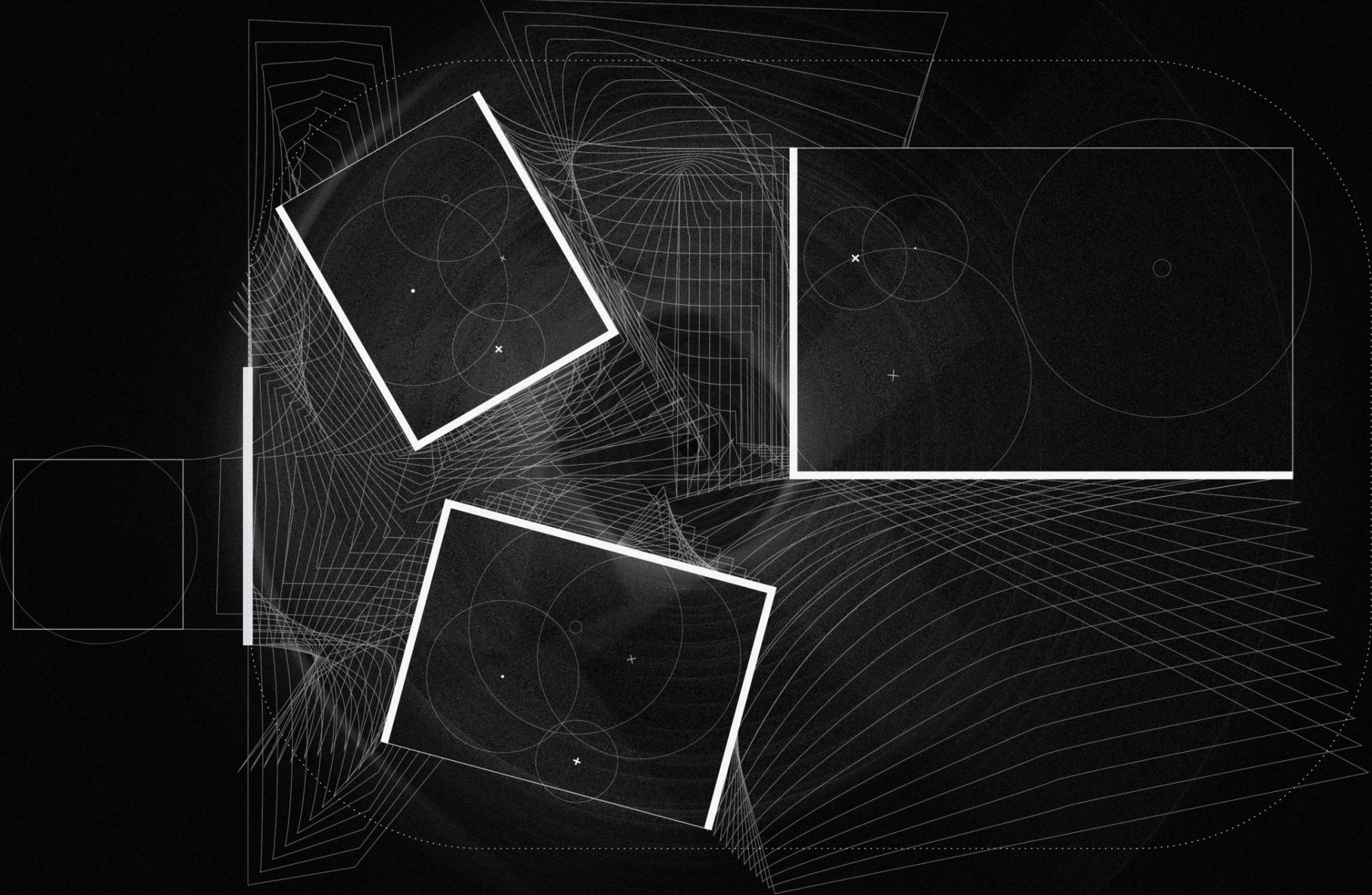


Graduation research project on how the flow and porosity of a public design can act as a catalyst for invigoration of the urban fabric and promote community engagement.



