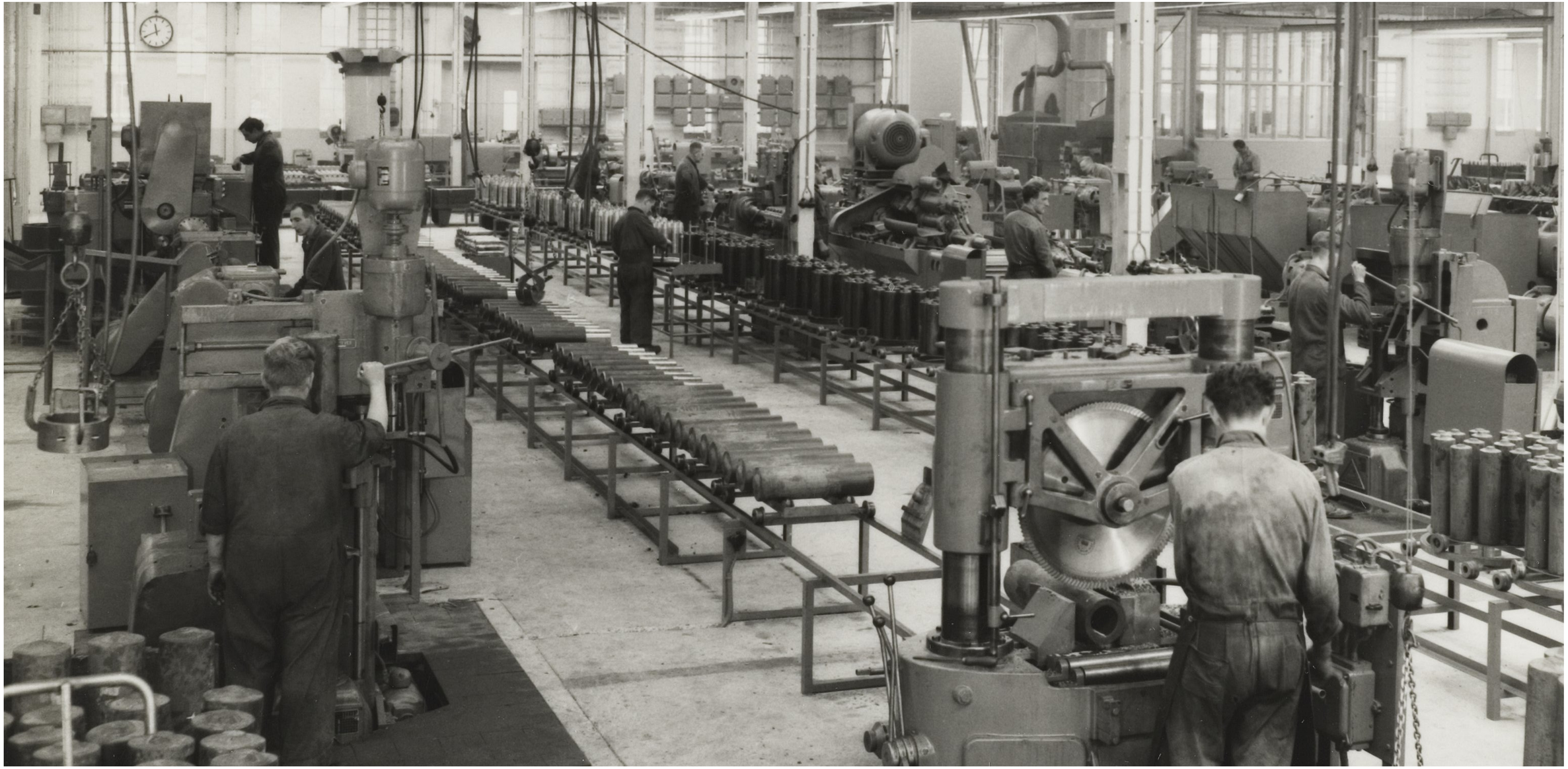


Location of Hembrug (*source: Openstreetmaps.org*)

THE MILITARY FACTORY

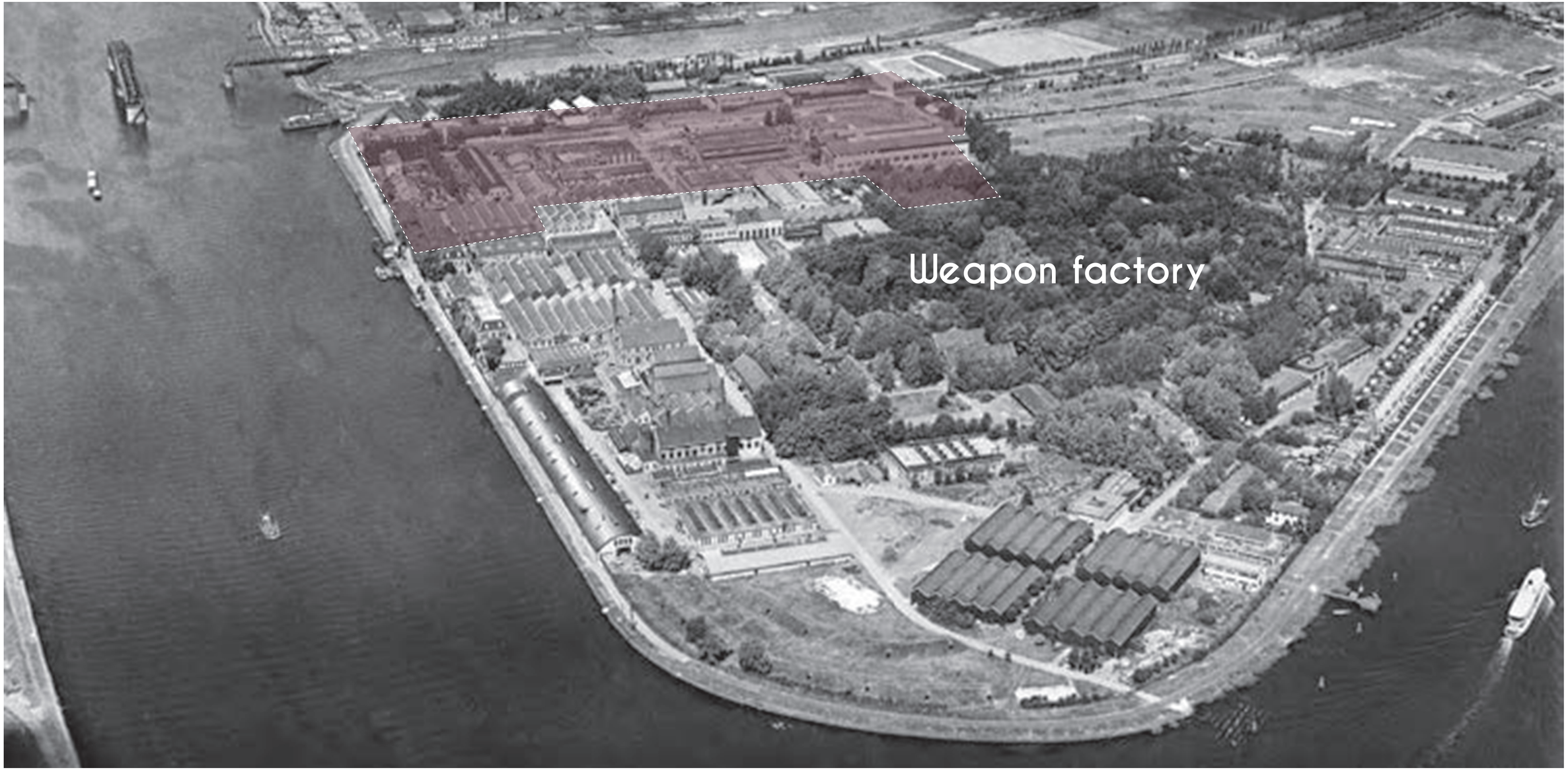
Location within Stelling van Amsterdam

THE MILITARY FACTORY



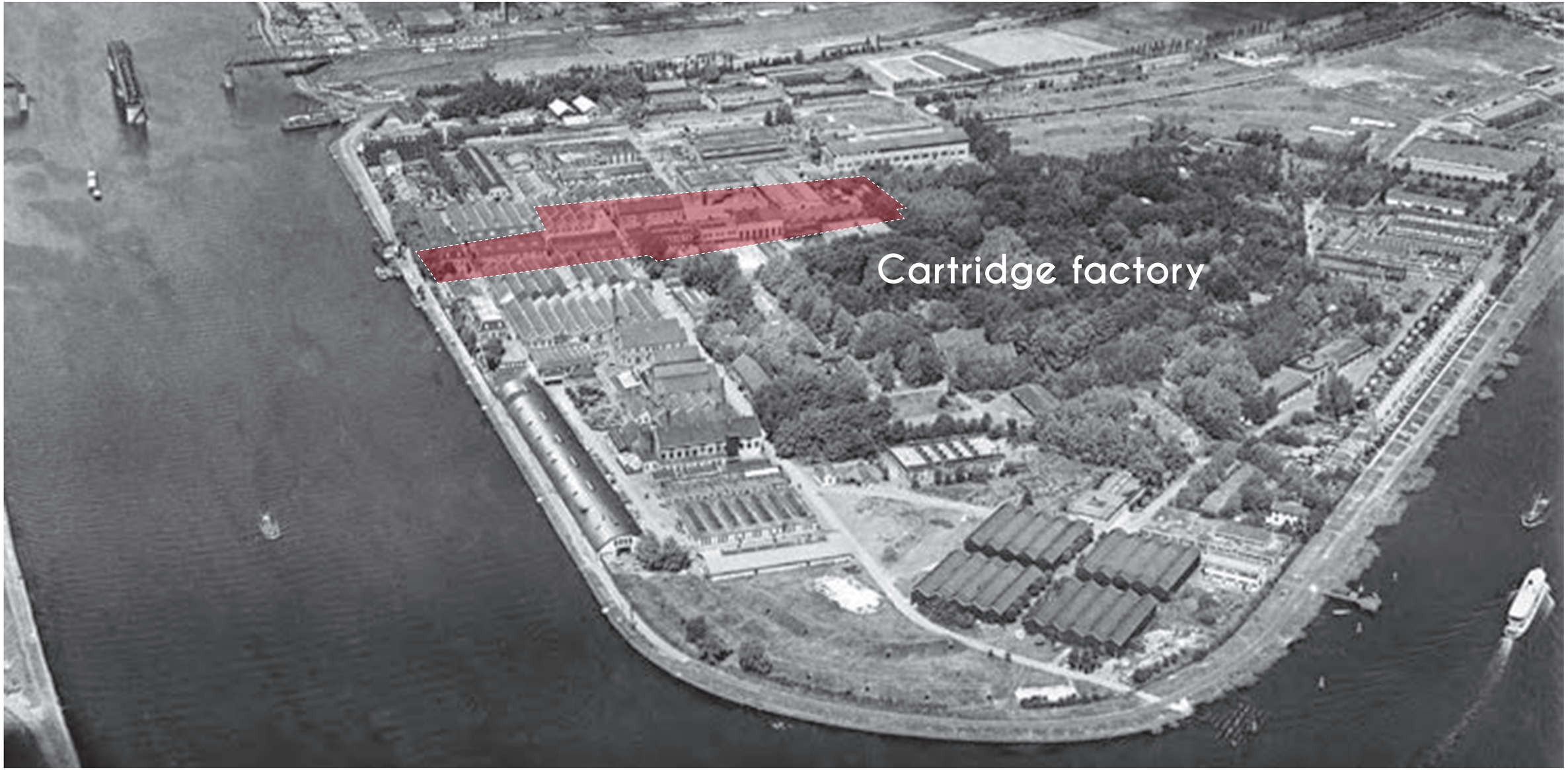
Production of grenades on Hembrug (*source: Dutch Ministry of Defense Archives)*

THE MILITARY FACTORY



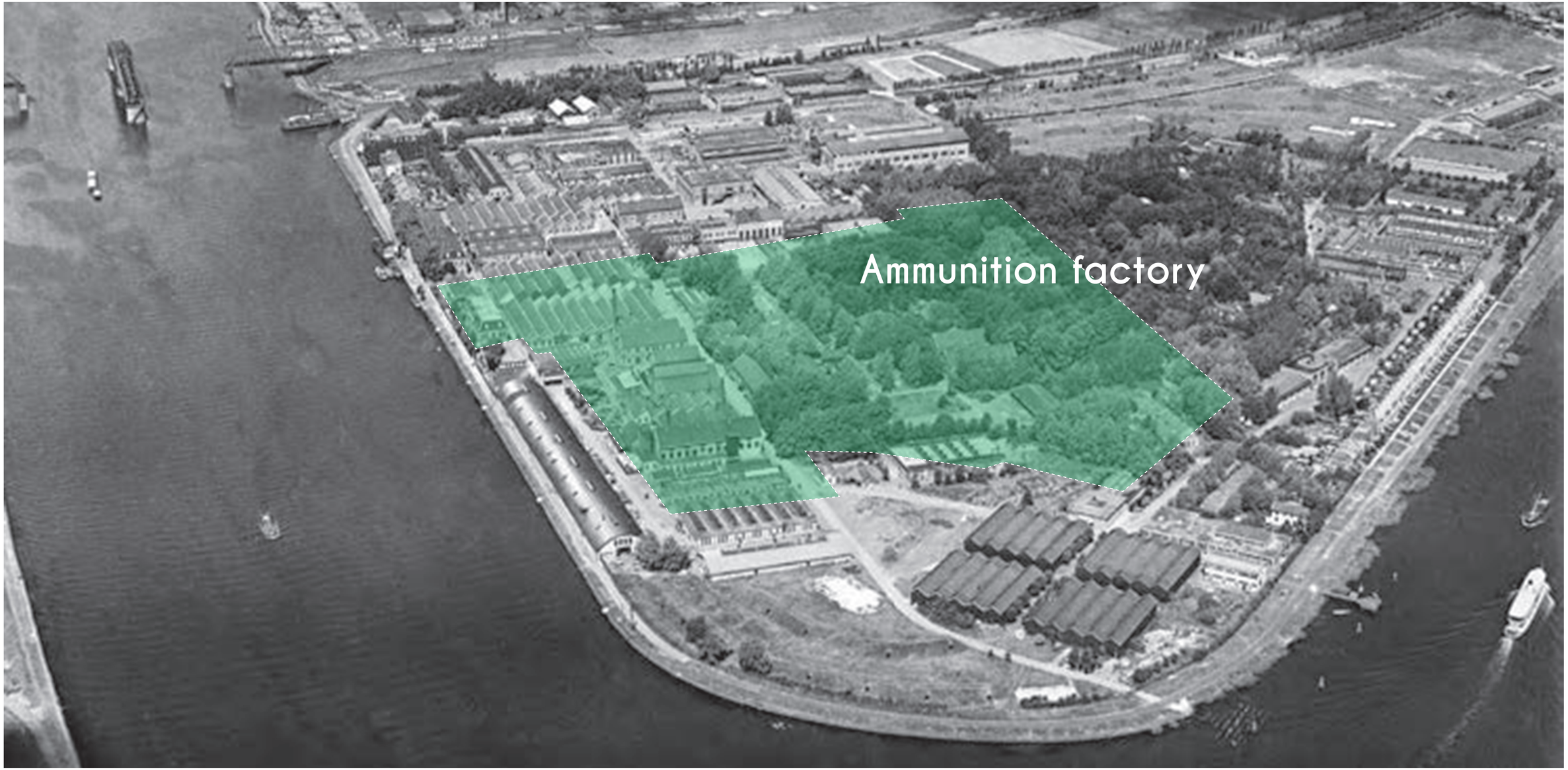
Zones of the three factories

THE MILITARY FACTORY



Zones of the three factories

THE MILITARY FACTORY

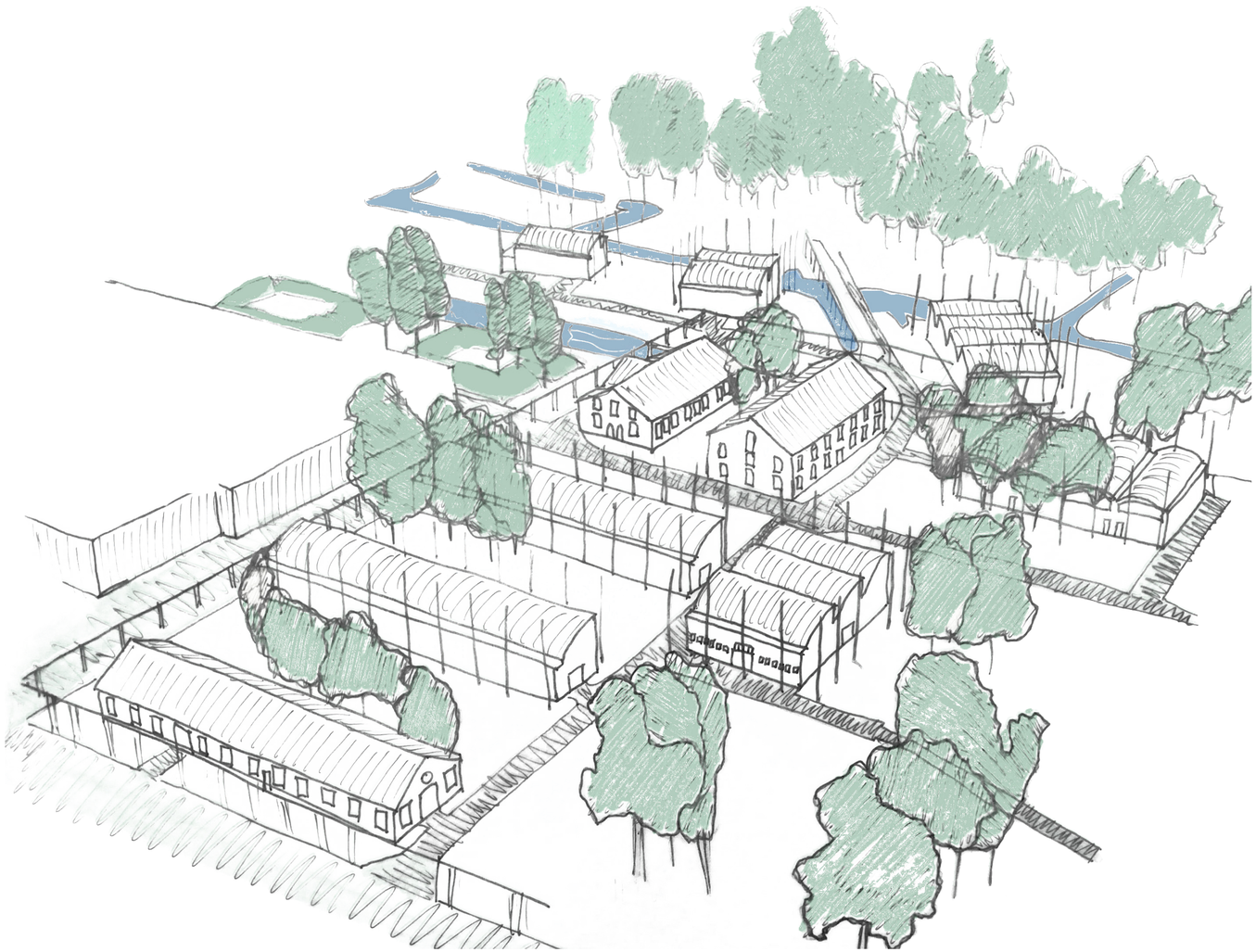


Zones of the three factories

THE MILITARY FACTORY

Zones of the three factories

PLOTS IN THE WOODS



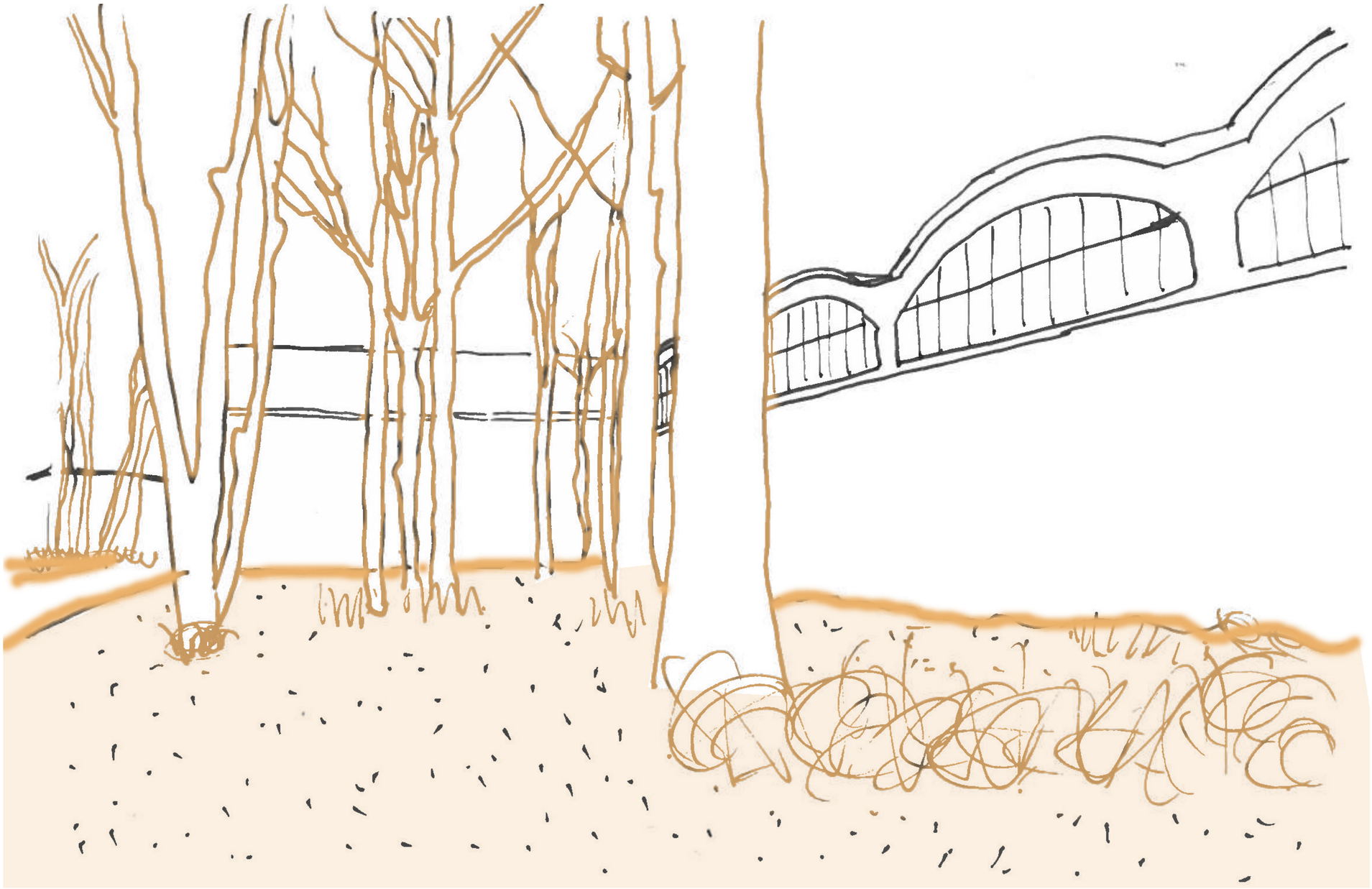
Current character

CULTURAL VALUE

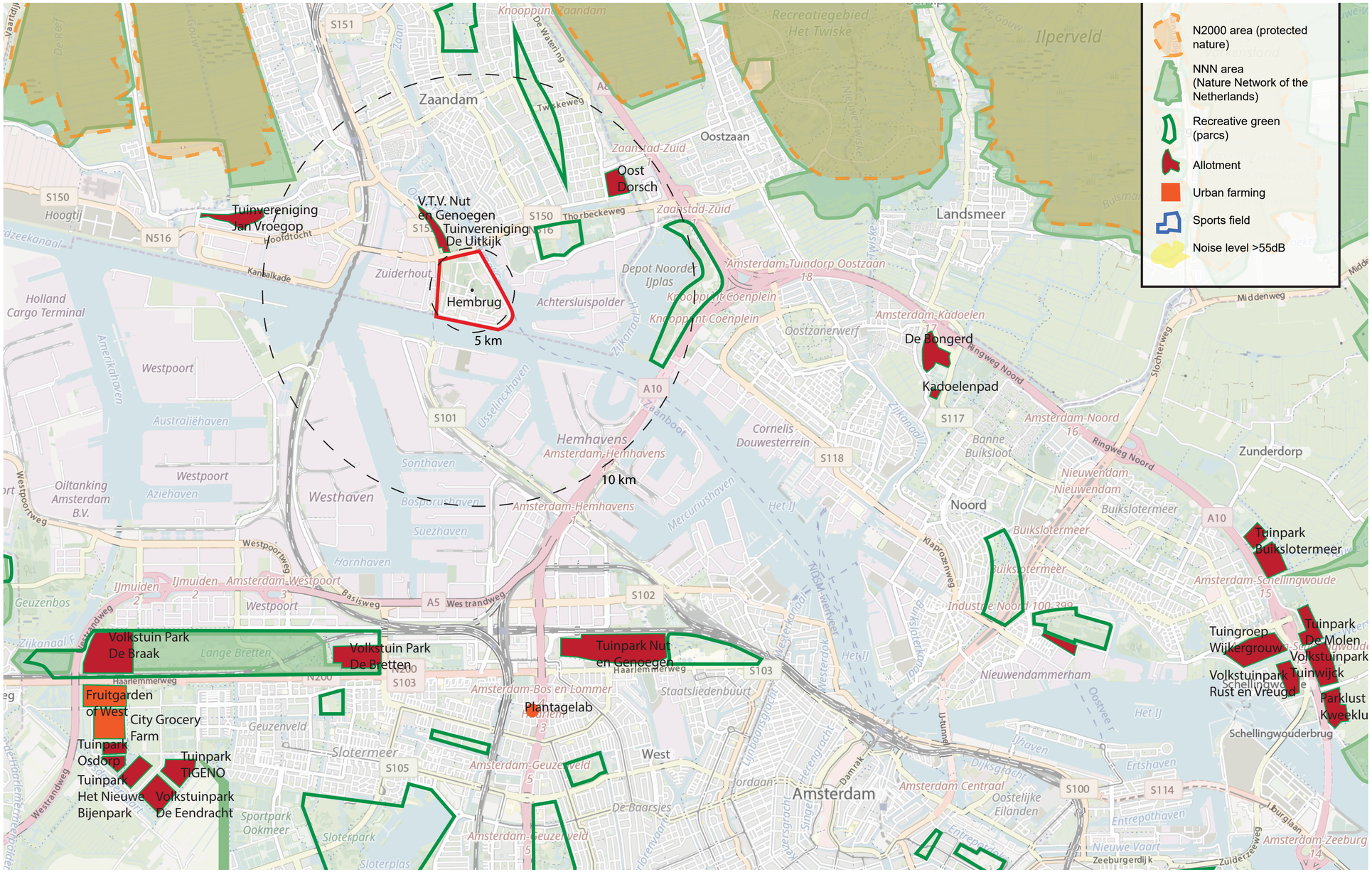
CULTURAL VALUE

CULTURAL VALUE

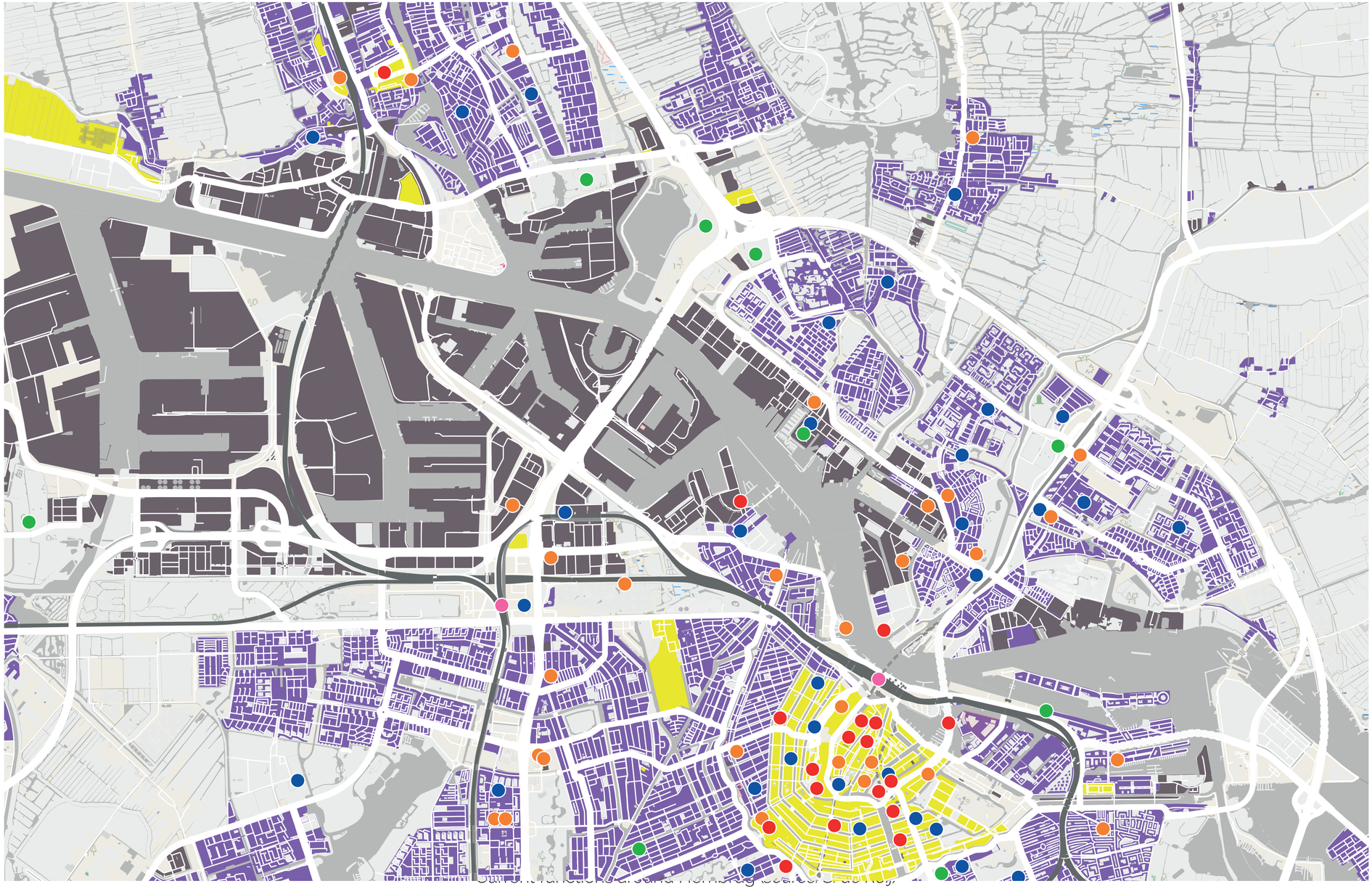
CULTURAL VALUE



CONTEXT

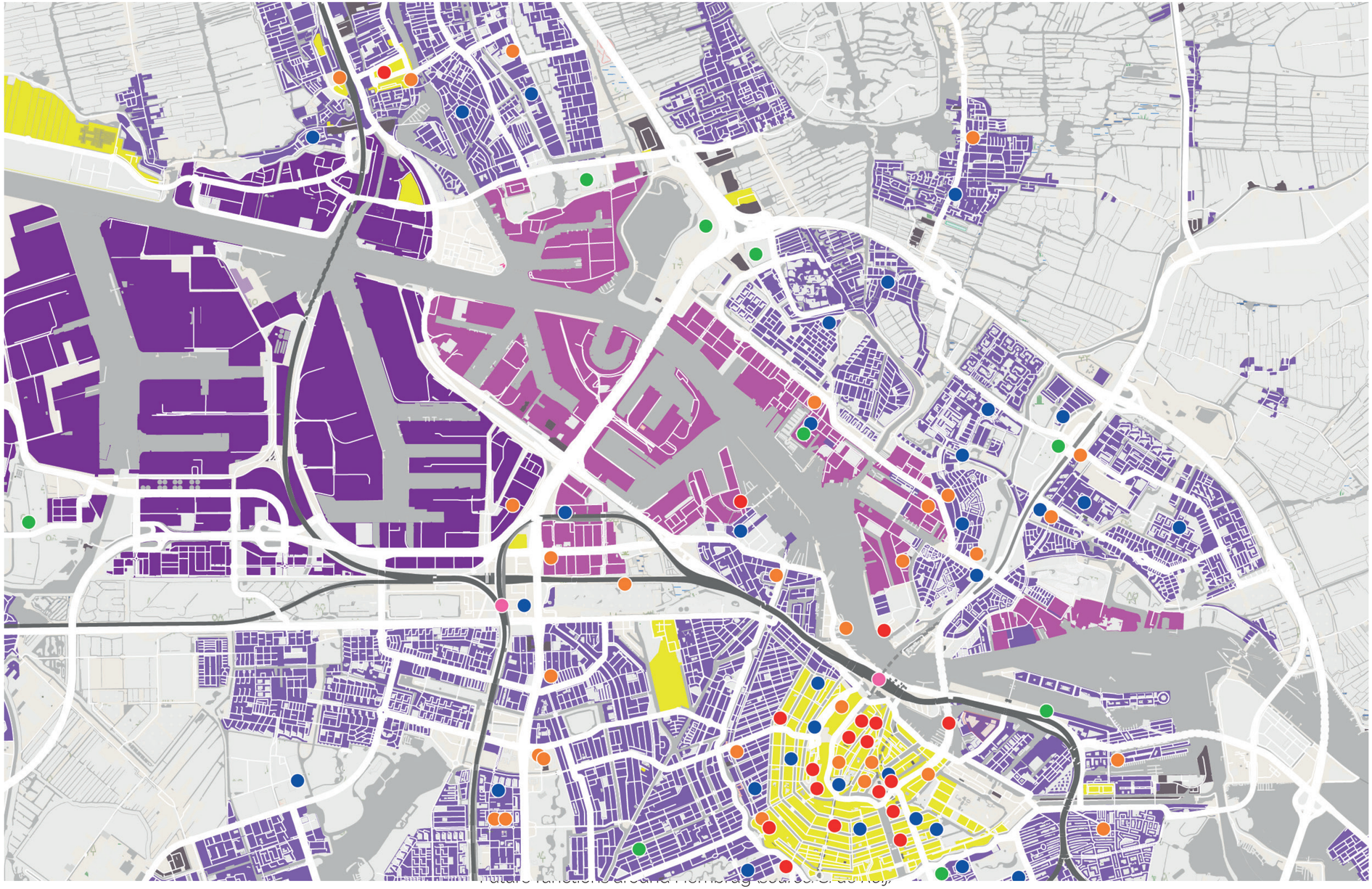

N2000 area (protected nature)
NNN area (Nature Network of the Netherlands)
Recreative green (parcs)
Allotment
Urban farming
Sports field
Noise level >55dB
Tuinvereniging Jan Vroegop
V.T.V. Nut en Genoegen
Tuinvereniging De Uitkijk
Oost Dorsch
Hembrug
5 km
10 km
De Bongerd
Kadoelenpad
Tuinpark Buikslotermeer
Tuingroep Wilkergrouw
Tuinpark De Molen
Volkstuinpark Tuinwijck
Volkstuinpark Rust en Vreugd
Volkstuin Park De Braak
Volkstuin Park De Bretten
Tuinpark Nut en Genoegen
Fruitgarden of West
City Grocery Farm
Tuinpark Osdorp
Tuinpark TIGENO
Tuinpark Het Nieuwe Bijenpark
Volkstuinpark De Eendracht
Plantagelab
Zaandam
Oostzaan
Landsmeer
Zunderdorp
Noord
West
Amsterdam
Westhaven
Hemhavens
Slotermeer
Ilperveld

CONTEXT



Current transition areas and forming centers (Lab City)

CONTEXT



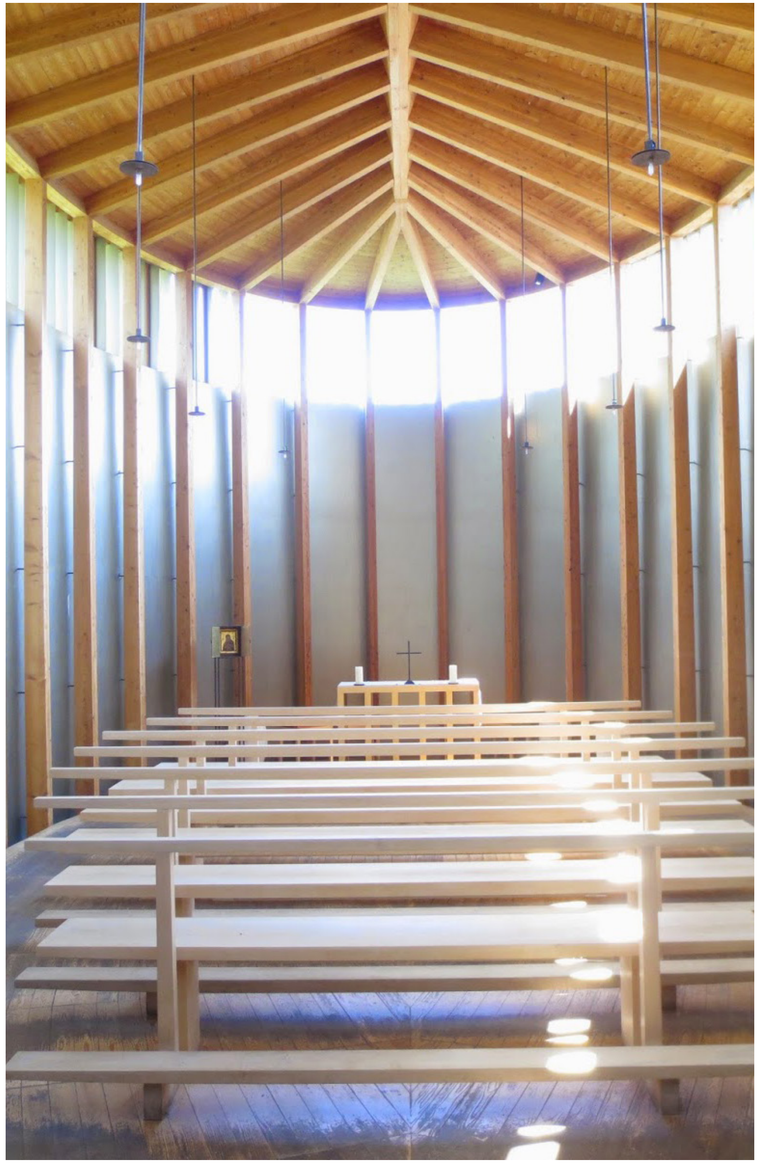
PROBLEM STATEMENT

HOW CAN THE ‘PLOTS IN THE WOODS’ ENSEMBLE CONNECT PEOPLE AND NATURE AND BE TRANSFORMED INTO A PART OF THE CITY WITHOUT LOSING ITS CURRENT CHARACTER?

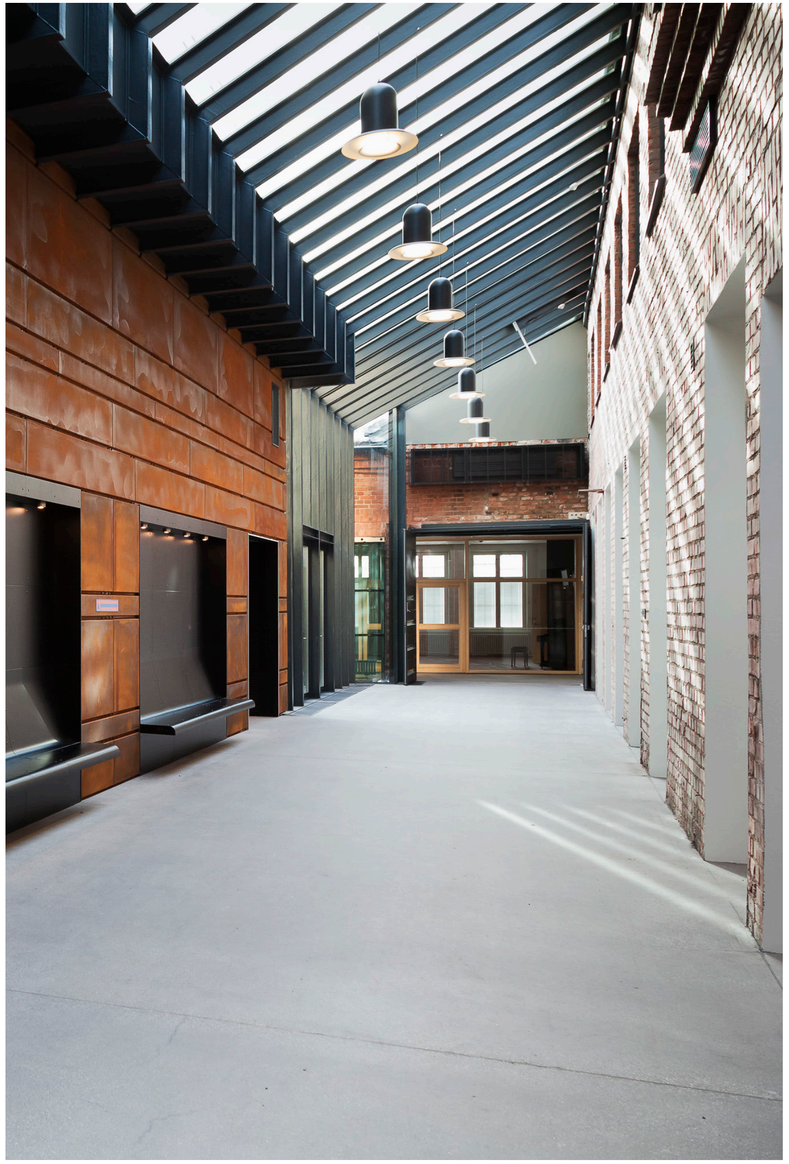
PROBLEM STATEMENT

HOW CAN CHARACTER BE TAKEN INTO ACCOUNT WITHIN A HERITAGE DESIGN PROJECT?

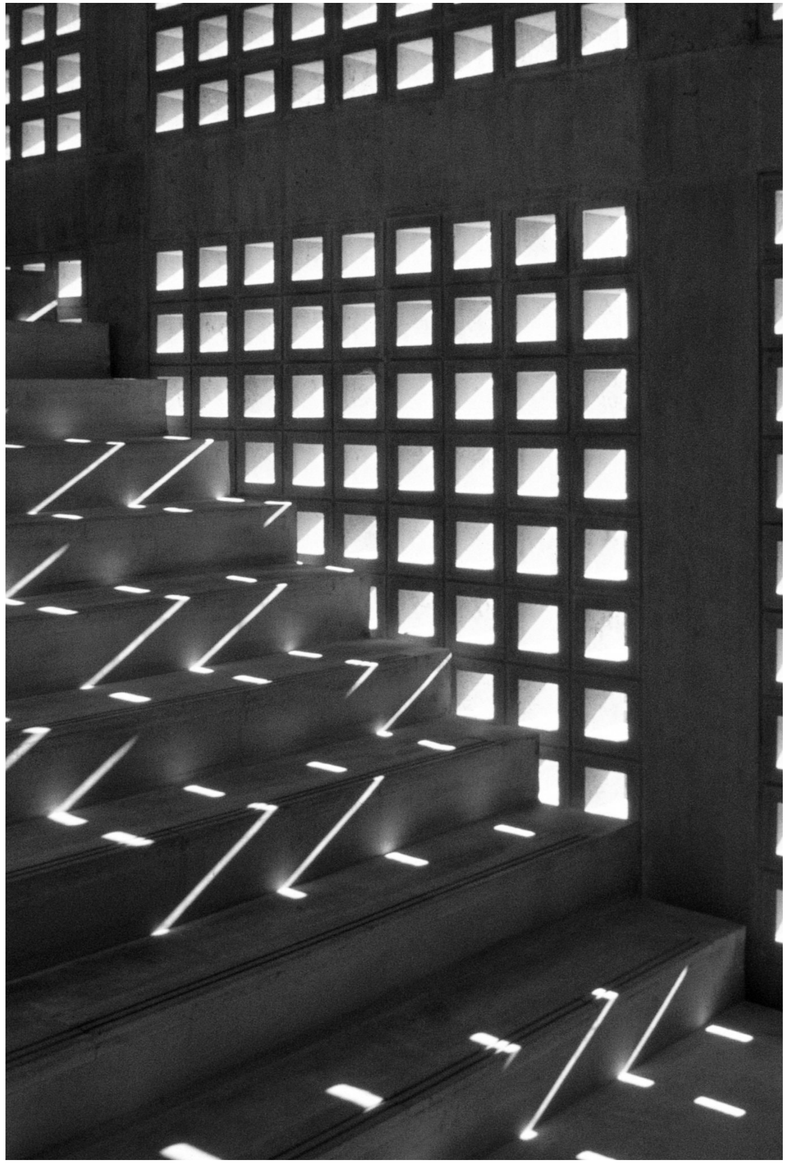
CHARACTER



Zumthor



Pallasmaa



Ando


CIRCLE ECONOMY
City of Amsterdam
BUILDING BLOCKS
FOR THE NEW
STRATEGY
AMSTERDAM
CIRCULAR
2020-2025
Directions for a thriving city within
the planetary boundaries
Date: 19.06.2019