Sundholm // Copenhagen // Denmark

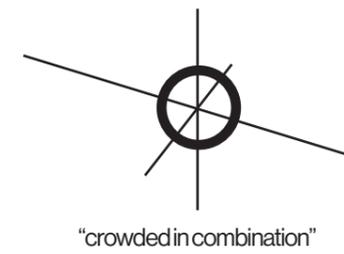
aksestrøm

condensed interactive public space

condense

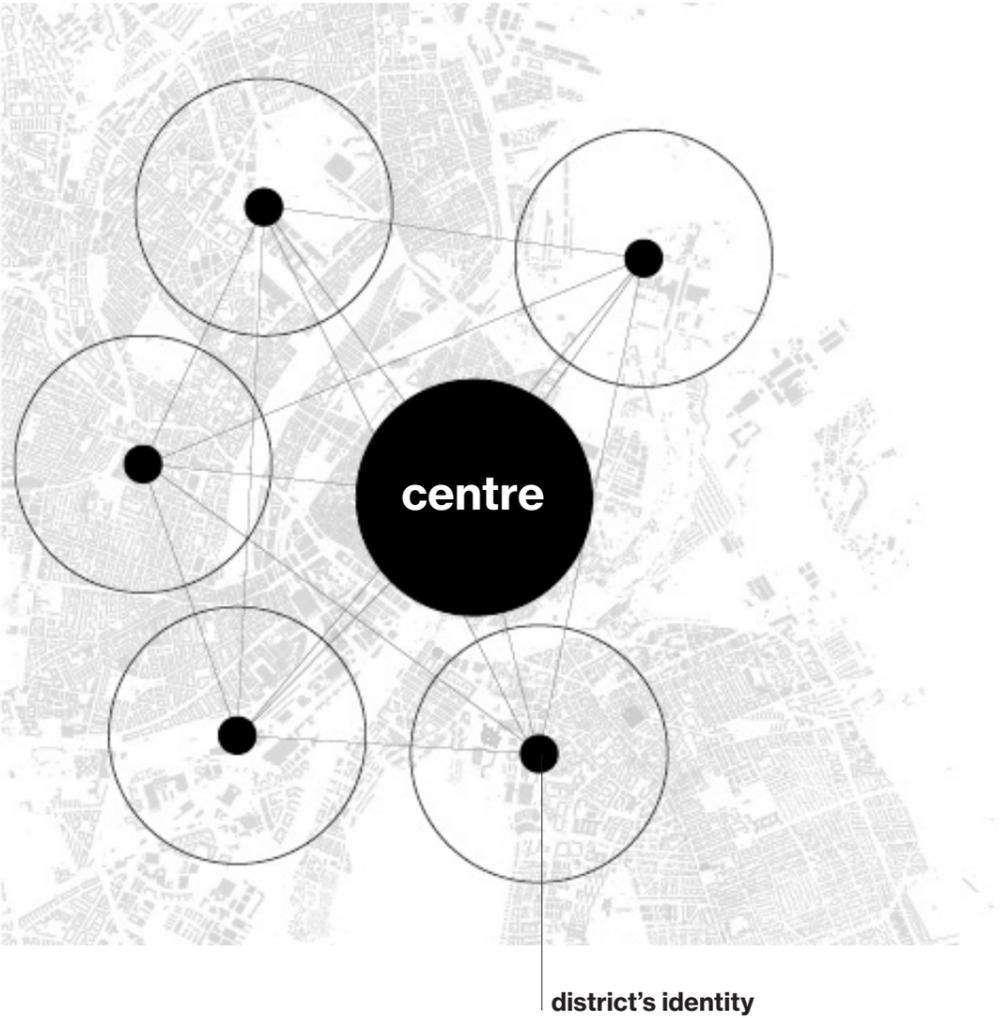
- 'make something more dense or concentrated'

con- archaic form of classical latin *cum* "together, together with, in combination"
dense- from Latin *densus* "thick, crowded"