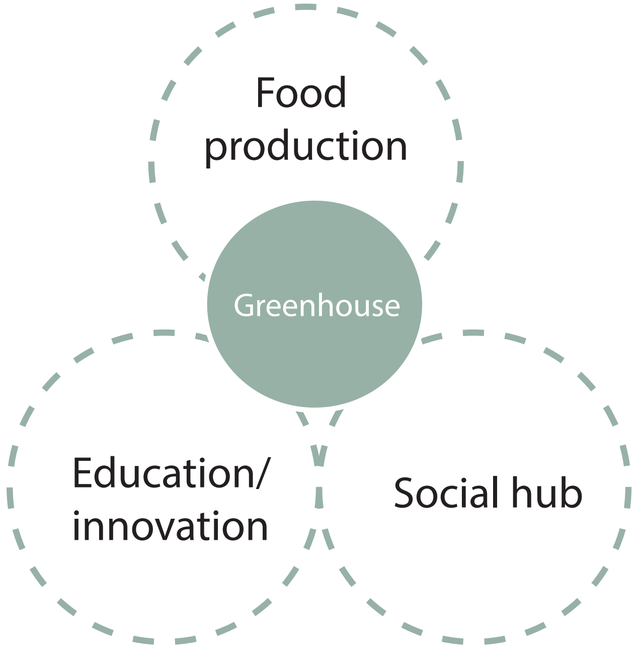
SOCIAL RELEVANCE

FOOD PRODUCTION IN URBAN AREAS

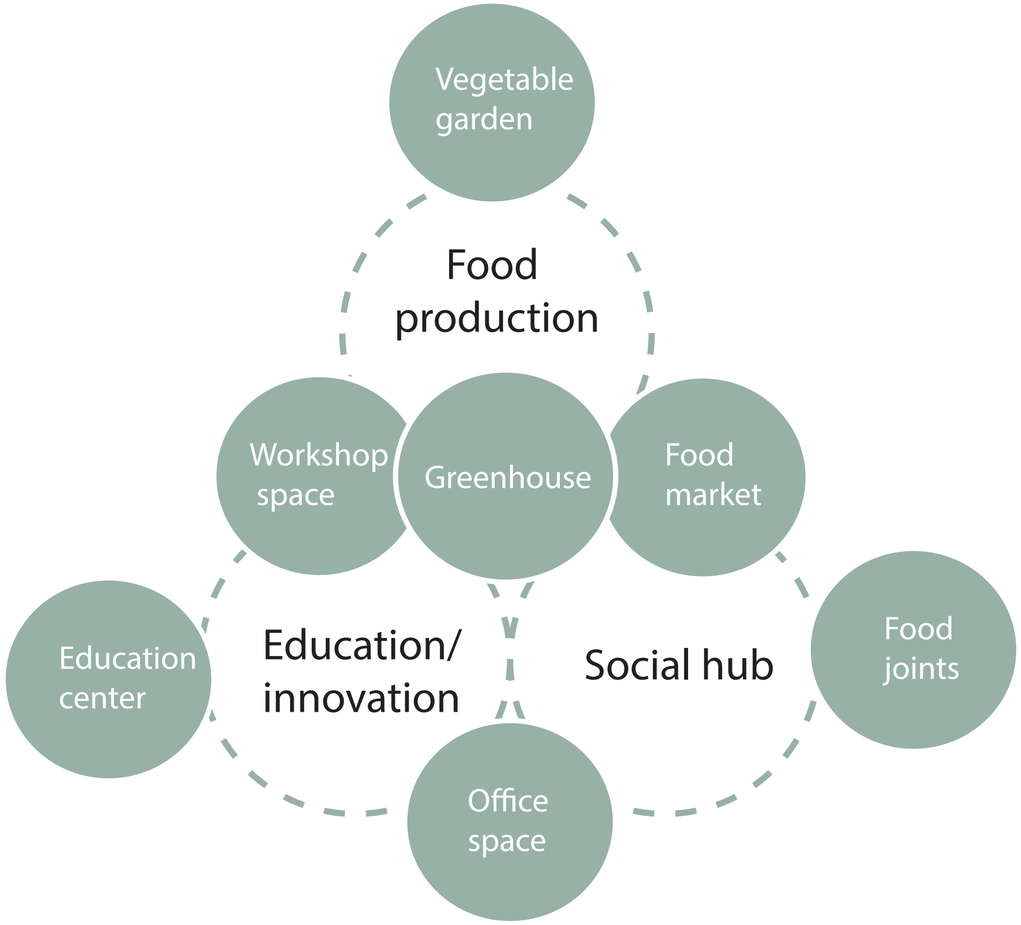
PUBLIC AWARENESS

SOCIAL COHESION

CONCEPT


Food production
Greenhouse
Education/ innovation
Social hub

CONCEPT


Vegetable garden
Food production
Workshop space
Greenhouse
Food market
Education center
Education/ innovation
Social hub
Food joints
Office space