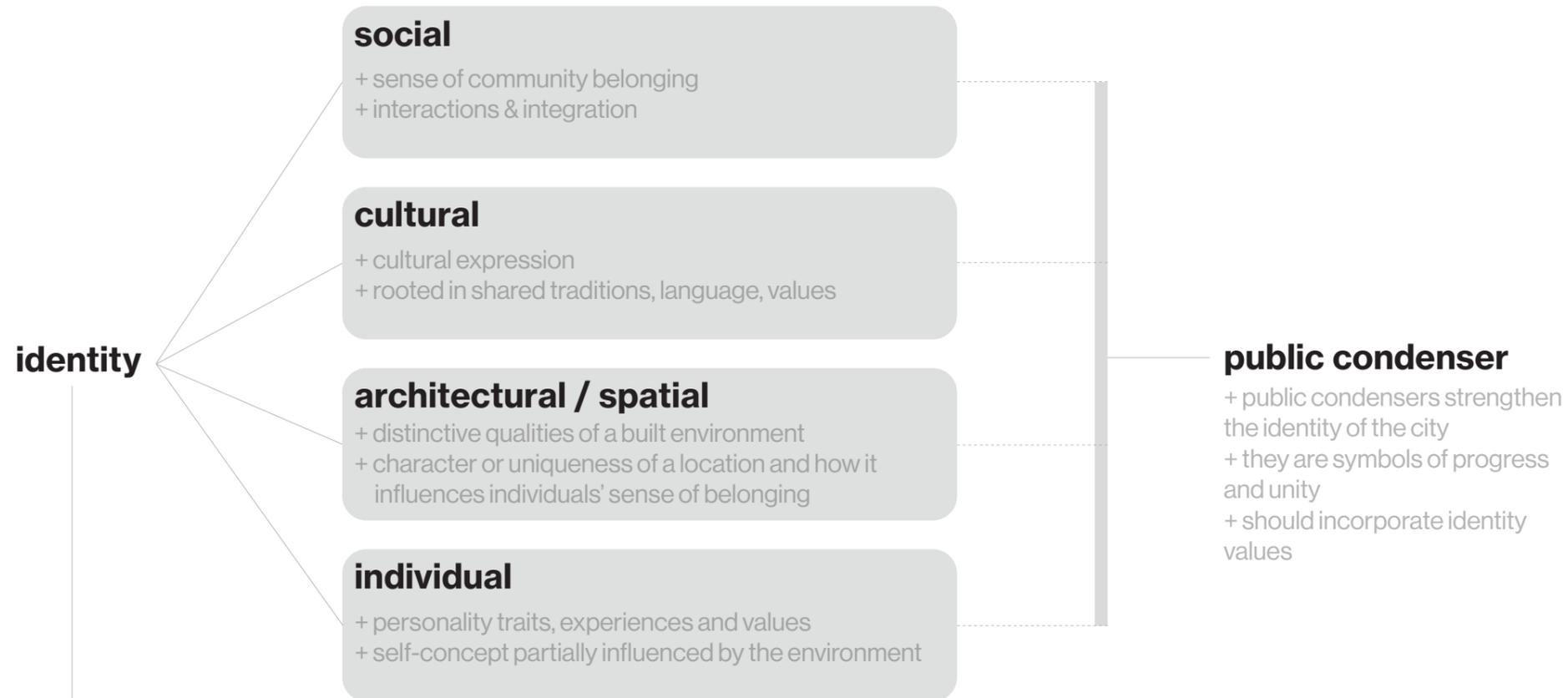
role of a public condenser

identity building tool and interaction catalyst



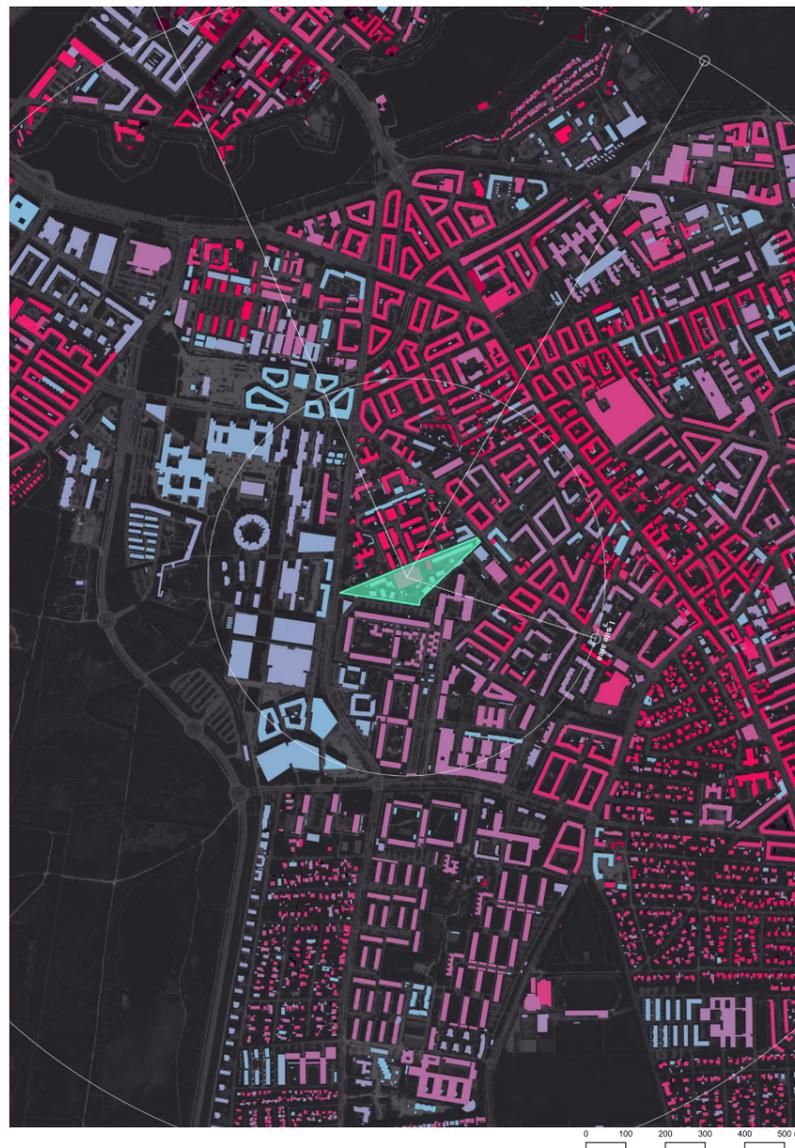
“Well-designed neighbourhoods inspire people who live in them, whilst poorly designed cities brutalize their citizens. As Jan says: ‘we shape cities, and they shape us’.”

Richard Rogers // foreword for “Cities for People”

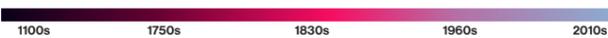


why is it important?

- + fosters a sense of self-worth, belonging, and purpose
- + enhance place attachment, cultural resonance, and civic pride
- + strengthens cohesion and shared values within a group

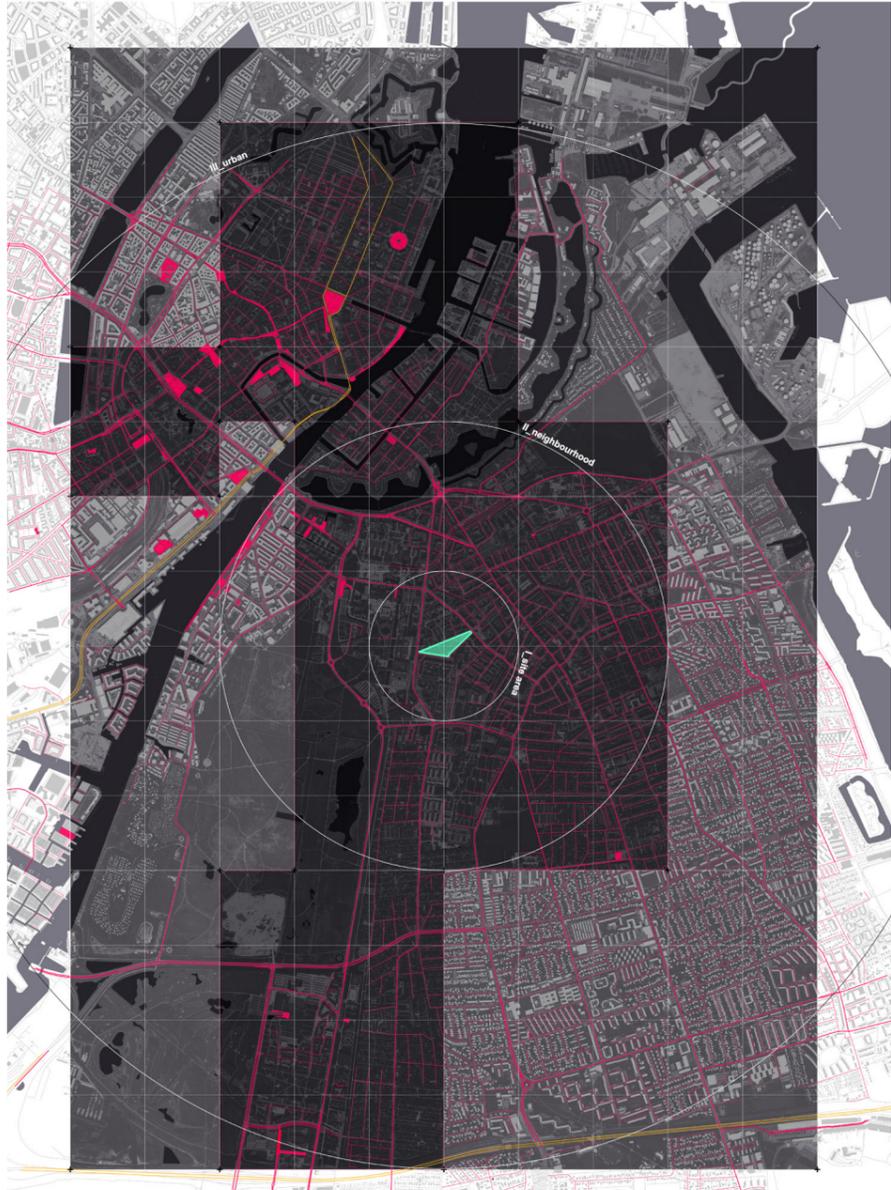


nolli map



social housings, individual residence, community housings,