MASTERPLAN

MASTERPLAN

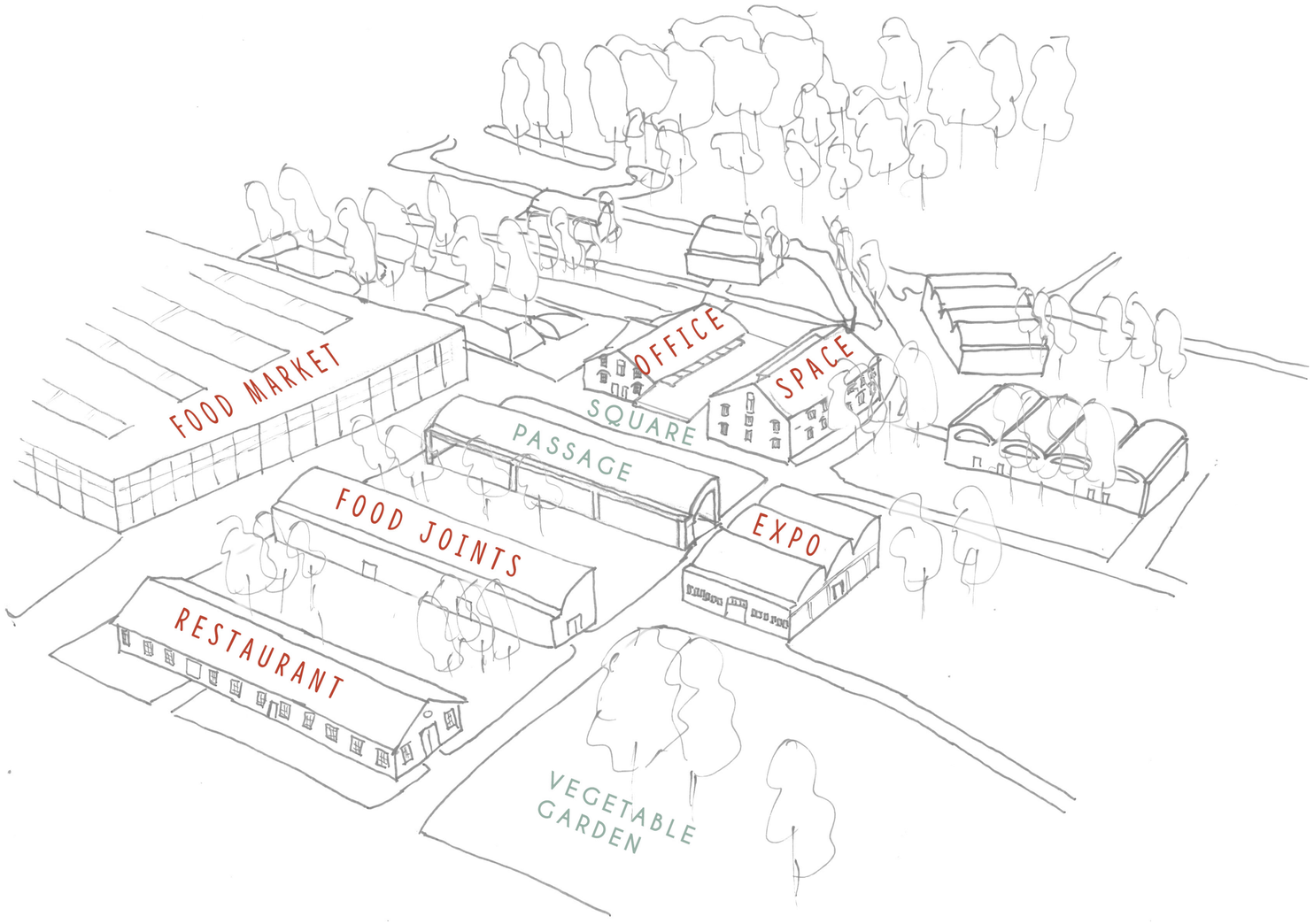
MASTERPLAN

MASTERPLAN

MASTERPLAN

MASTERPLAN

MASTERPLAN



Functions within the new program

SUSTAINABILITY

FOOD

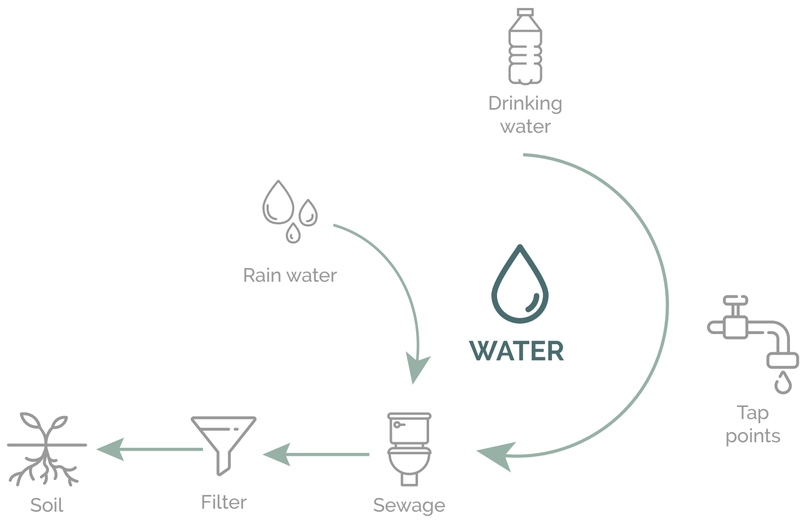
WATER

ENERGY

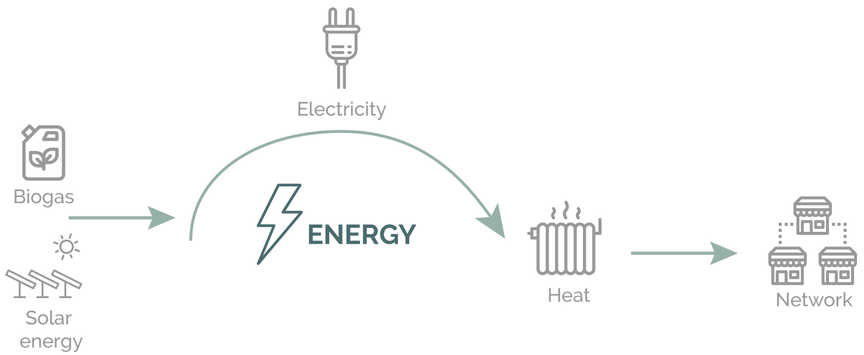
MATERIALS

SUSTAINABILITY

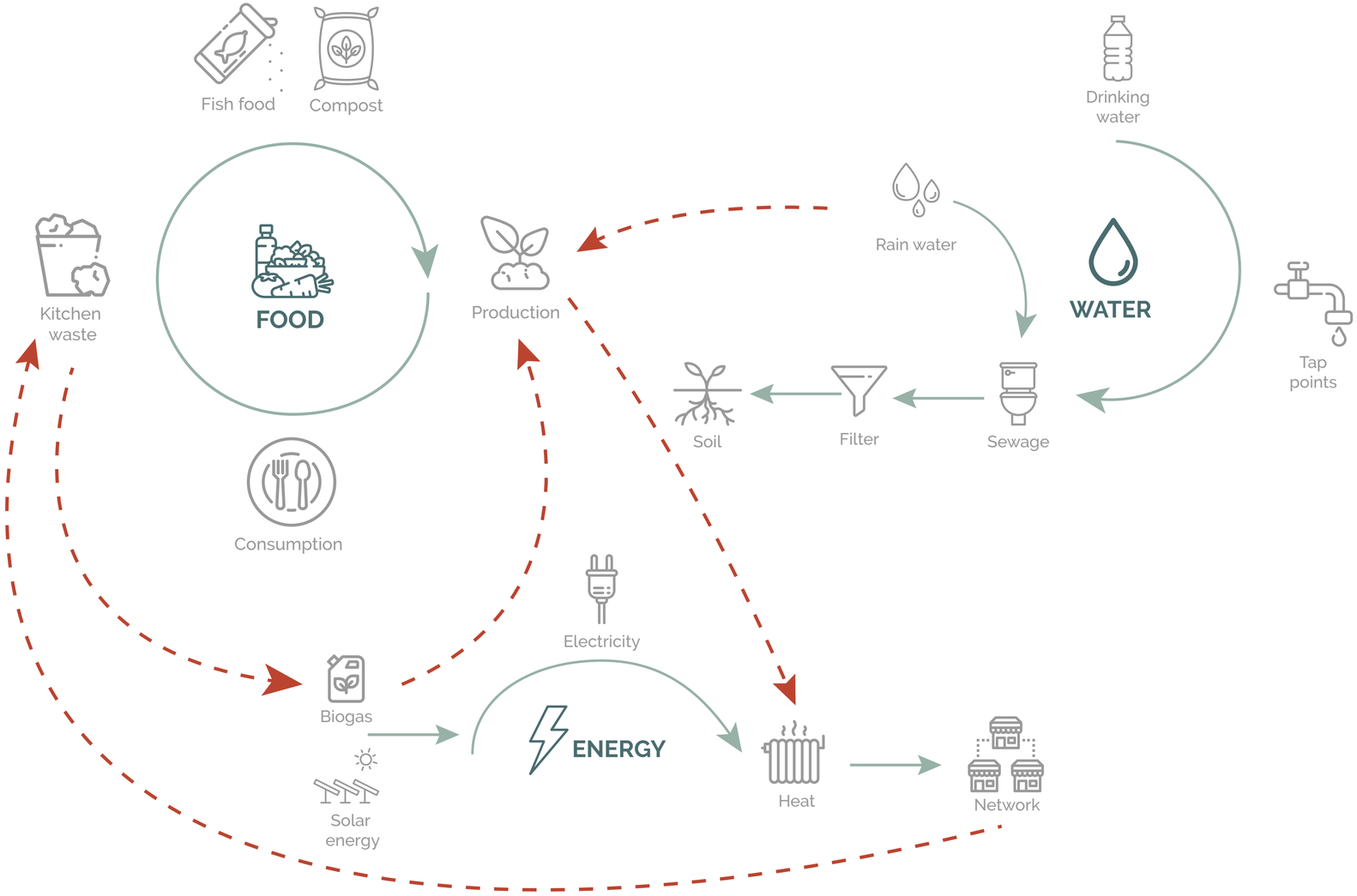
SUSTAINABILITY



SUSTAINABILITY



SUSTAINABILITY



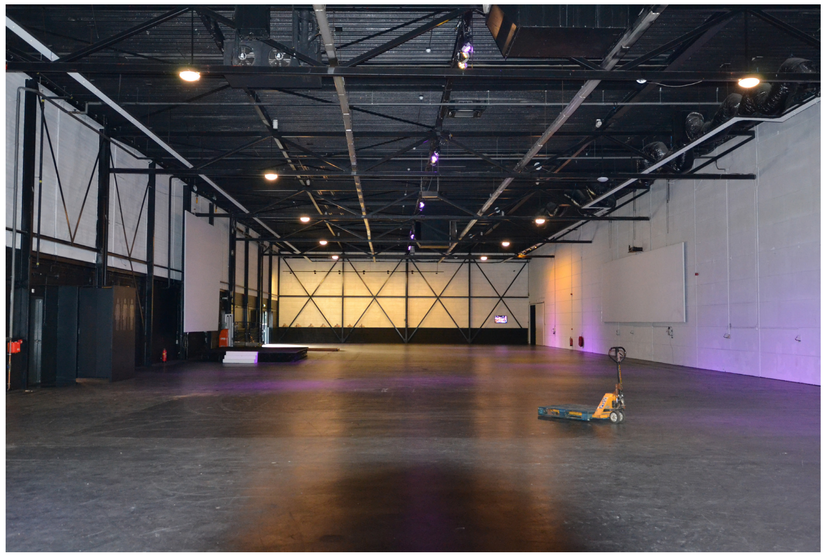
MASTERPLAN

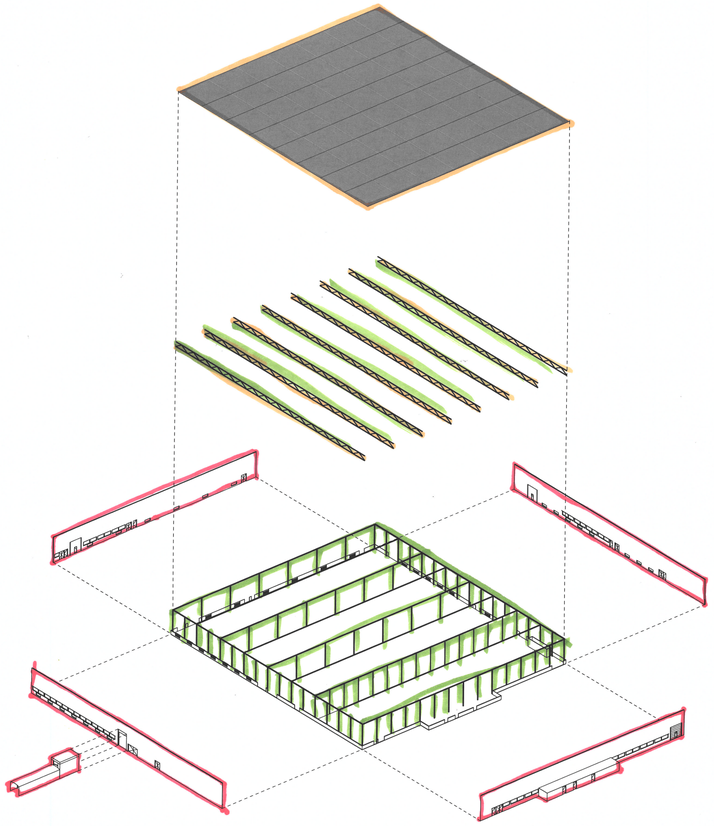
BUILDING 01 GREENHOUSE WITH FOOD HALL

BUILDING 01 GREENHOUSE WITH FOOD HALL

BUILDING 01

CULTURAL VALUE





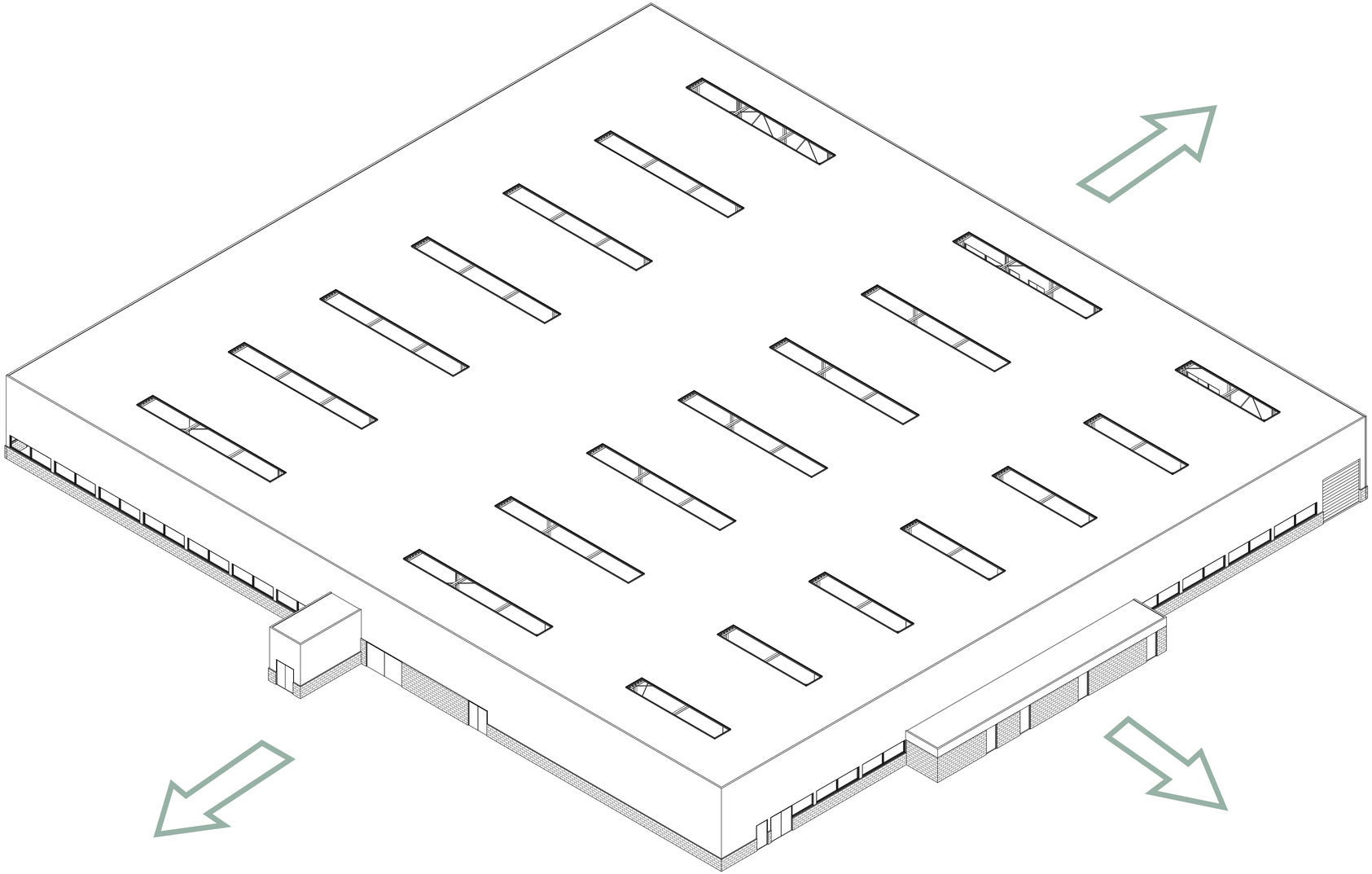
01

Maintain

Maintain if possible

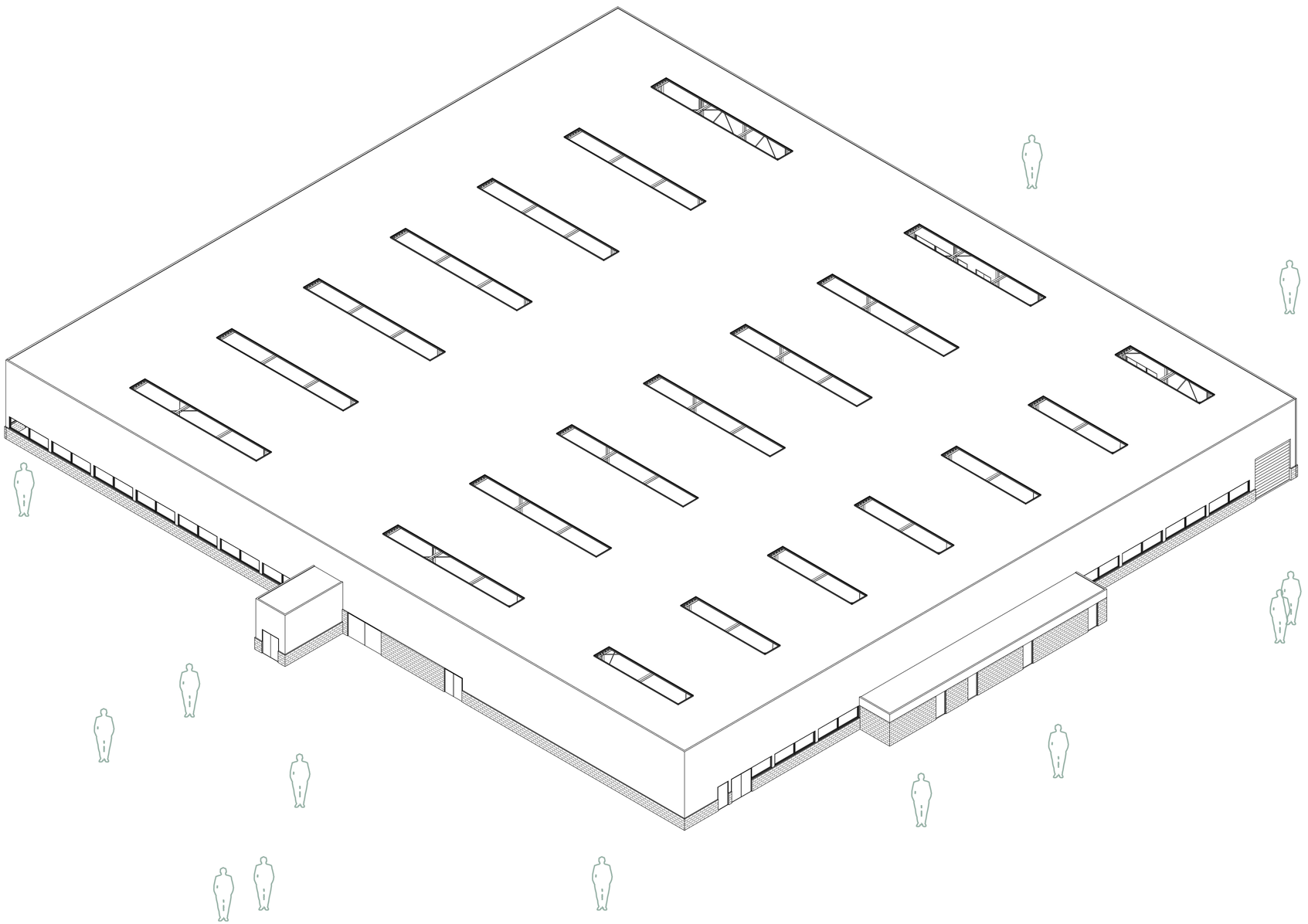
Little significance

STARTING POINTS



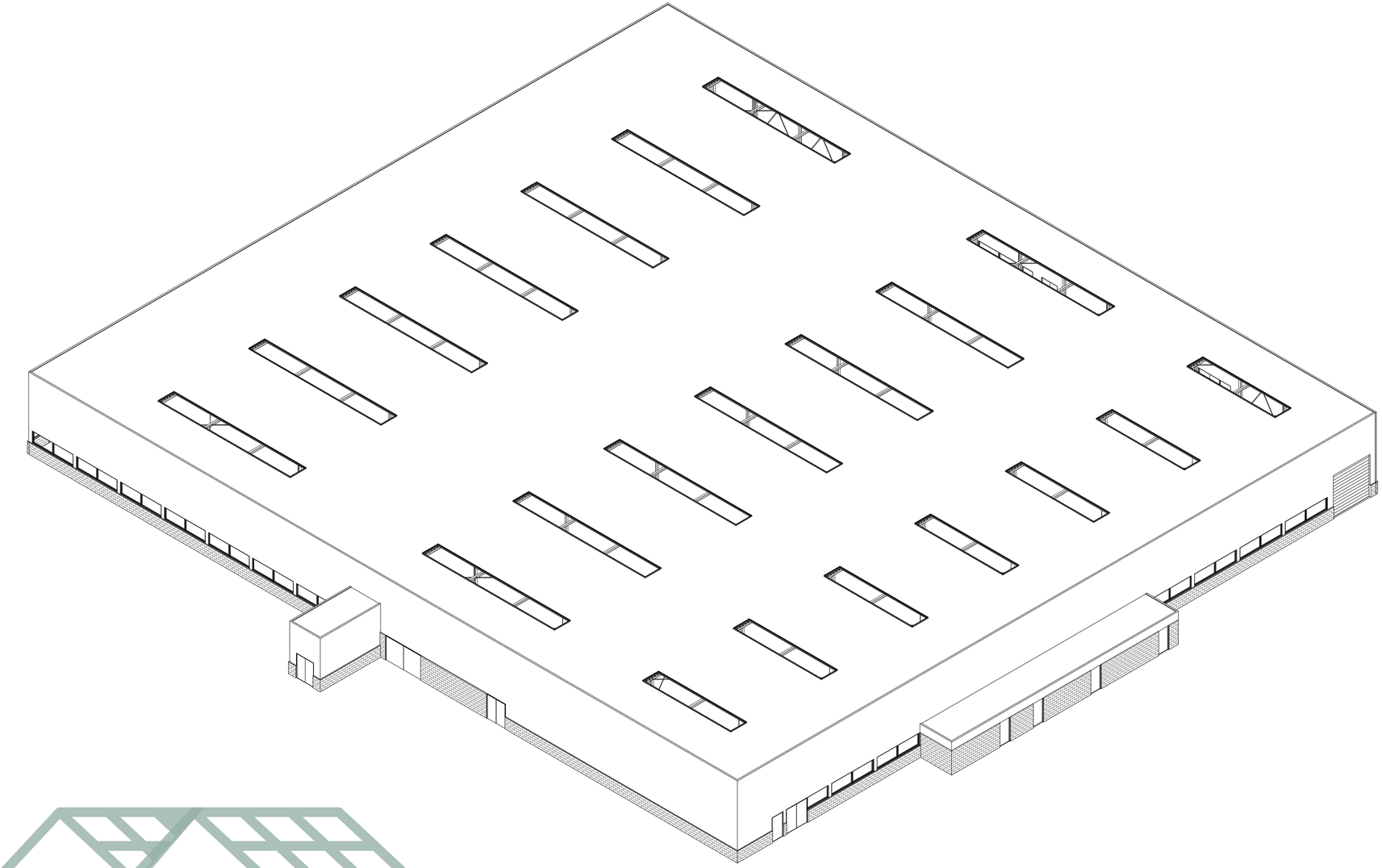
CONNECT TO REST OF ENSEMBLE

STARTING POINTS



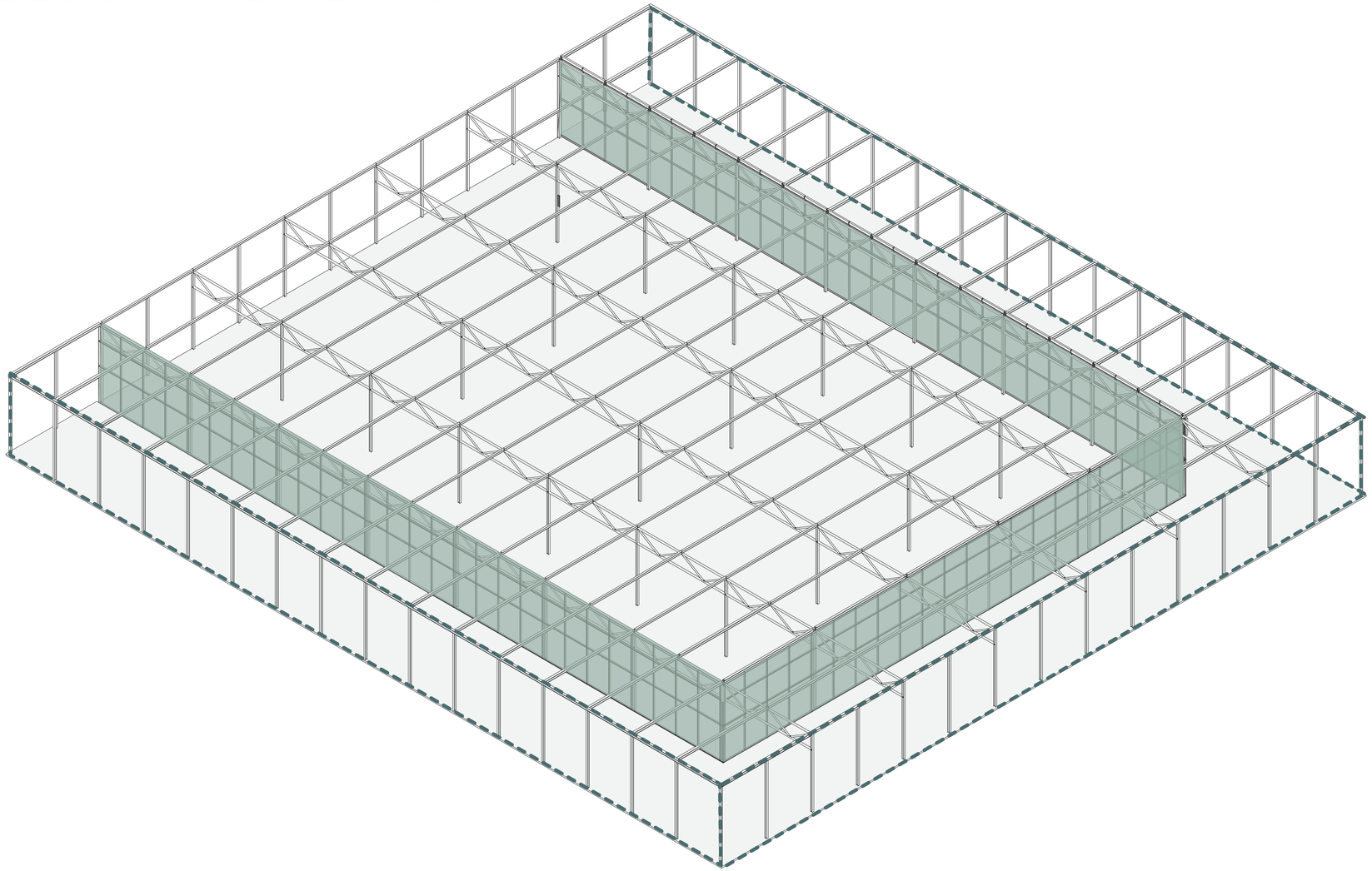
TRANSFORM INTO A PUBLIC BUILDING

STARTING POINTS

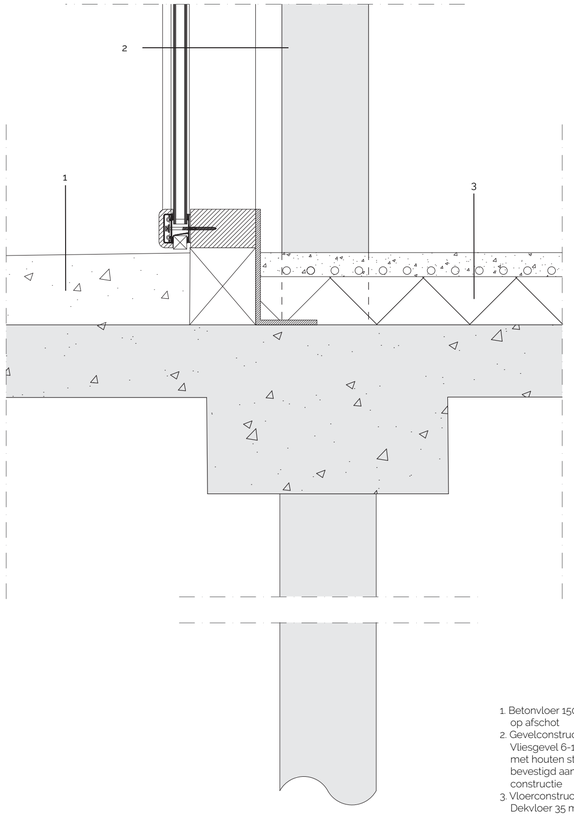


IMPLEMENT A GREENHOUSE

DESIGN INTERVENTIONS



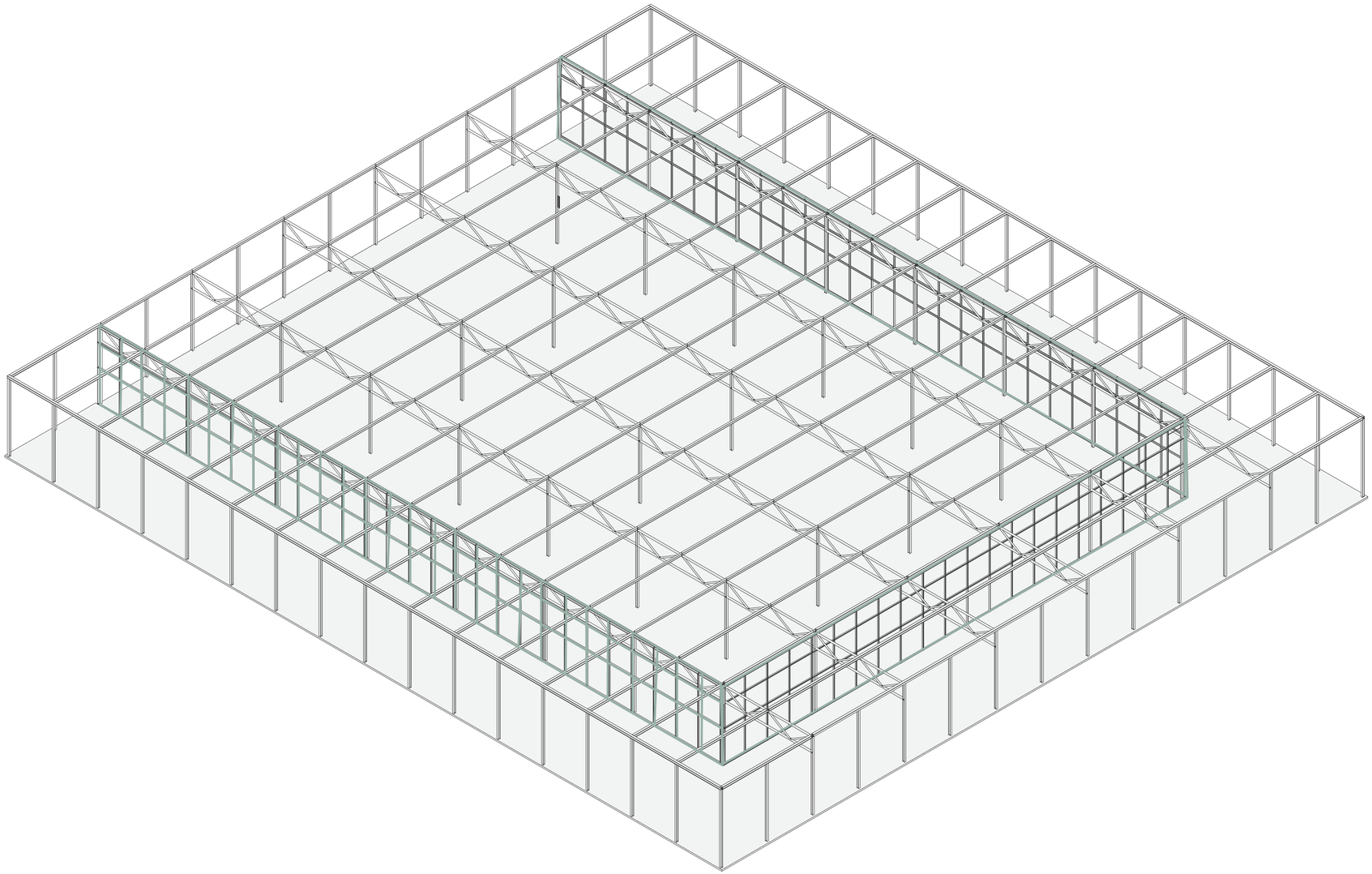
Detail B.1
Begane grond vloer
Schaal 1:5



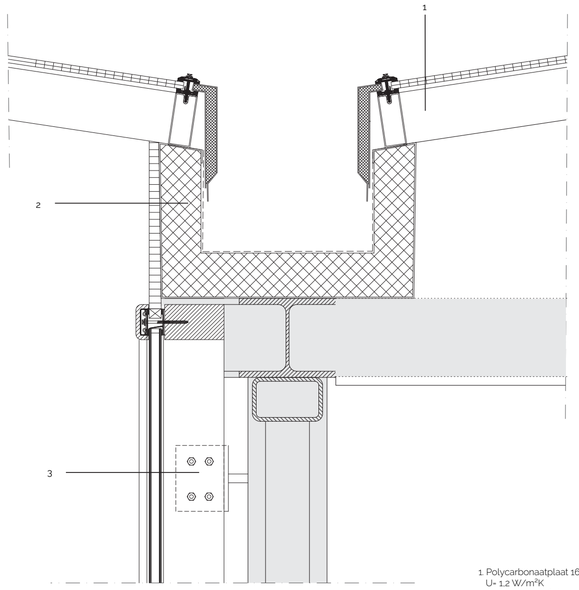
1. Betonvloer 150 mm,
   op afschot
2. Gevelconstructie:
   Vliesgevel 6-12-6 mm
   met houten stijlen en reg
   bevestigd aan bestaande
   constructie
3. Vloerconstructie
   Dekvloer 35 mm
   Noppenplaat 18 mm
   Isolatie 120 mm
   Betonvloer 150 mm (best.

PLACE FACADES INWARDS

DESIGN INTERVENTIONS



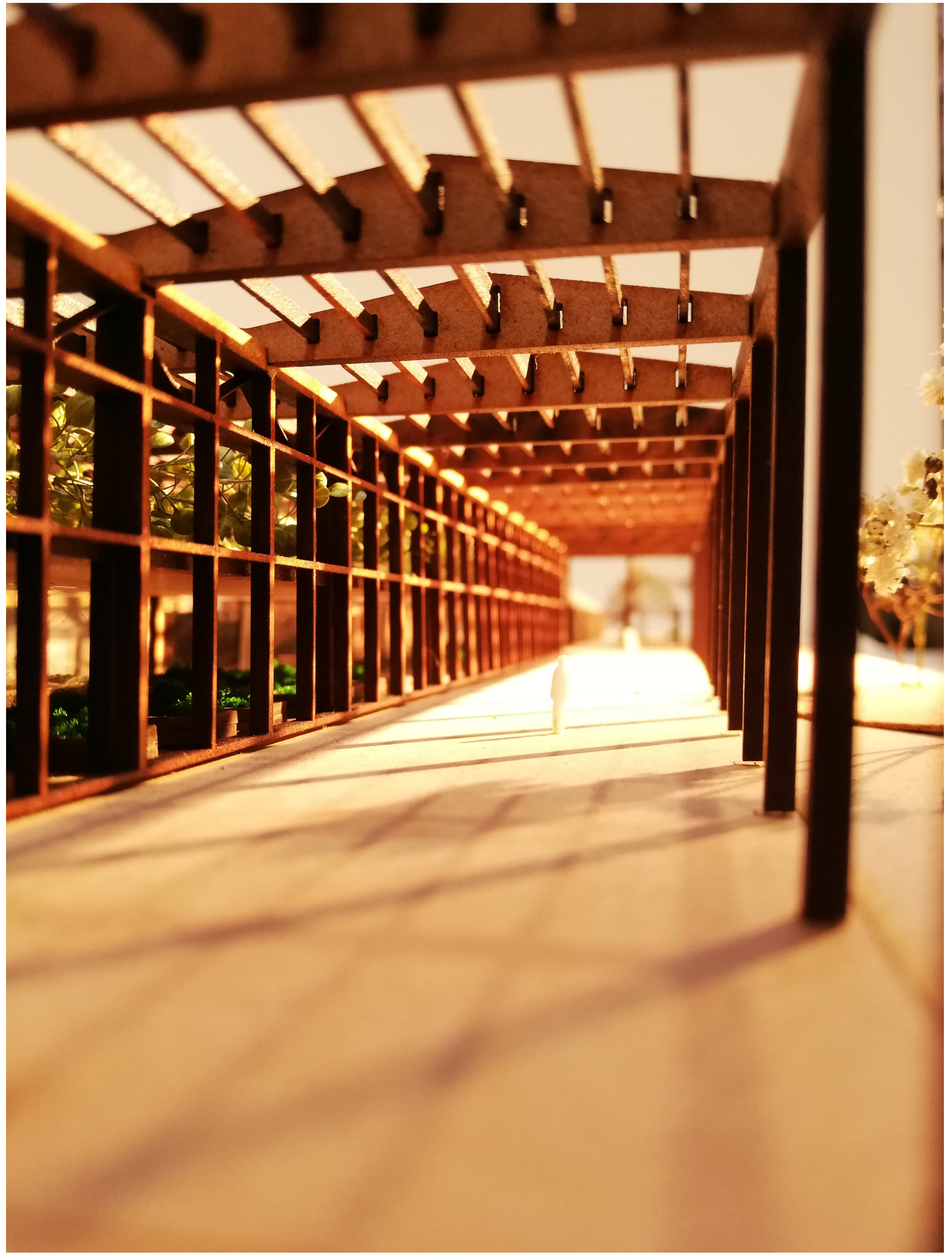
Detail B.4
Aansluiting dak - gevel
Schaal 1:5



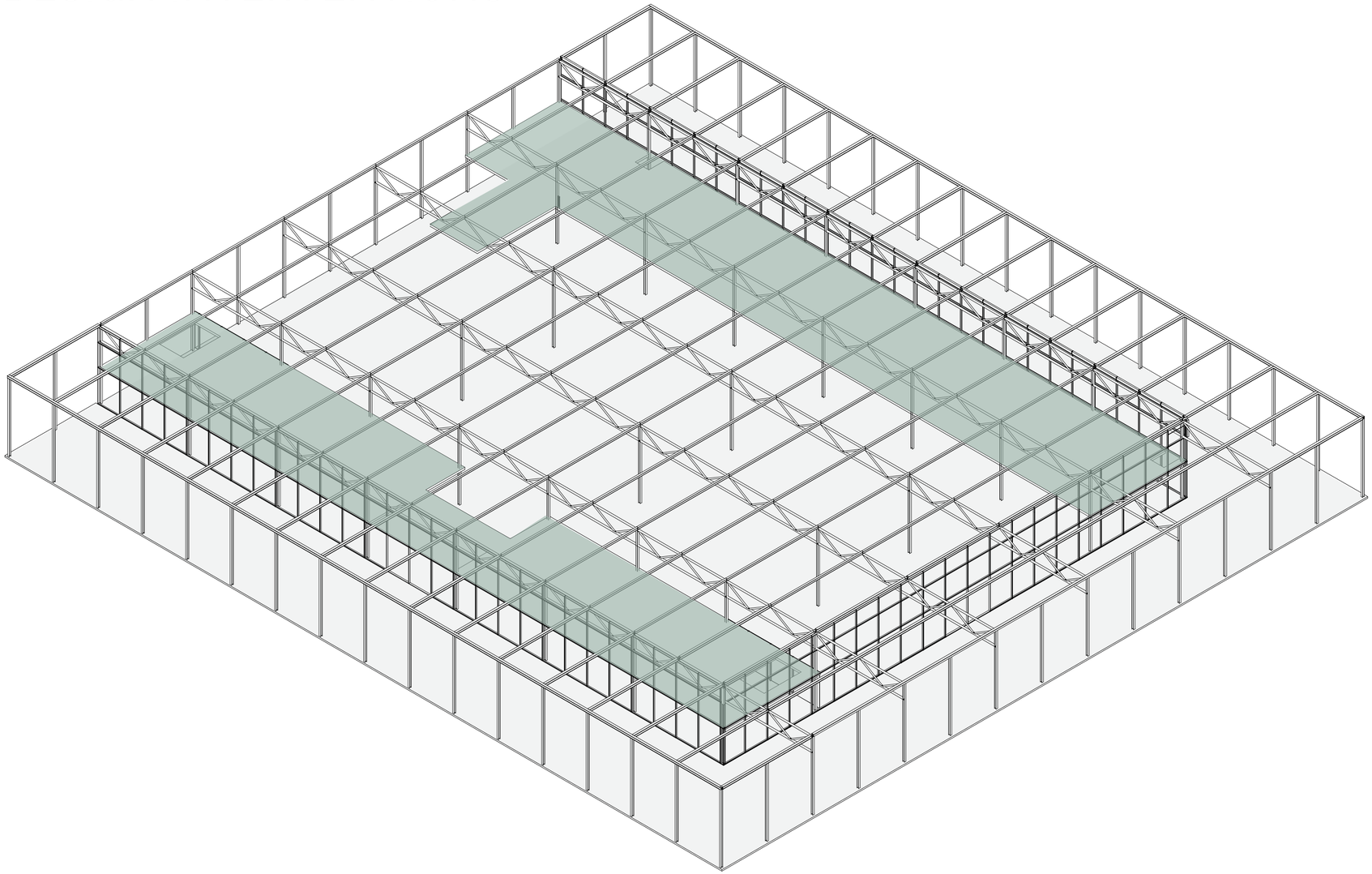
1. Polycarbonaatplaat 16 mm
   U= 1.2 W/m²K
   Aluminium profielen,
   50 mm breed
2. EPDM laag
   Isolatieplaat 100 mm
   Gebogen plaatstaal 3mm
   Houten beplating 18 mm
3. Gevelconstructie:v
   Vliesgevel 6-12-6 mm
   met houten stijlen en regels,
   bevestigd aan bestaande
   constructie