office, public services, retail

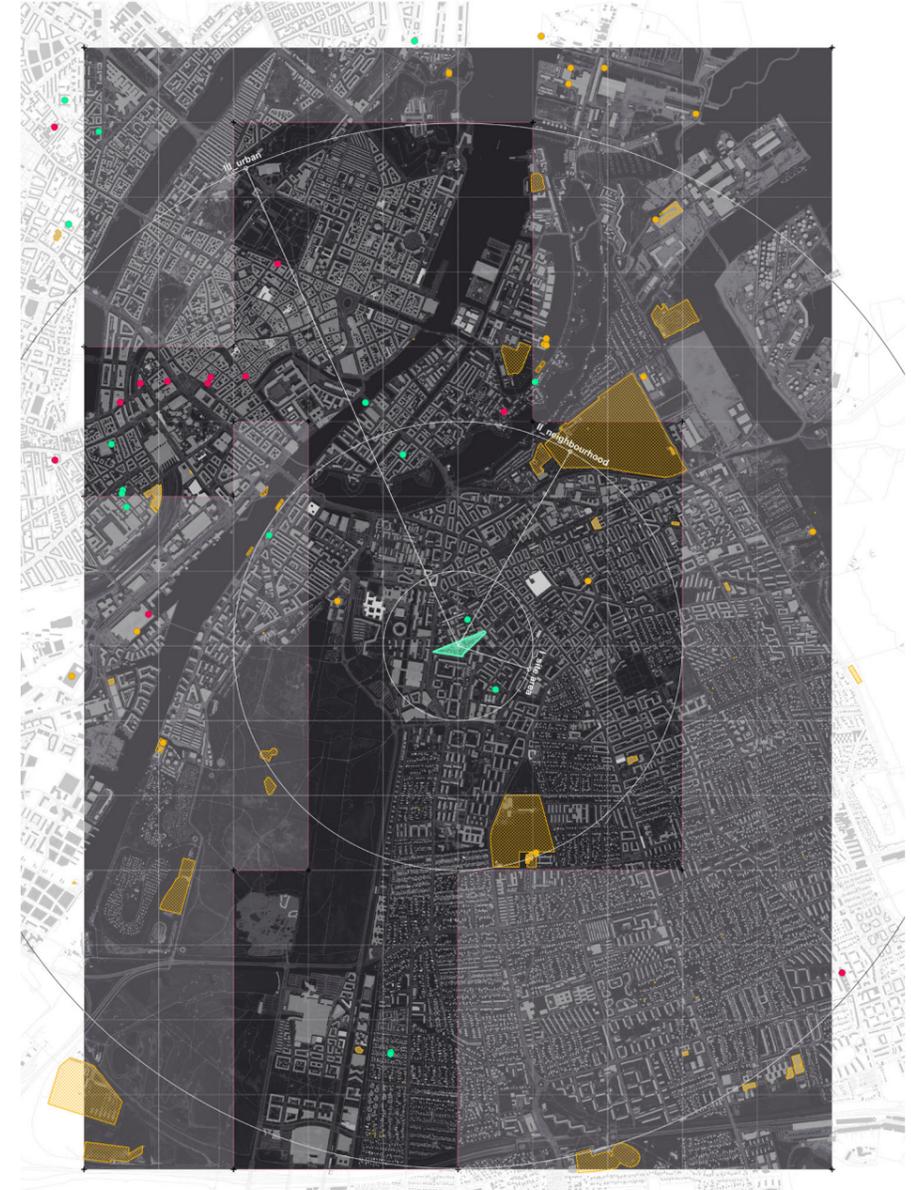
mikolaj chmiel || public building graduation studio