PLACE FACADE WITH OPEN CHARACTER

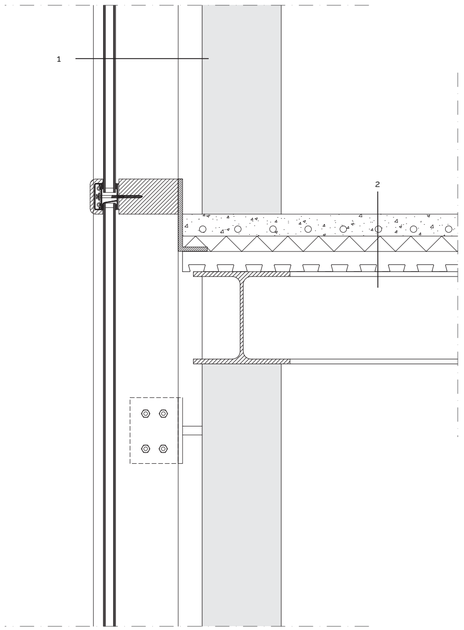
DESIGN INTERVENTIONS



DESIGN INTERVENTIONS



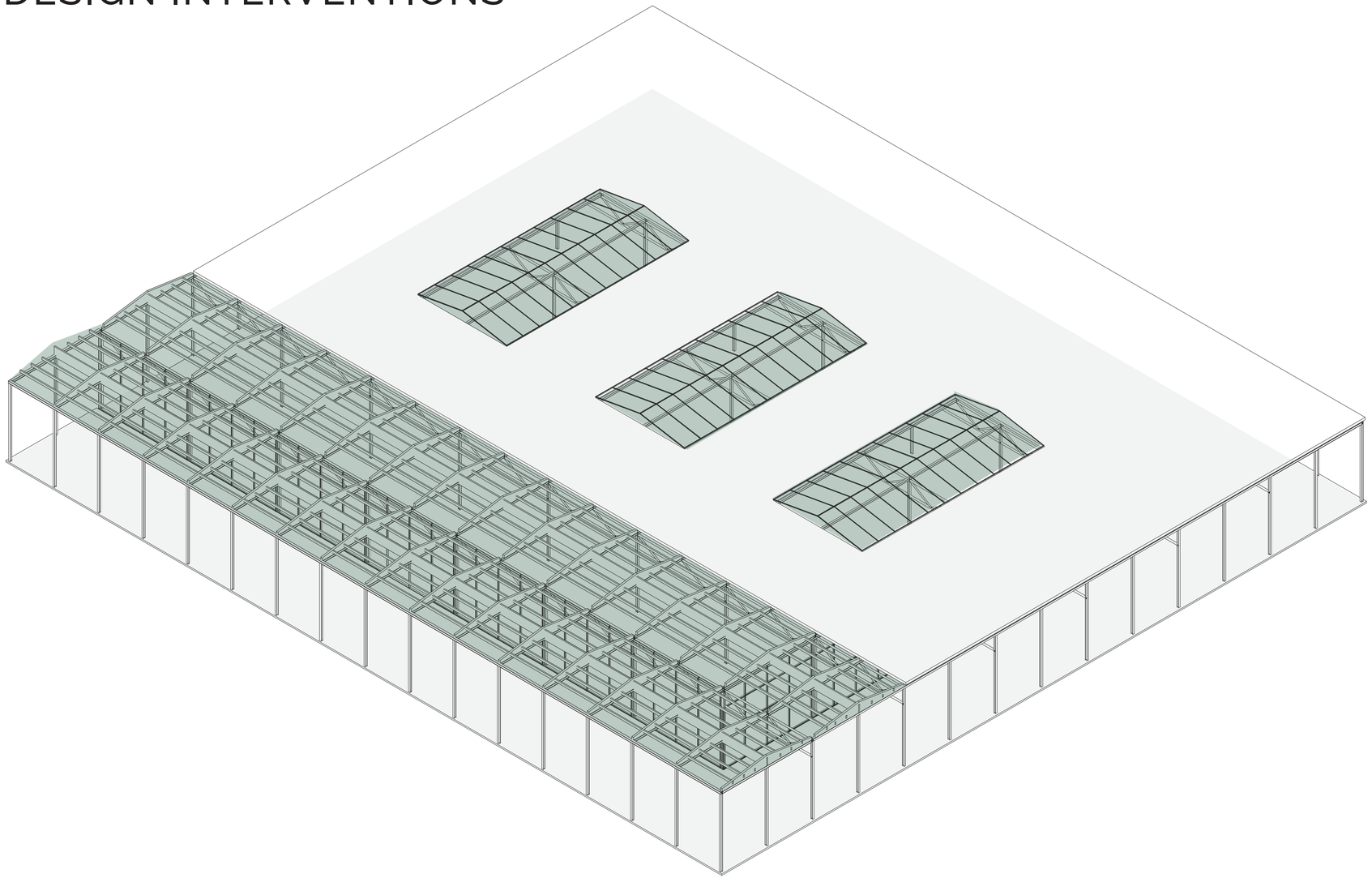
Detail B.2
Verdiepingsvloer
Schaal 1:5



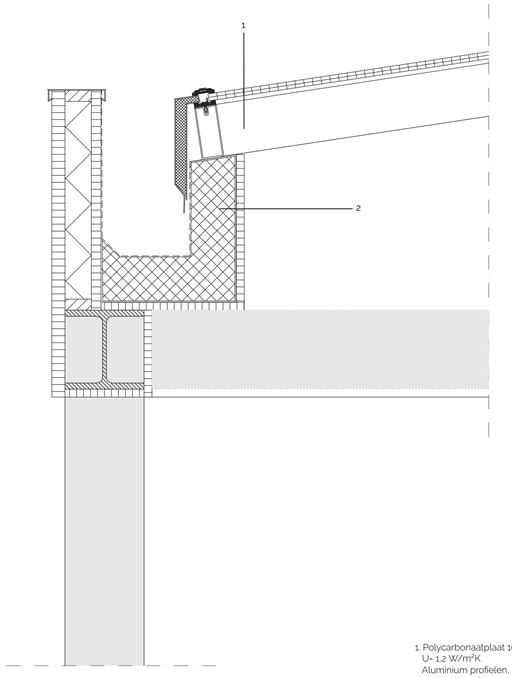
1. Gevelconstructie:
   Vliesgevel 6-12-6 mm
   met houten stijlen en regels,
   bevestigd aan bestaande
   constructie
2. Vloerconstructie:
   Dekvloer 30 mm
   Noppenplaat 18mm
   Isolatie 35 mm
   Zwaluwplaatbetonvloer
   46 mm
   HEA-200 liggers

INSERT NEW FLOOR LEVEL

DESIGN INTERVENTIONS



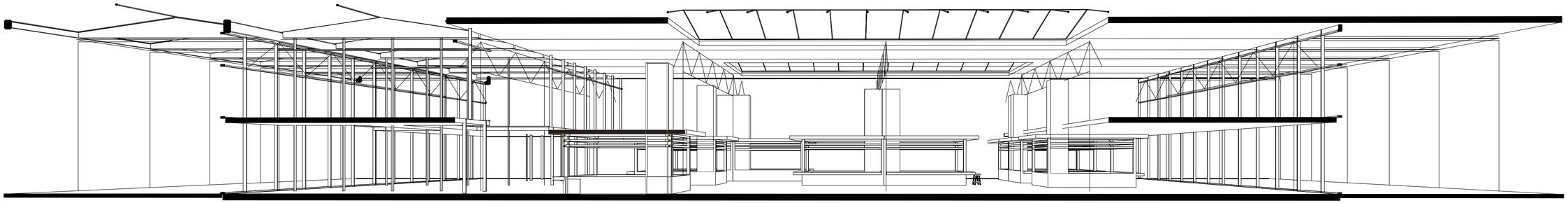
Detail F.3
Dakrand
Schaal 1:5



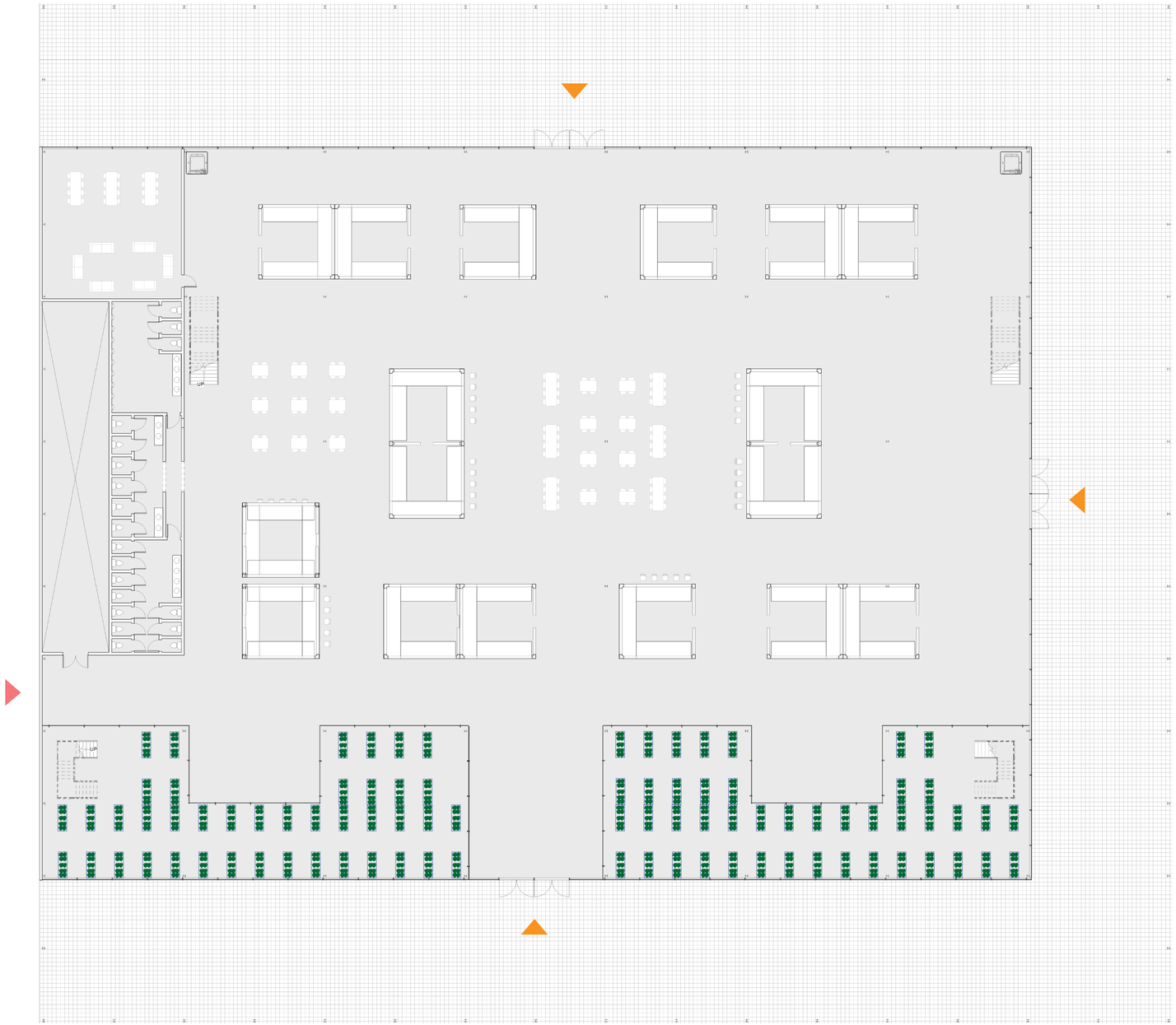
1. Polycarbonaatplaat 16 mm
   U- 1.2 W/m²K
   Aluminium profielen,
   50 mm breed
2. EPDM laag
   Isolatieplaat 100 mm
   Gebogen plaatstaal 3mm
   Houten beplating 18 mm