cycle connections



bus stops, metro lines



sports centres & swimming pools, community centres, cinemas



young adults, parents + children

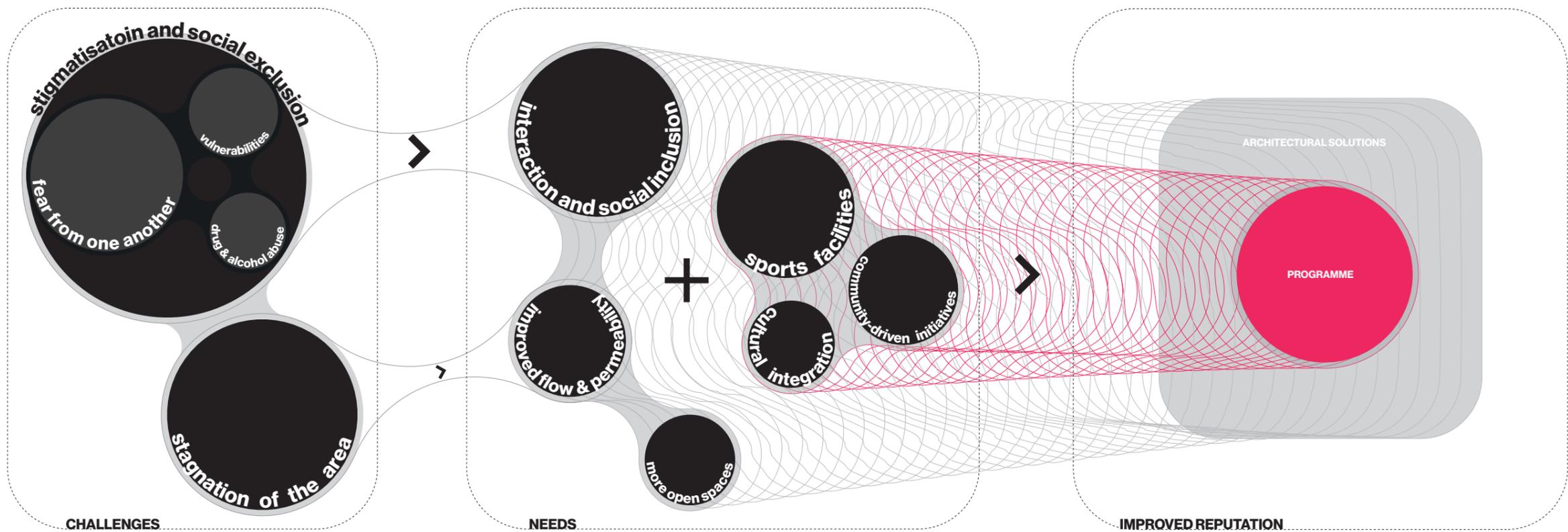
university students + staff

artists + creatives

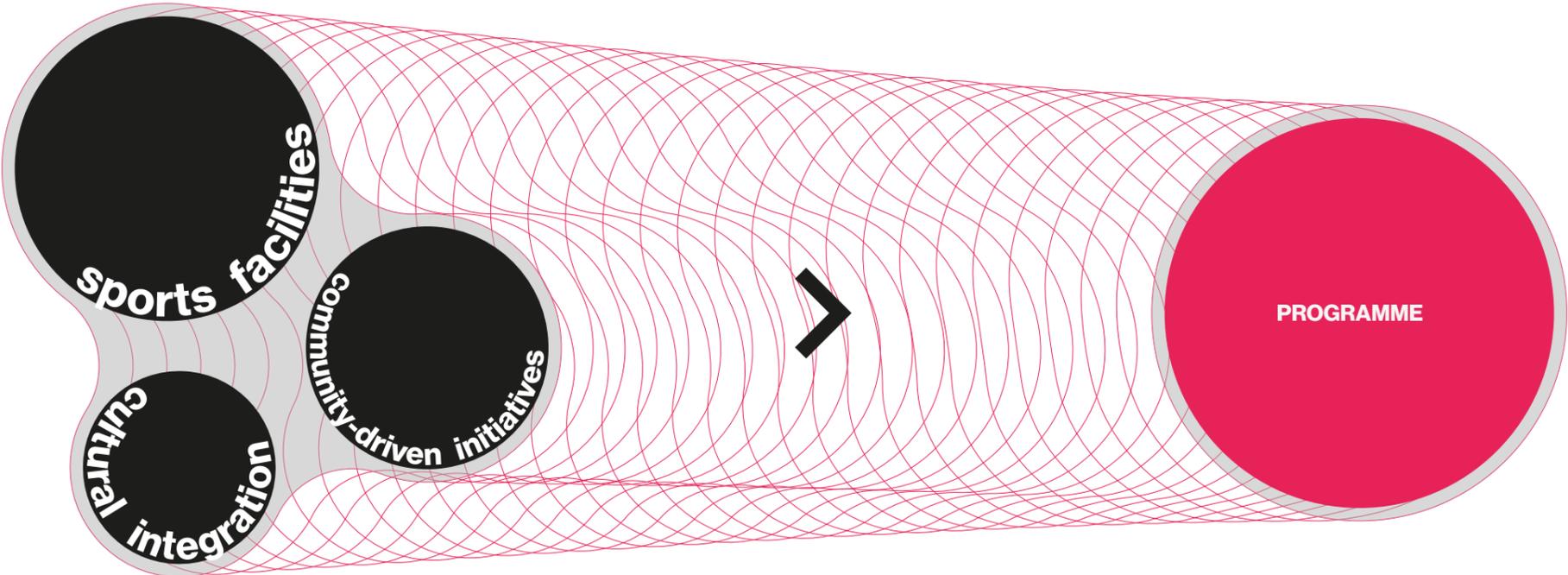
homeless + vulnerable

miscellaneous + external influence

how might we design an inclusive and activating public condenser for the underserved Sundholm community and external visitors in order to improve the neighbourhood's future prospects and well-being of its residents?



informing the design



multiplicity

diagramming_user groups & interactions

01_sports/wellness

- _big exercise hall (multipurpose)
 - _futsal, basketball, volleyball, handball, badminton
- _small exercise hall
- _gym
- _changing rooms
- _sauna / bath