ENLARGE SKYLIGHTS

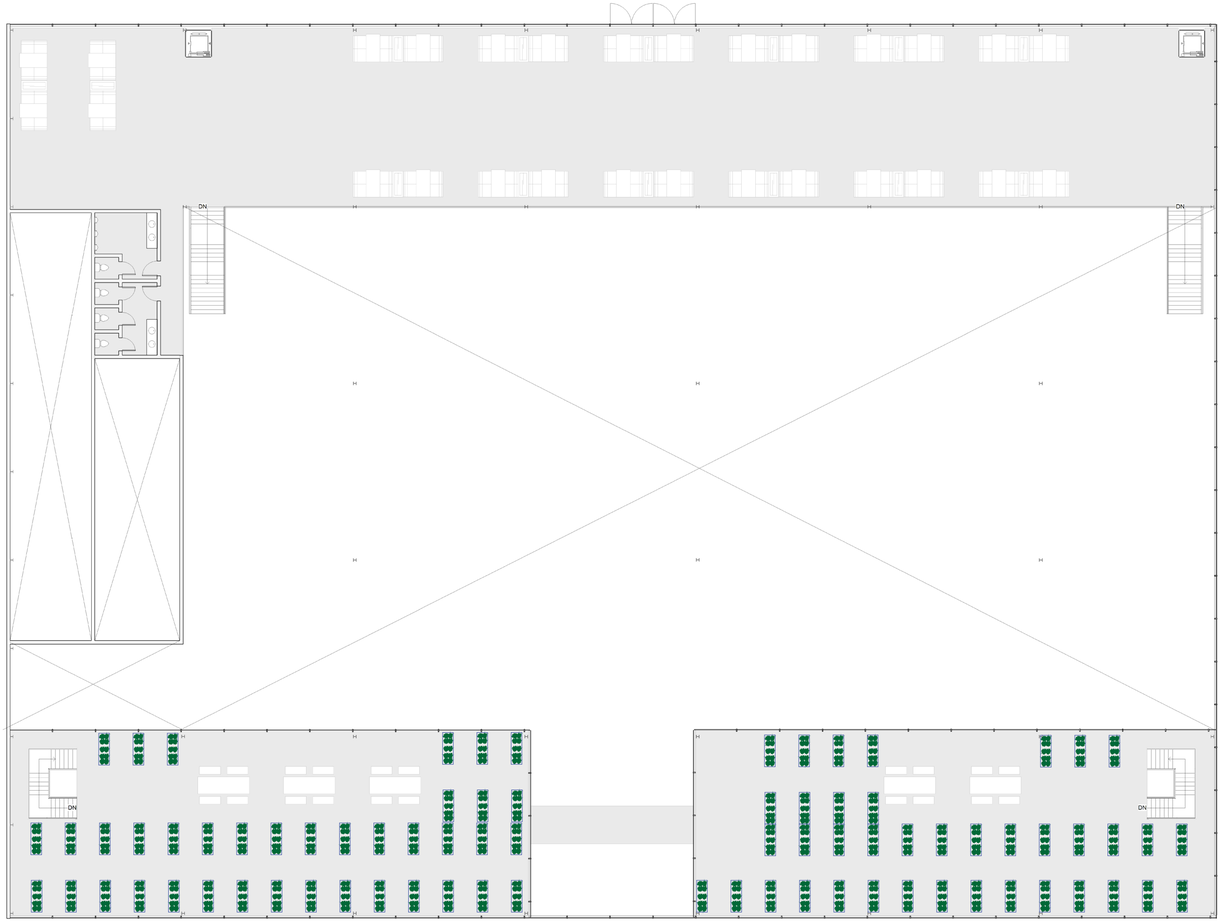
DESIGN

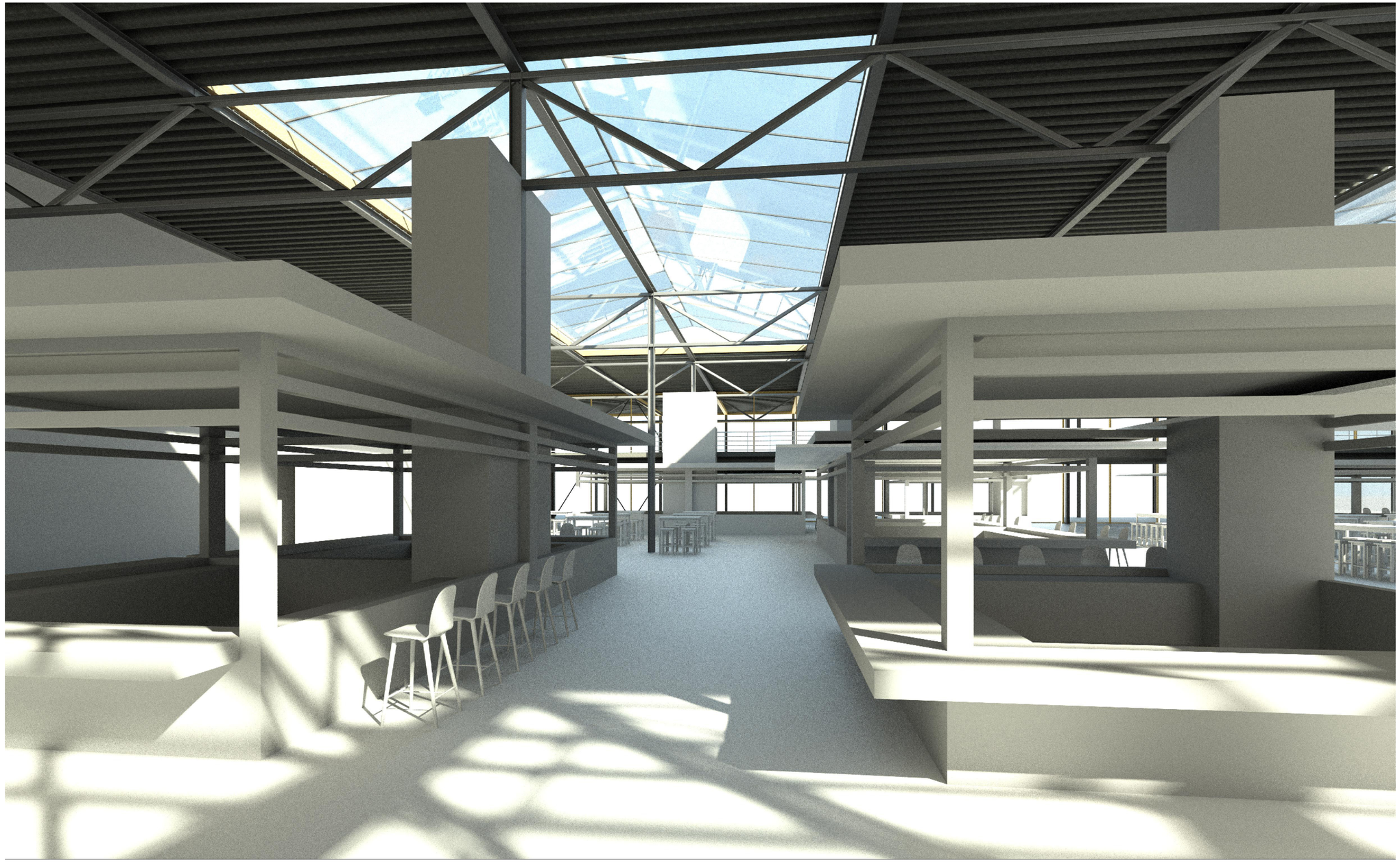


GROUND FLOOR

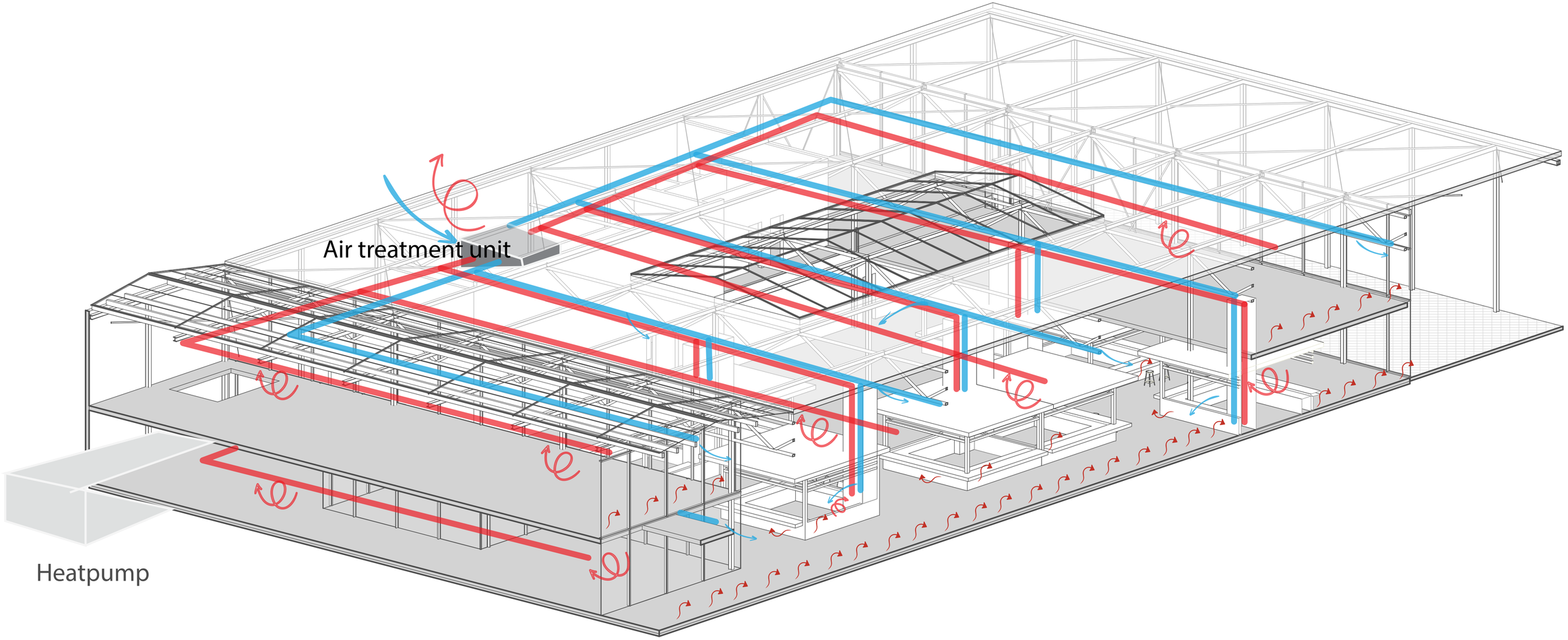


FIRST FLOOR

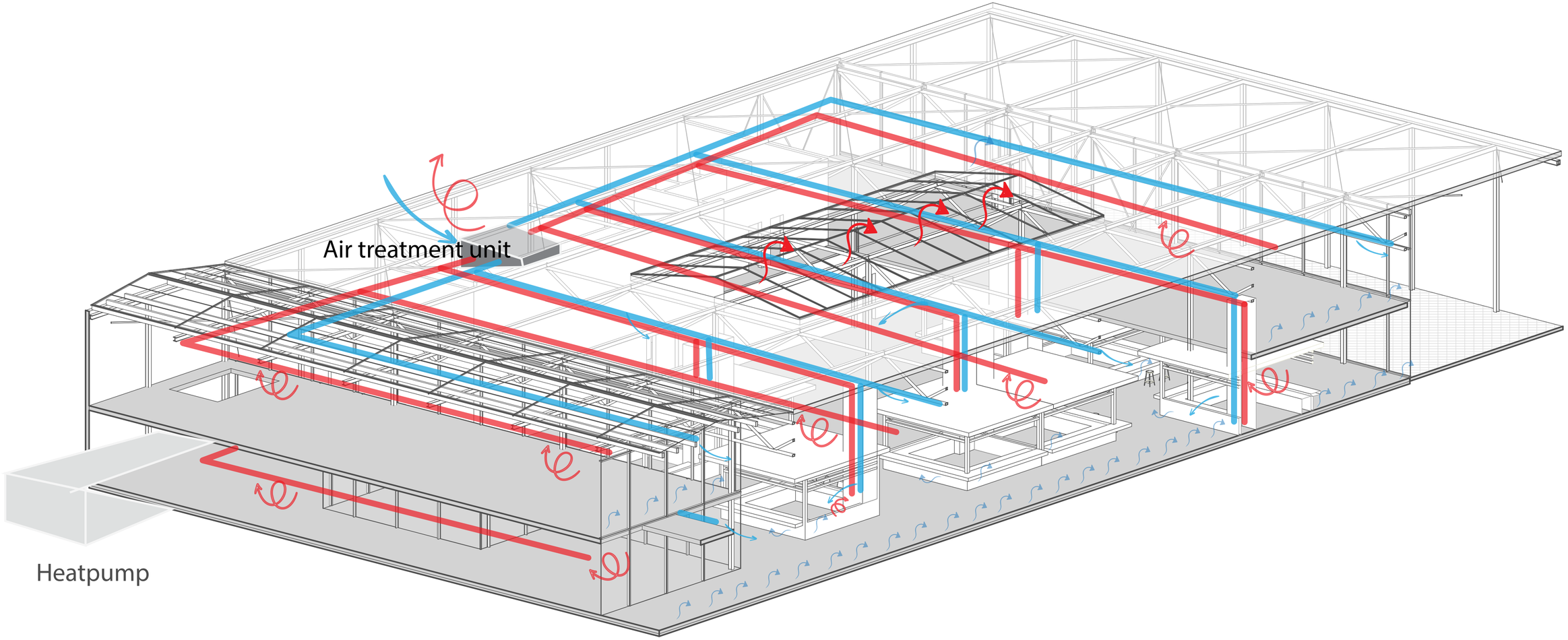




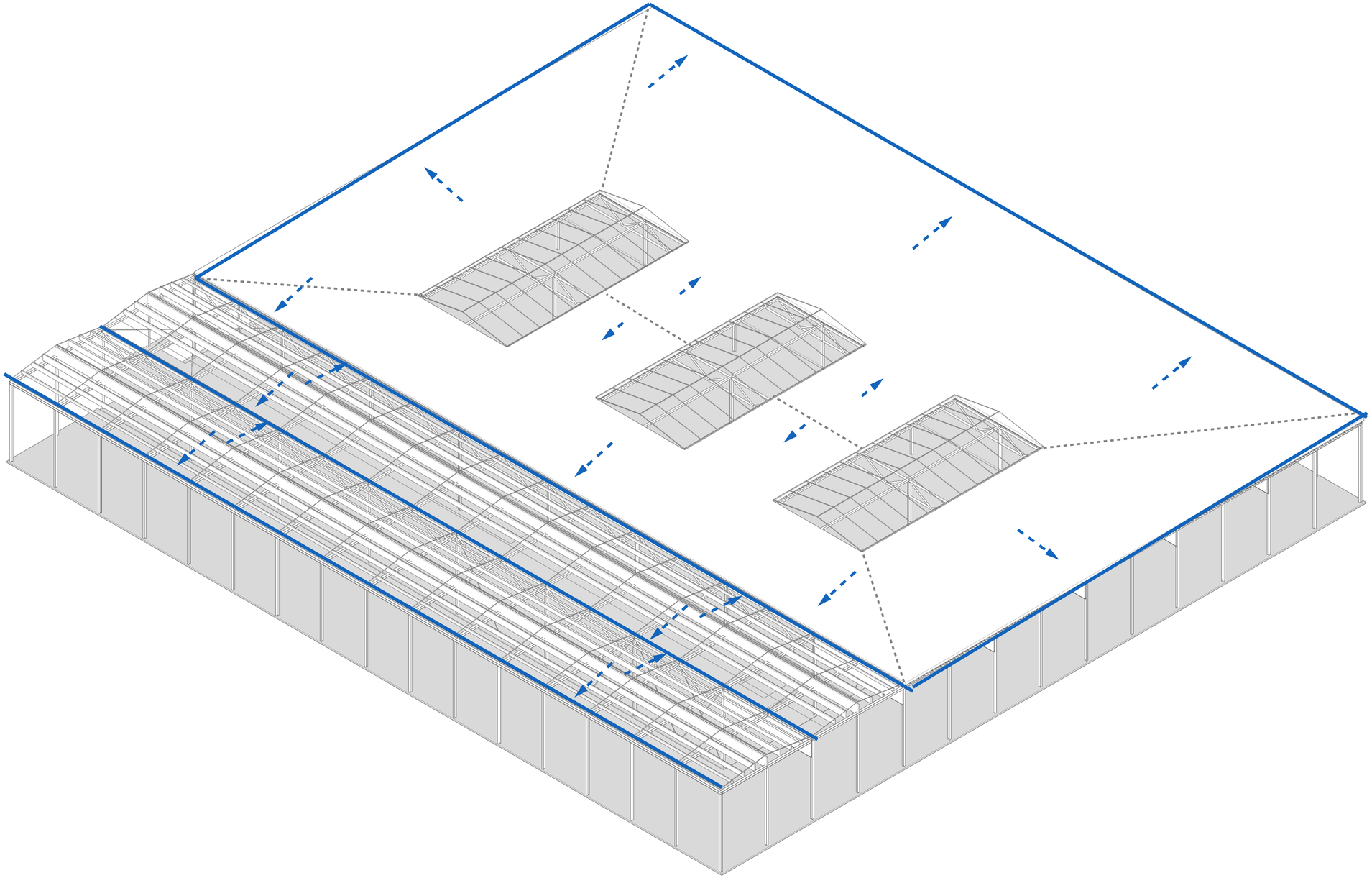
CLIMATE WINTER



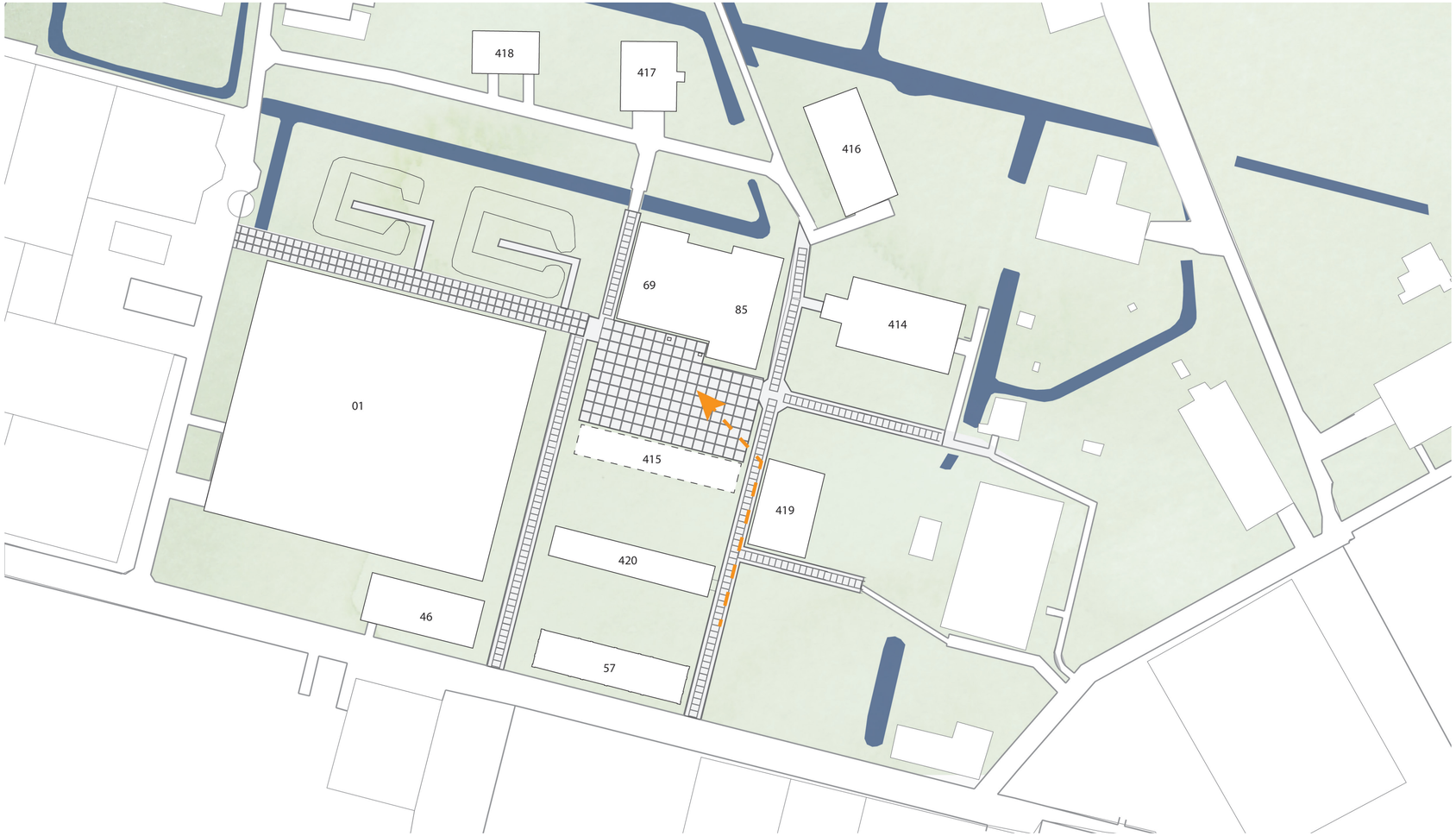
CLIMATE SUMMER



ROOF USAGE



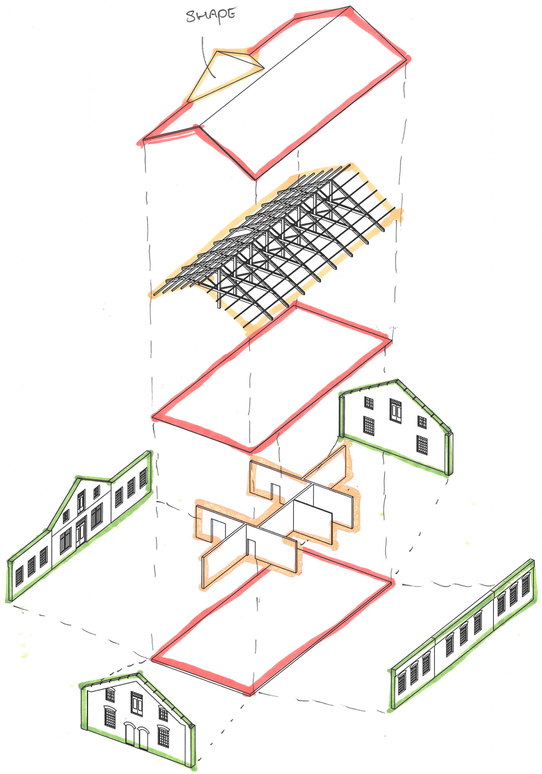

418
417
416
69
85
414
01
415
419
420
46
57


418
417
416
69
85
414
01
415
419
420
46
57

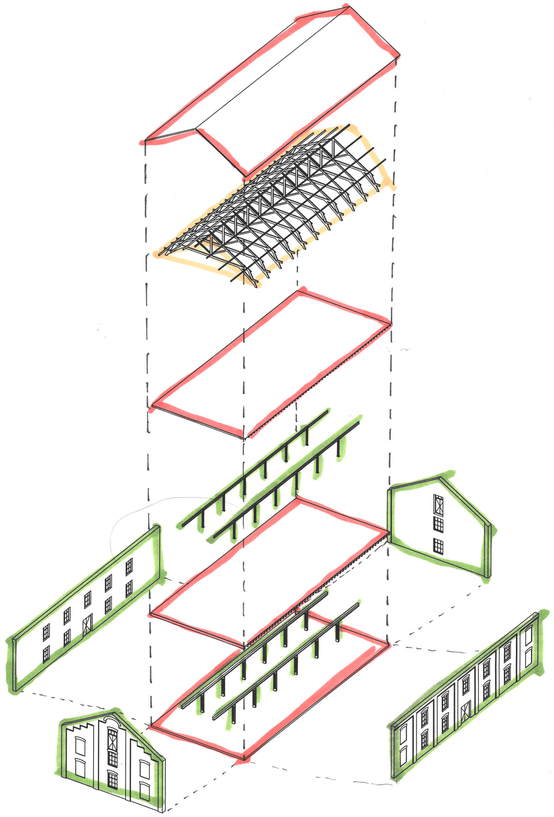
BUILDING 69/85 MEETING SPACE

THE FARMS

THE FARMS



#69



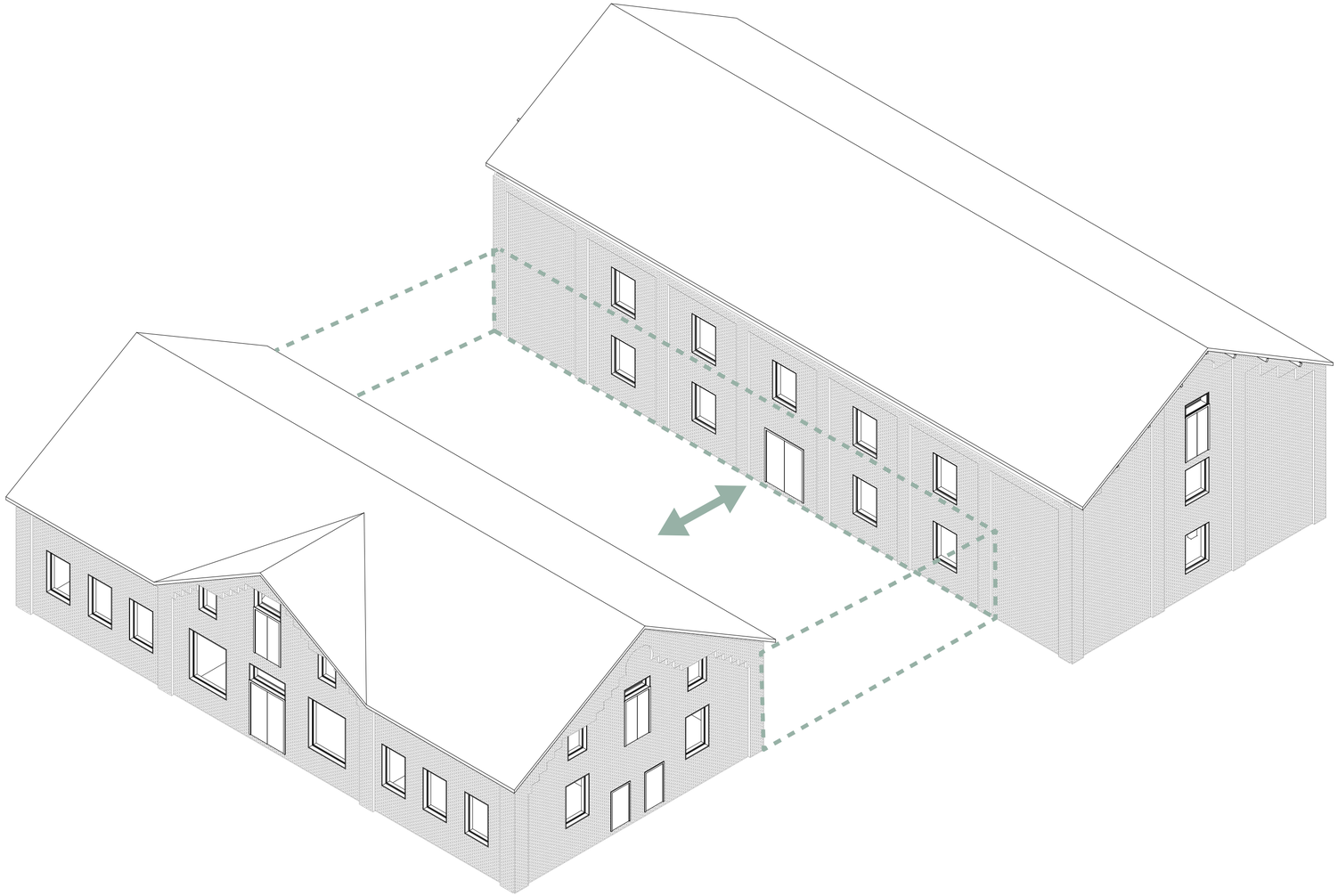
#85

Maintain

Maintain if possible

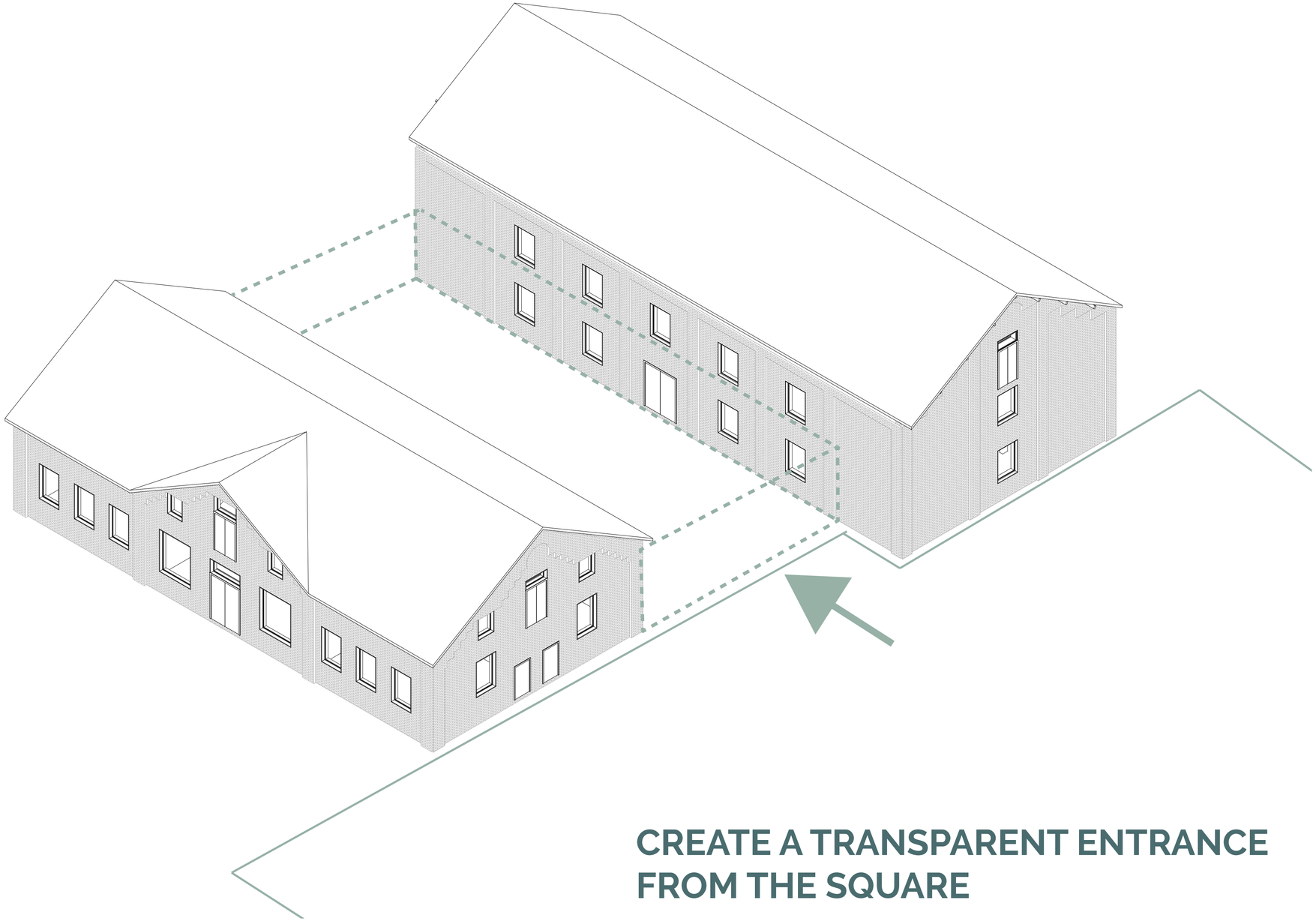
Little significance

STARTING POINTS



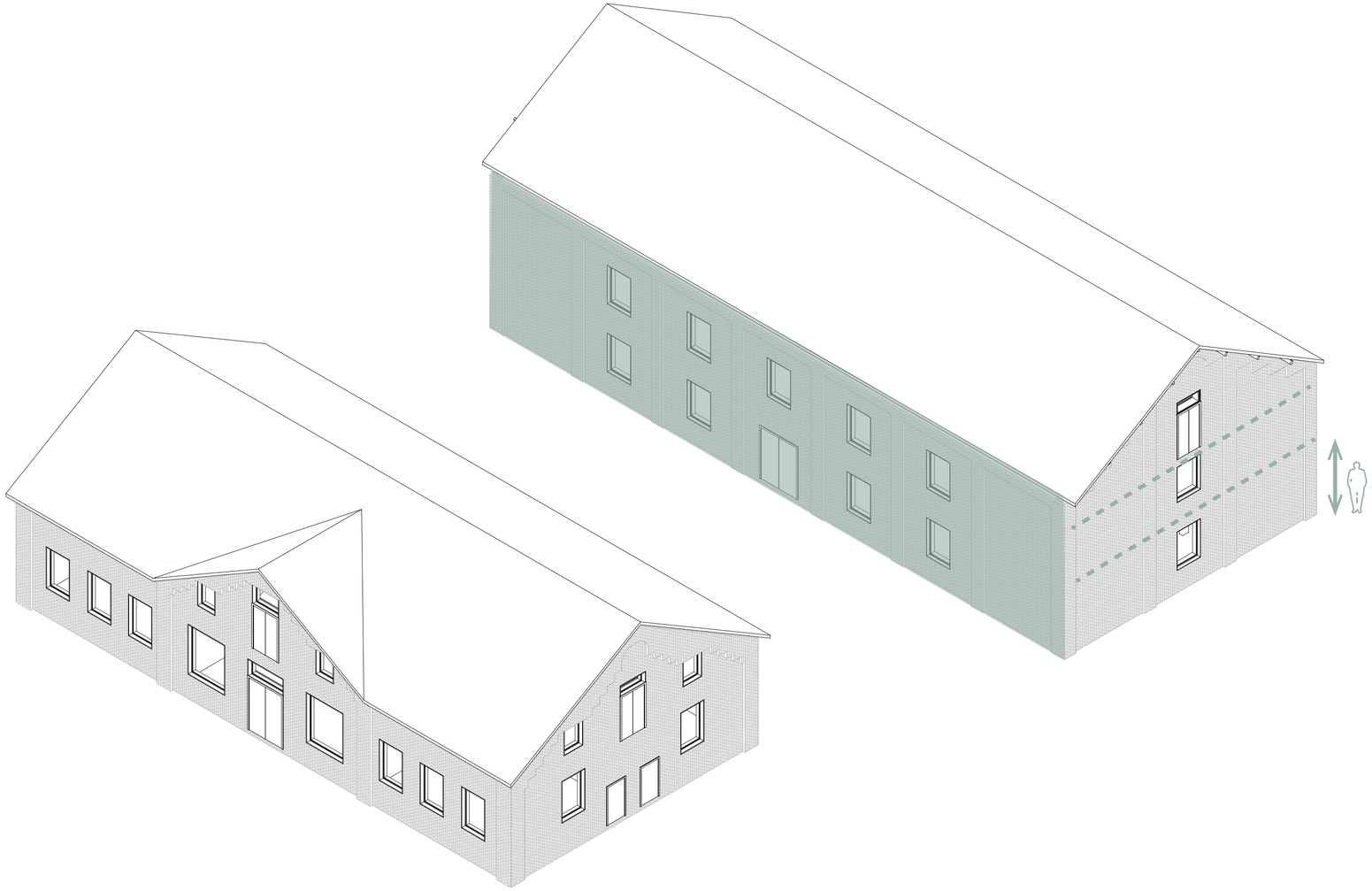
CONNECT THE TWO BUILDINGS

STARTING POINTS



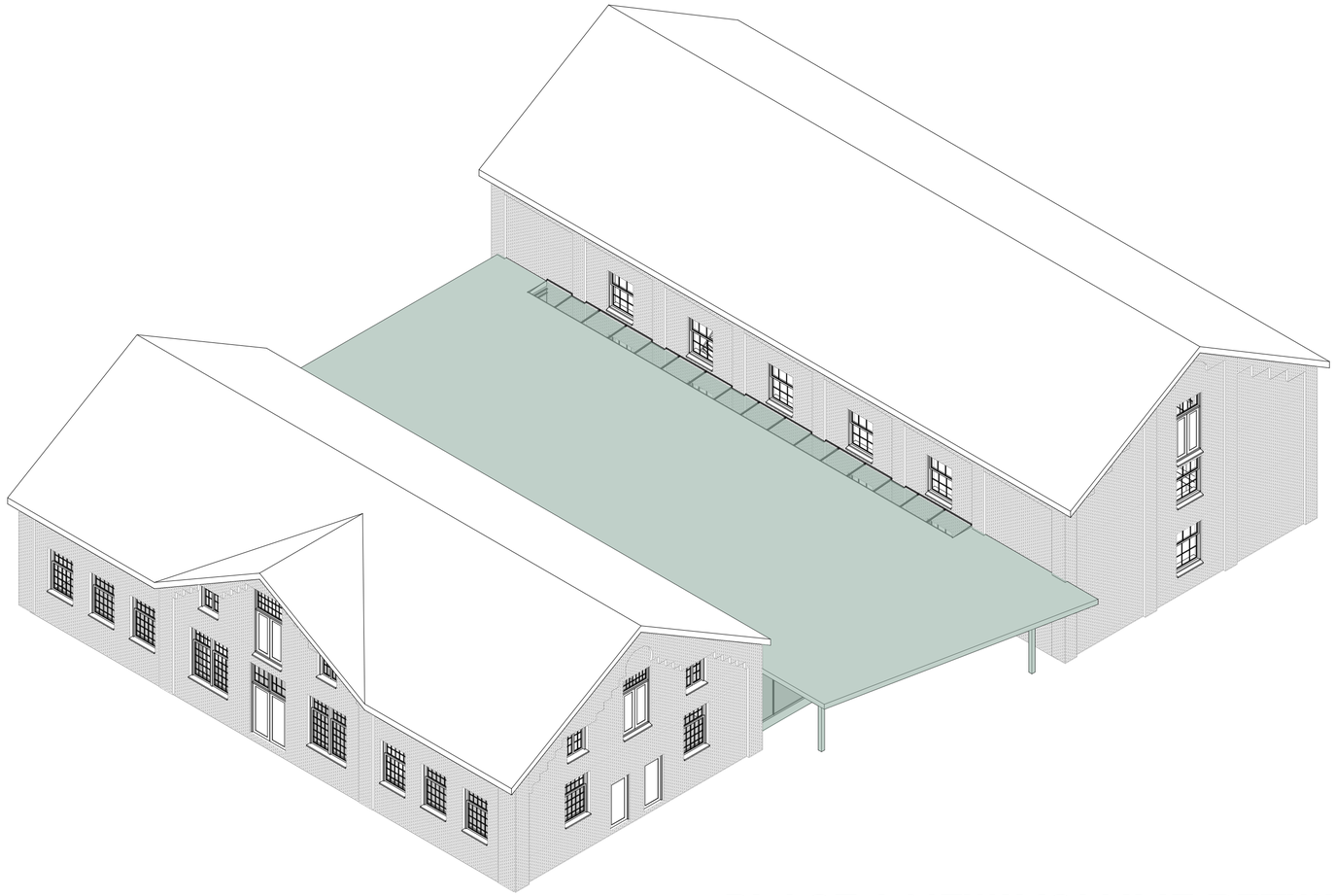
CREATE A TRANSPARENT ENTRANCE FROM THE SQUARE

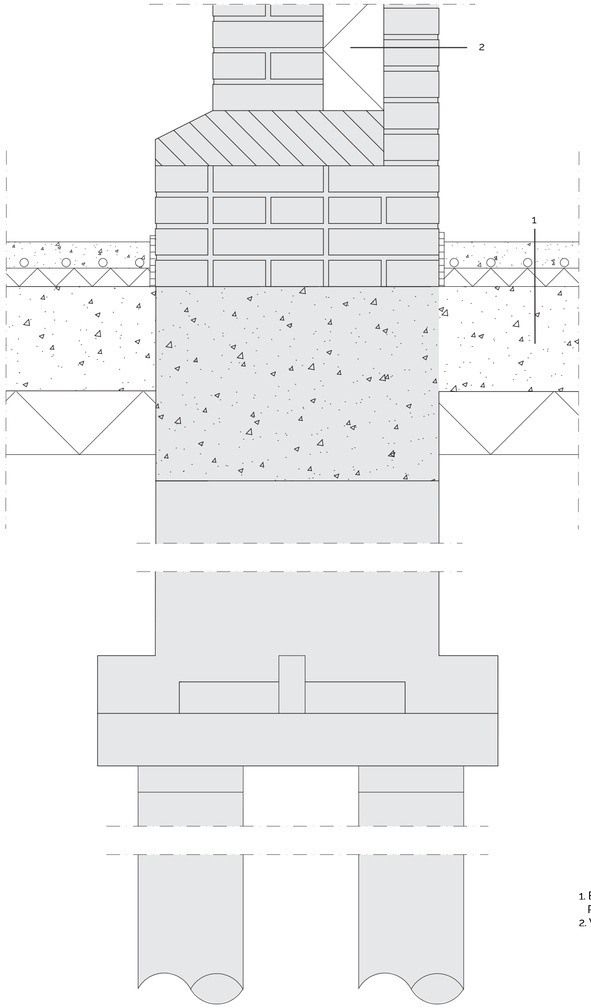
STARTING POINTS



MEET MODERN DAY COMFORT LEVELS

DESIGN INTERVENTIONS





Detail F.1
Begane grond vloer
Schaal 1:5

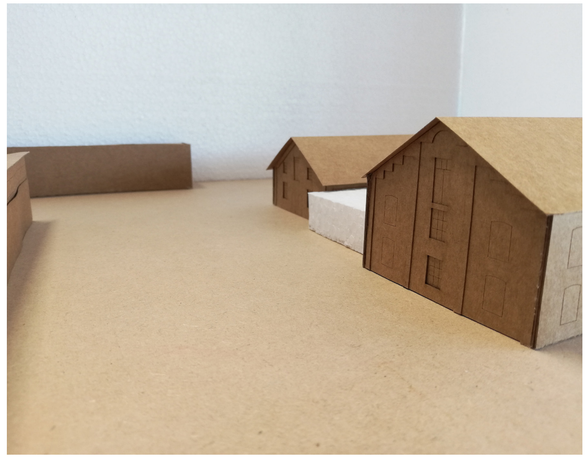
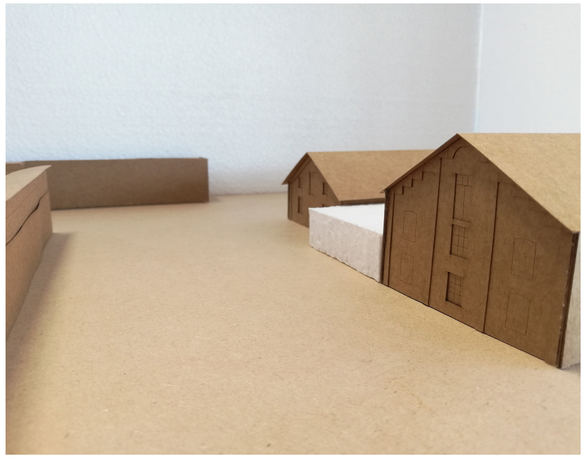
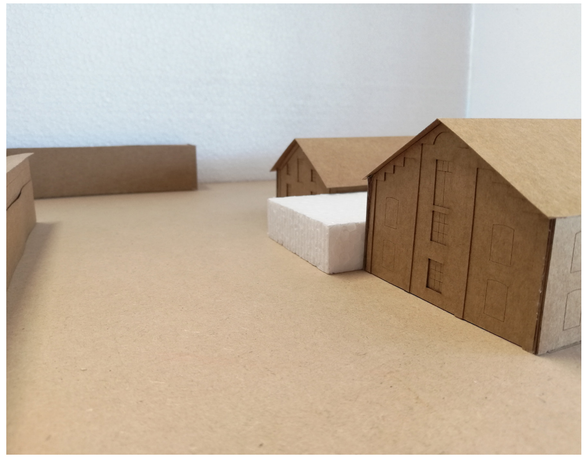
1. Biofoam parels 105 mm
   RC = 3,2 m^2K/W
2. Vloerconstructie:
   Dekvloer 30 mm
   Noppenplaat 18mm
   Isolatie 35 mm
   Betonvloer 200 mm
   Isolatie 120 mm

PLACE A NEW VOLUME BETWEEN THE EXISTING BUILDINGS

MASS STUDY



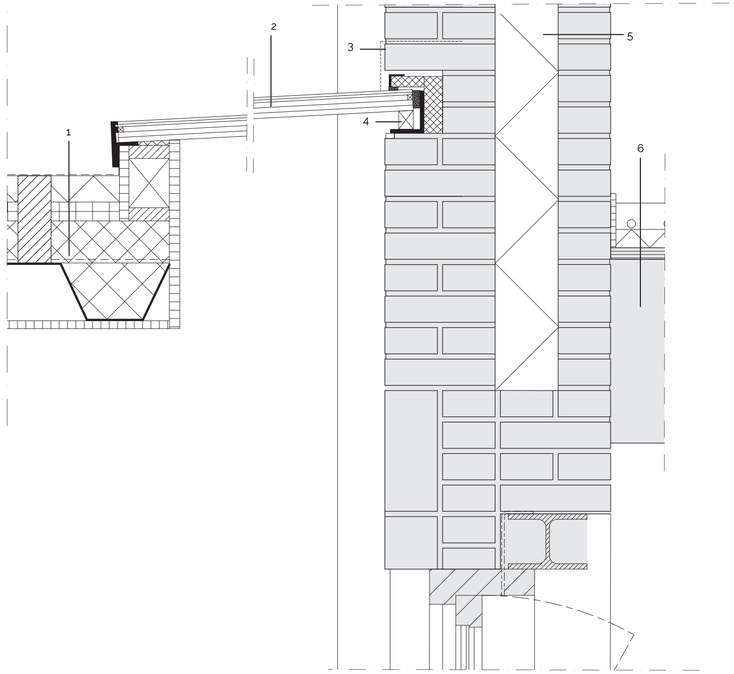


DESIGN INTERVENTIONS

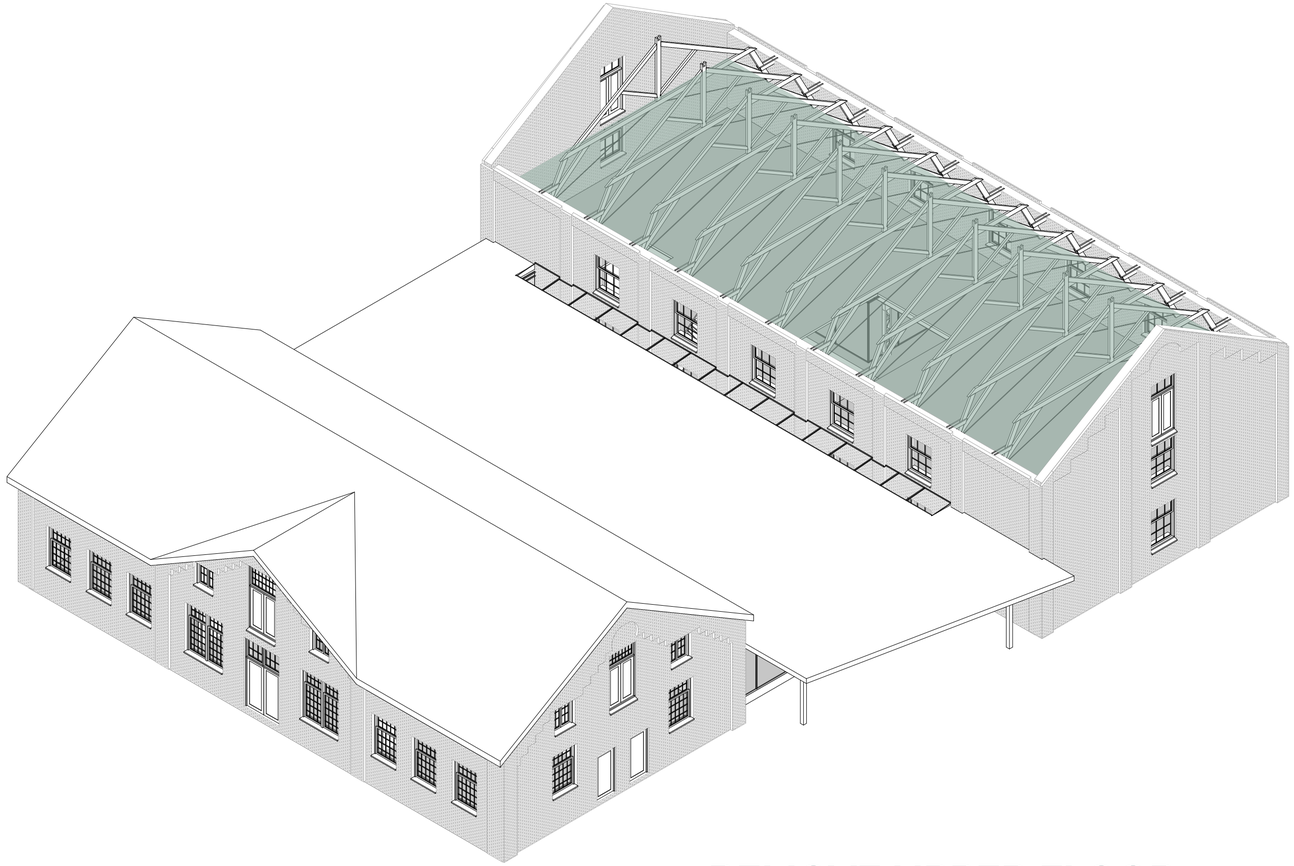
STRENGTHEN INNER AXIS

Detail F.2
Aansluiting oud-nieuw
Schaal 1:5



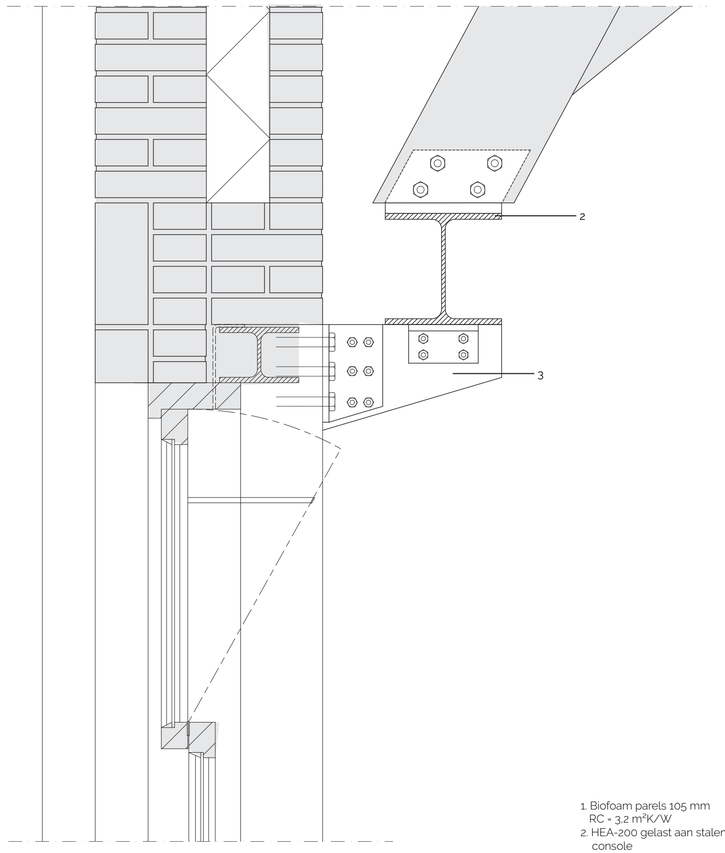
1. Dakconstructie
   Bitumen 5 mm
   Minerale wol 50 mm
   Gipsplaat 36 mm
   EPS 80mm
   Houten balklaag 160x 63 mm
   Dampremmende laag
   Metaldeck opgevuld met akoestische isolatie
   Akoestische gipsplaat 18 mm
2. Lichtstraat: geïsoleerd + incidenteel beloopbaar glas, tweezijdig opgelegd in siliconenkit
3. Hoeklijn 80.65.8 gebogen in radius gevel, chemisch verankerd in metselwerk
4. Loodslabbe, inslijpen in bestaande voeg
5. Biofoam parels 105 mm
   RC = 3.2 m^2K/W
6. Vloerconstructie
   Dekvloer 30 mm
   Noppenplaat 18 mm
   Isolatie 35 mm
   Houten vloerbalken 140 x 350 mm (best.)
   Houten vloerdelen 22 mm (best.)

DESIGN INTERVENTIONS



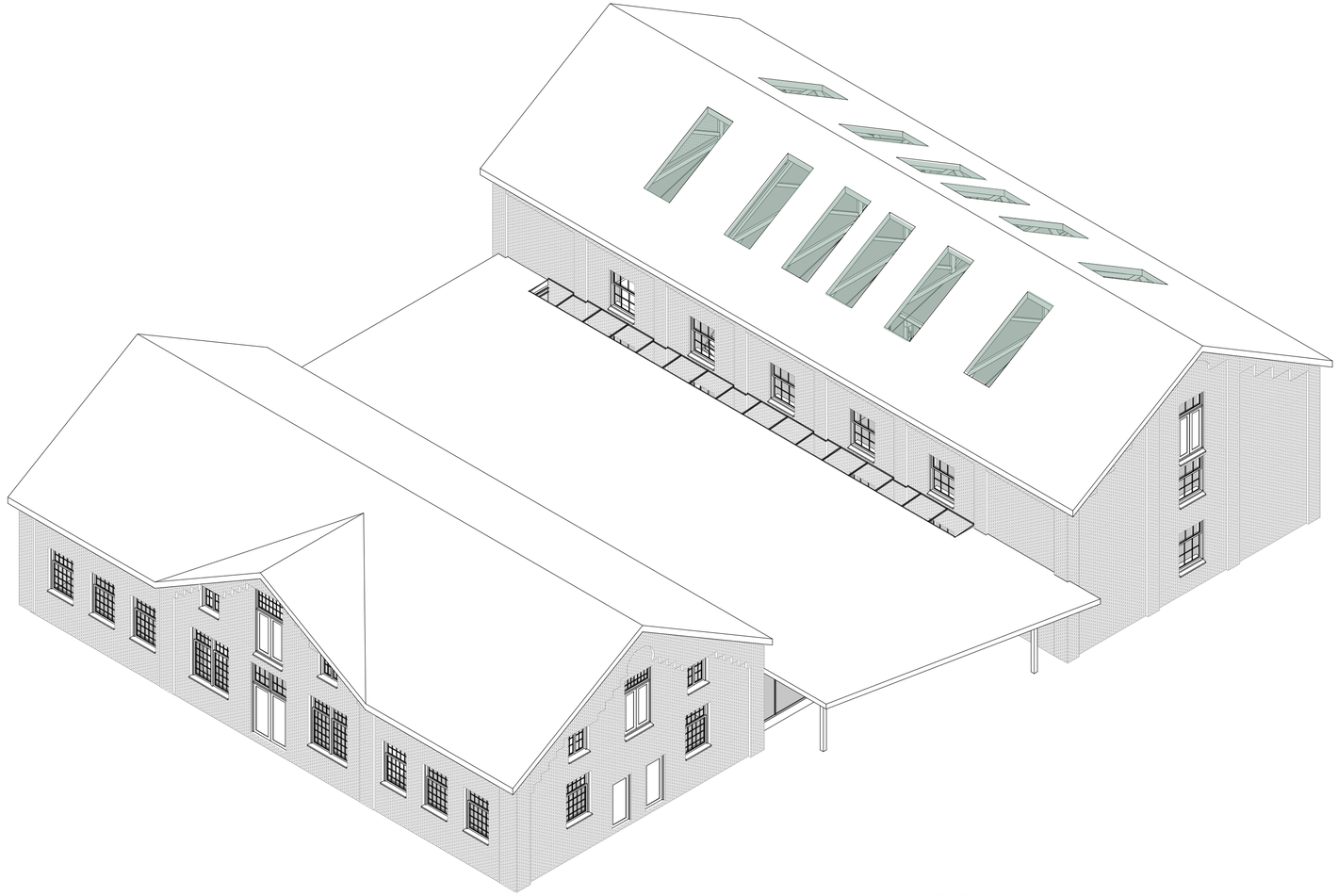
REMOVE UPPER FLOOR

Detail F.3
Aansluiting dakconstructie
Schaal 1:5



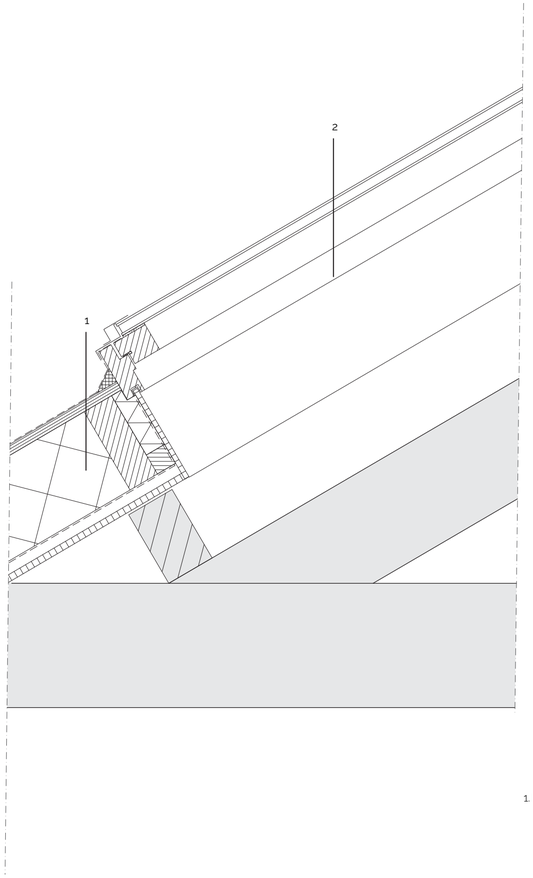
1. Biofoam parels 105 mm
   RC = 3,2 m^2K/W
2. HEA-200 gelast aan stalen console
3. Stalen console, chemisch verankerd in metselwerk

DESIGN INTERVENTIONS



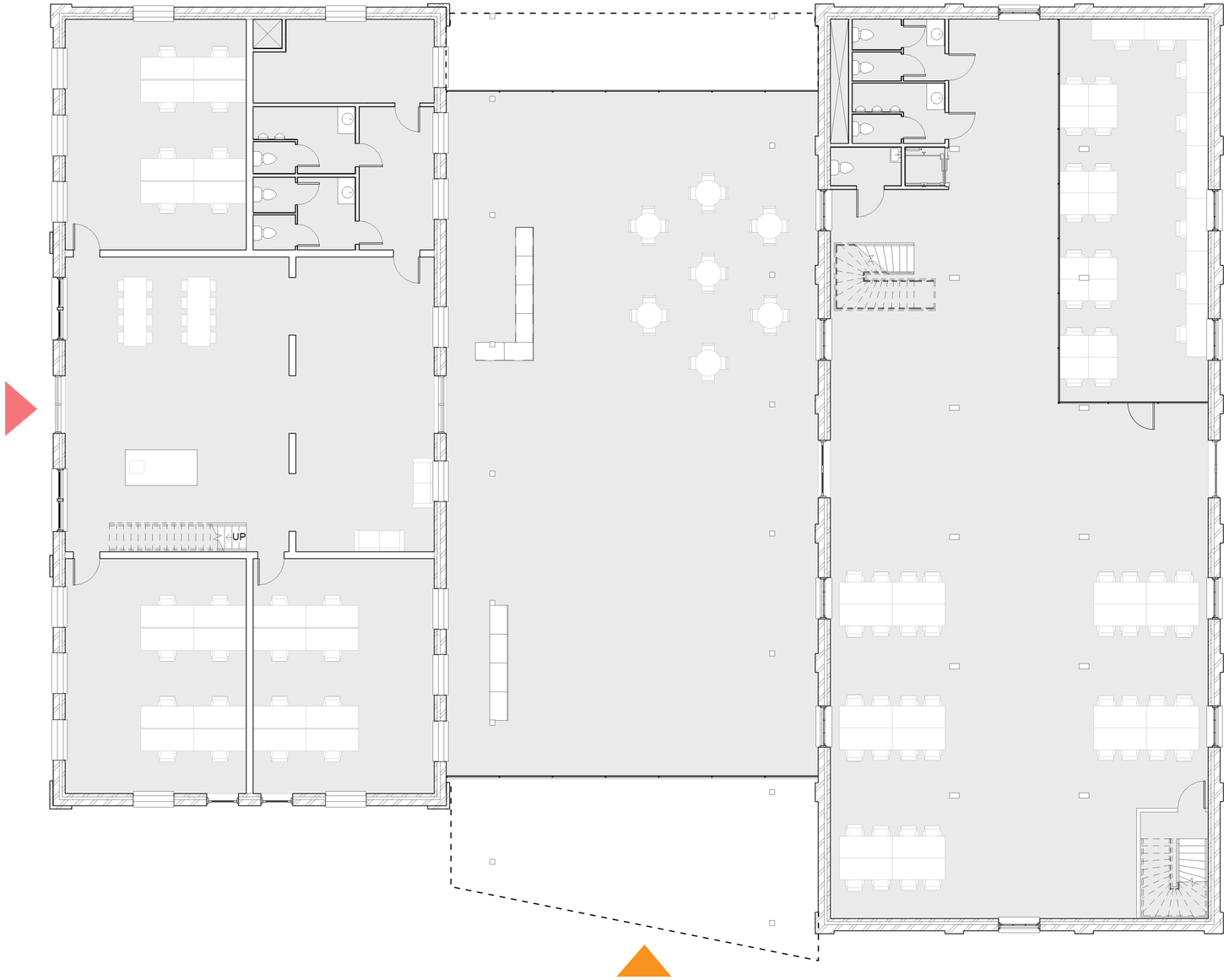
ADD SKYLIGHTS

Detail F.5
Onderaansluiting
dakraam
Schaal 1:5

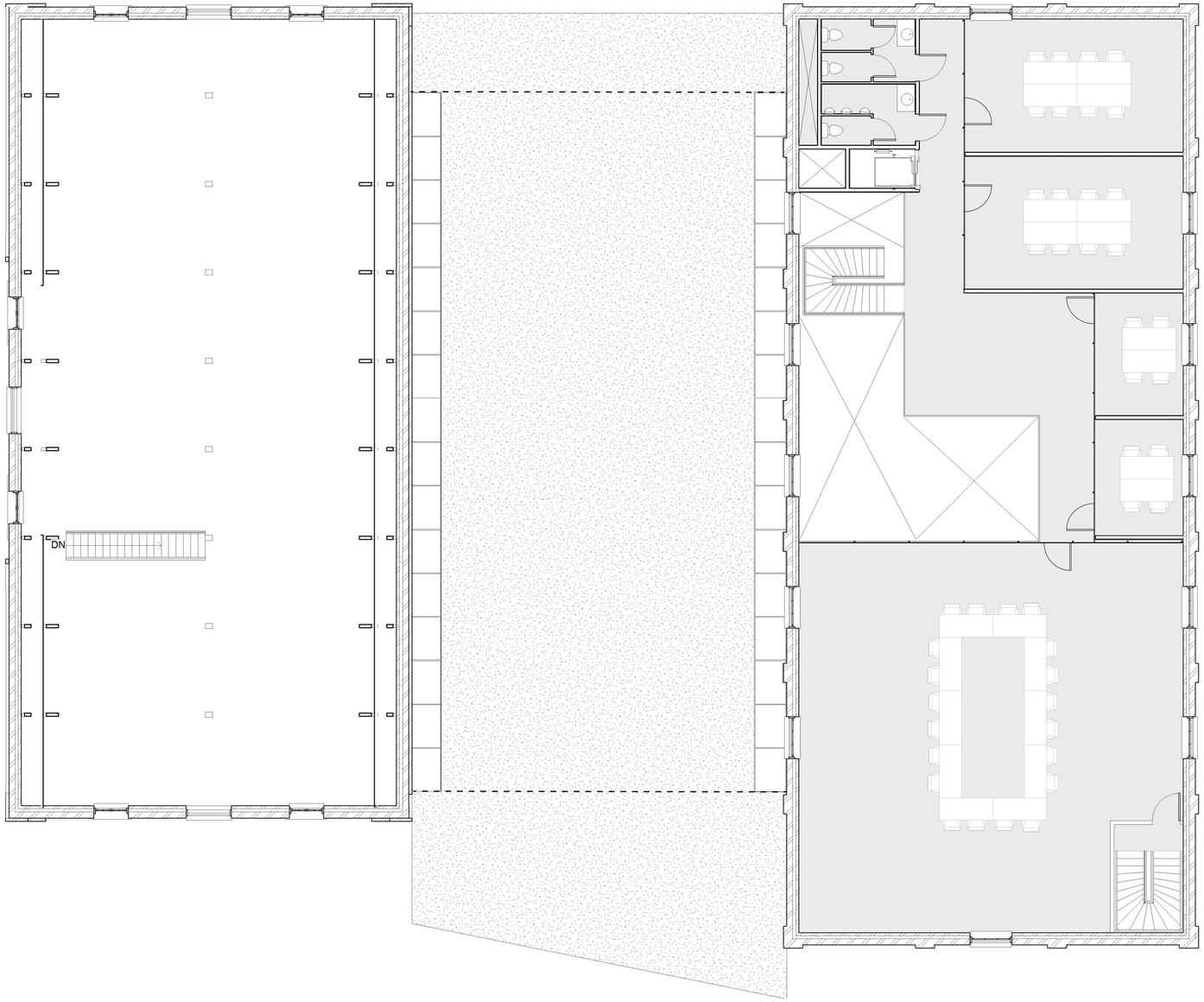


1. Bakconstructie
   Bitumen 5 mm
   Houten beplating 40 mm
   Minerale wol 180 mm
   Balklaag 63x175 mm
   Dampremmende laag
   Akoestische gipsplaat 18mm
2. Velux dakraam

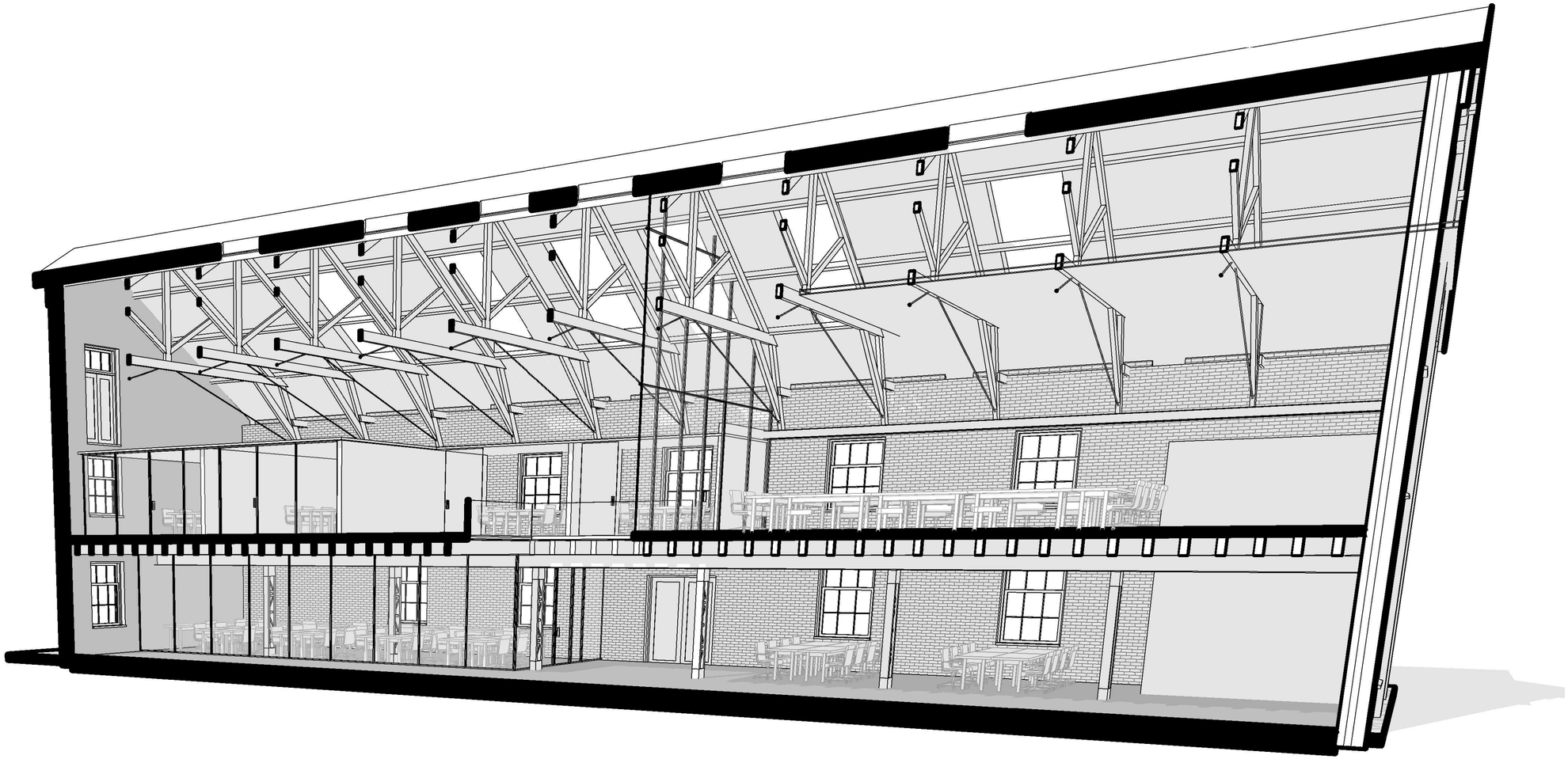
GROUND FLOOR



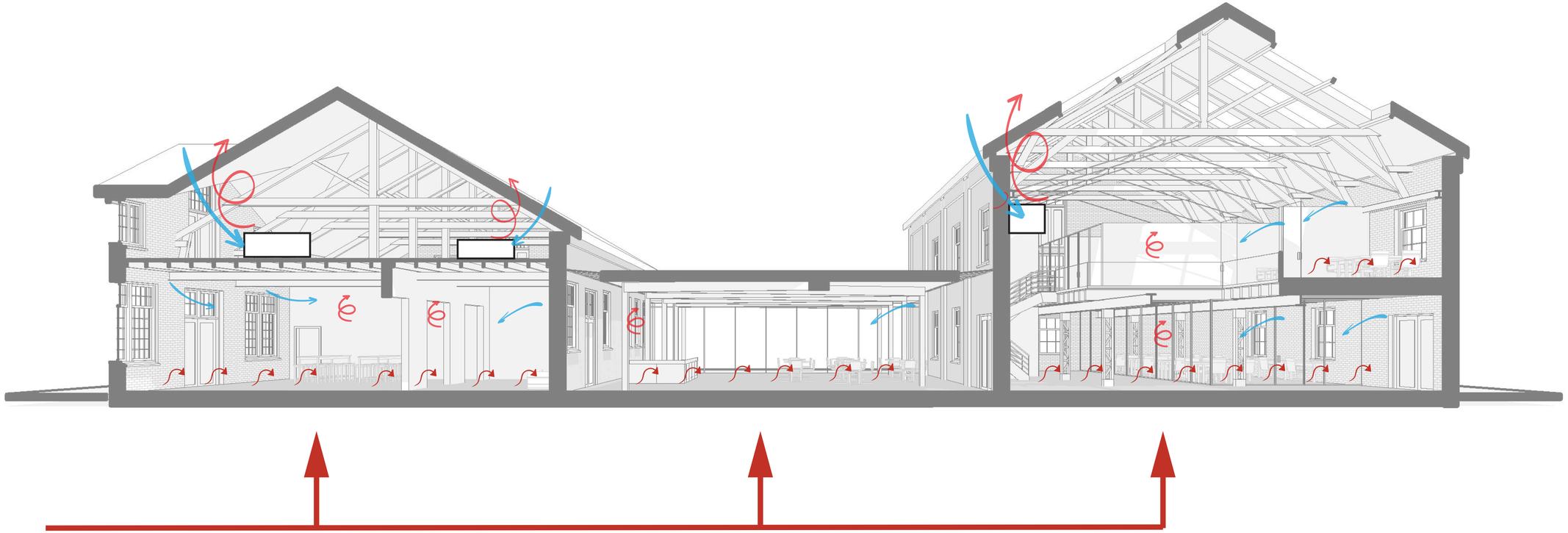
FIRST FLOOR



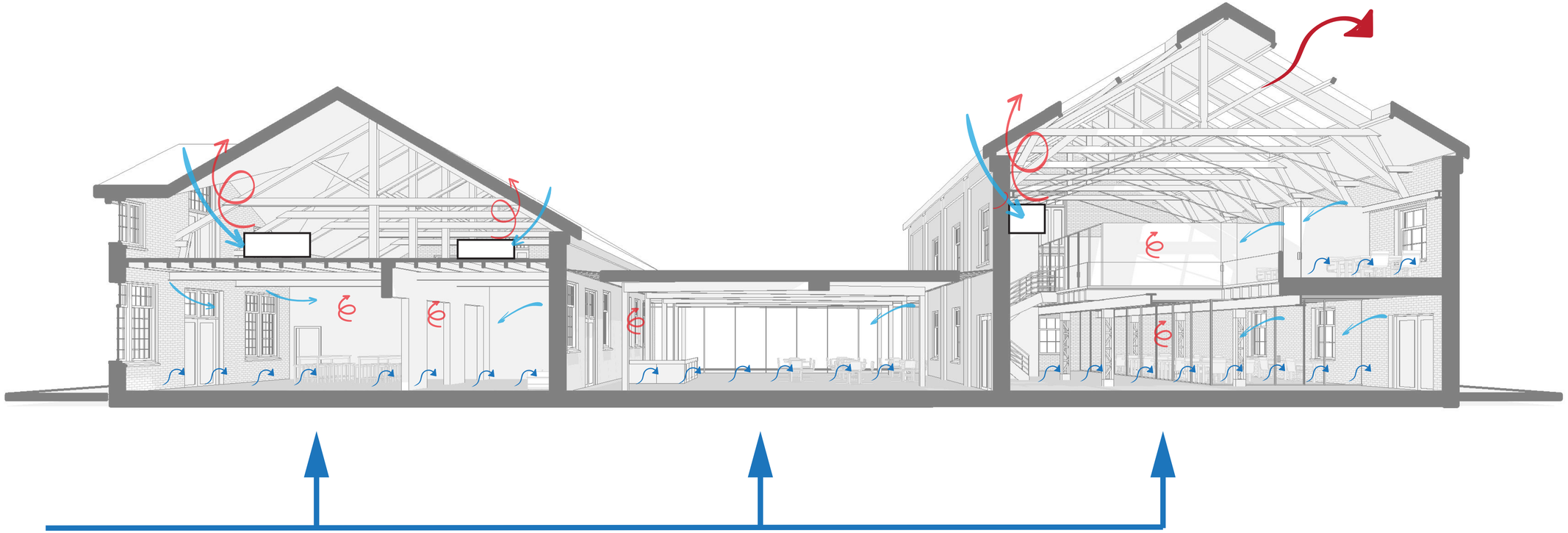
WORKSPACES

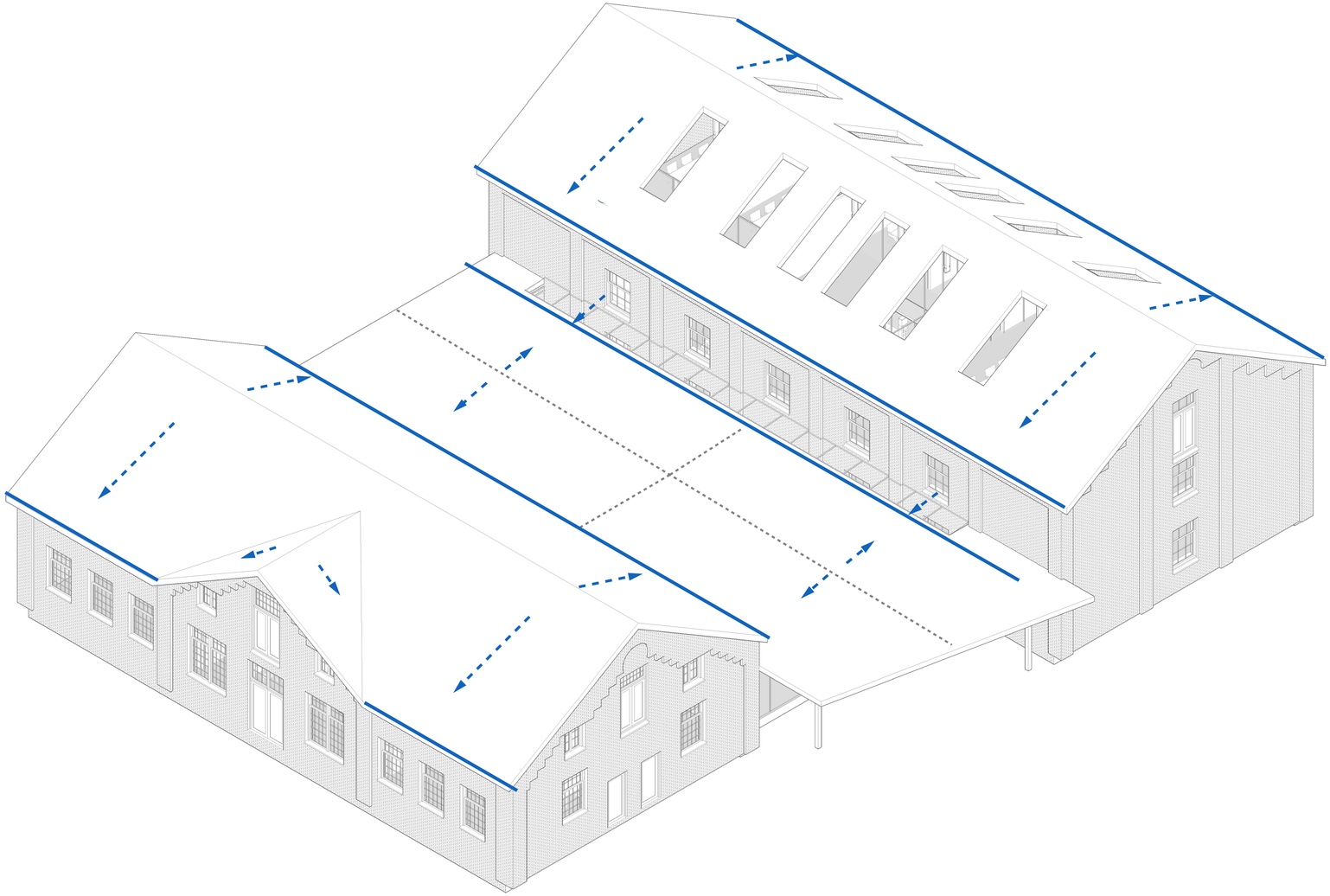


CLIMATE WINTER

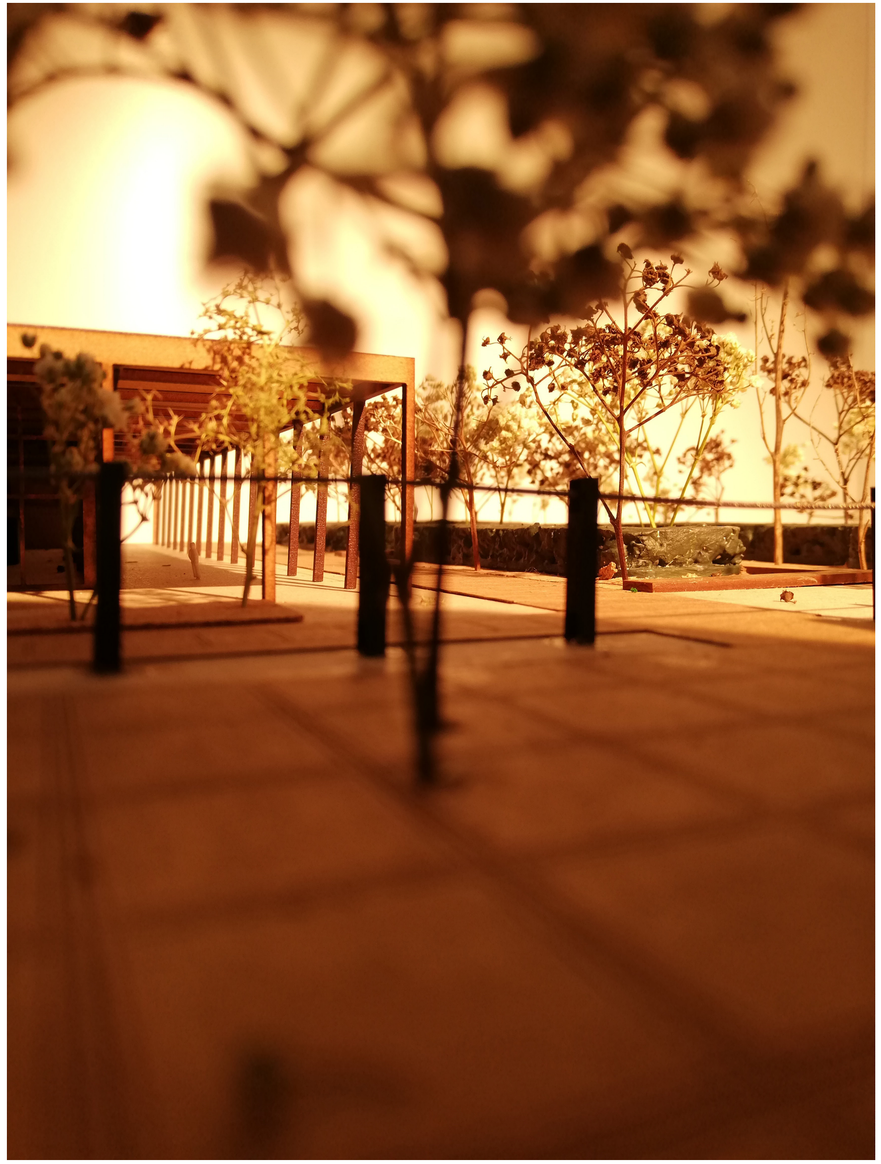


CLIMATE SUMMER






418
417
416
69
85
414
01
415
419
420
46
57



CONCLUSION