02_culture

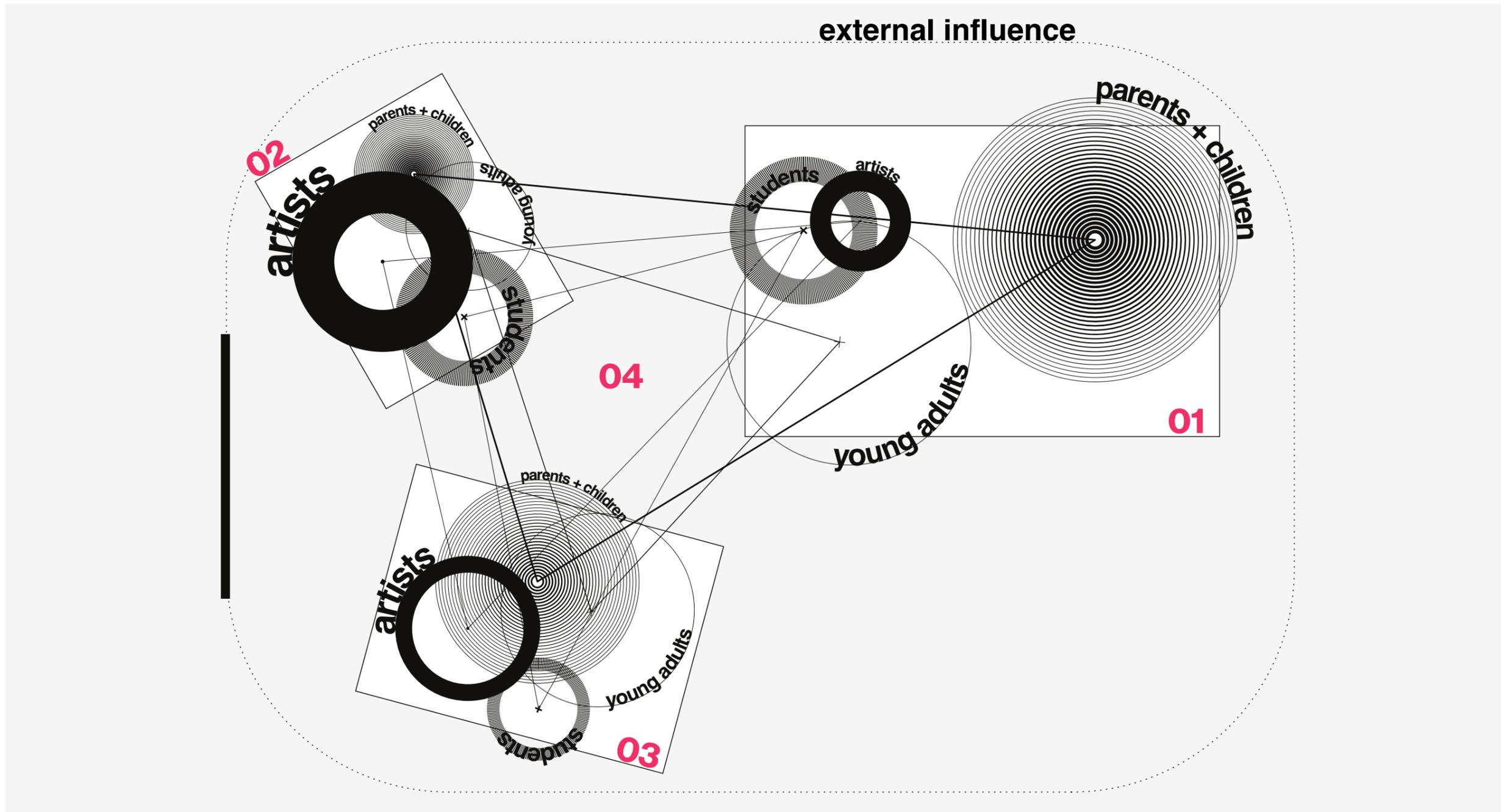
- _small scale exhibition hall
- _artists' workshop
- _arts & design classes

03_media

- _study cinema
- _computer library
- _IT classes

04_public realm

- _outdoor park
- _spatial playground
- _outdoor cinema
- _in-between spaces
- _bar / cafe
- _sitting spaces

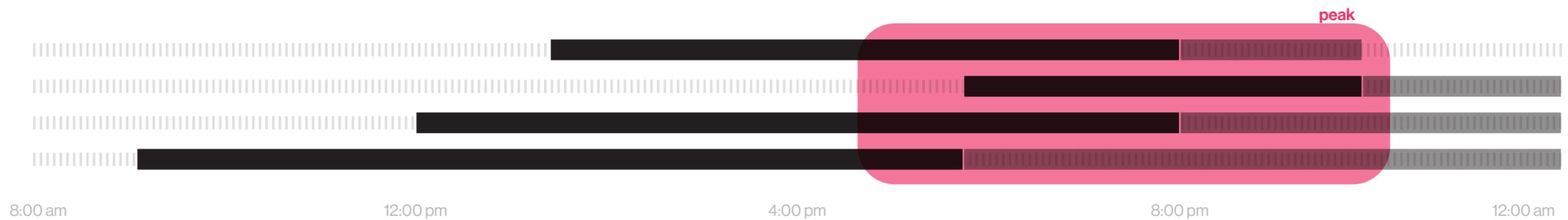


parents + children

young adults

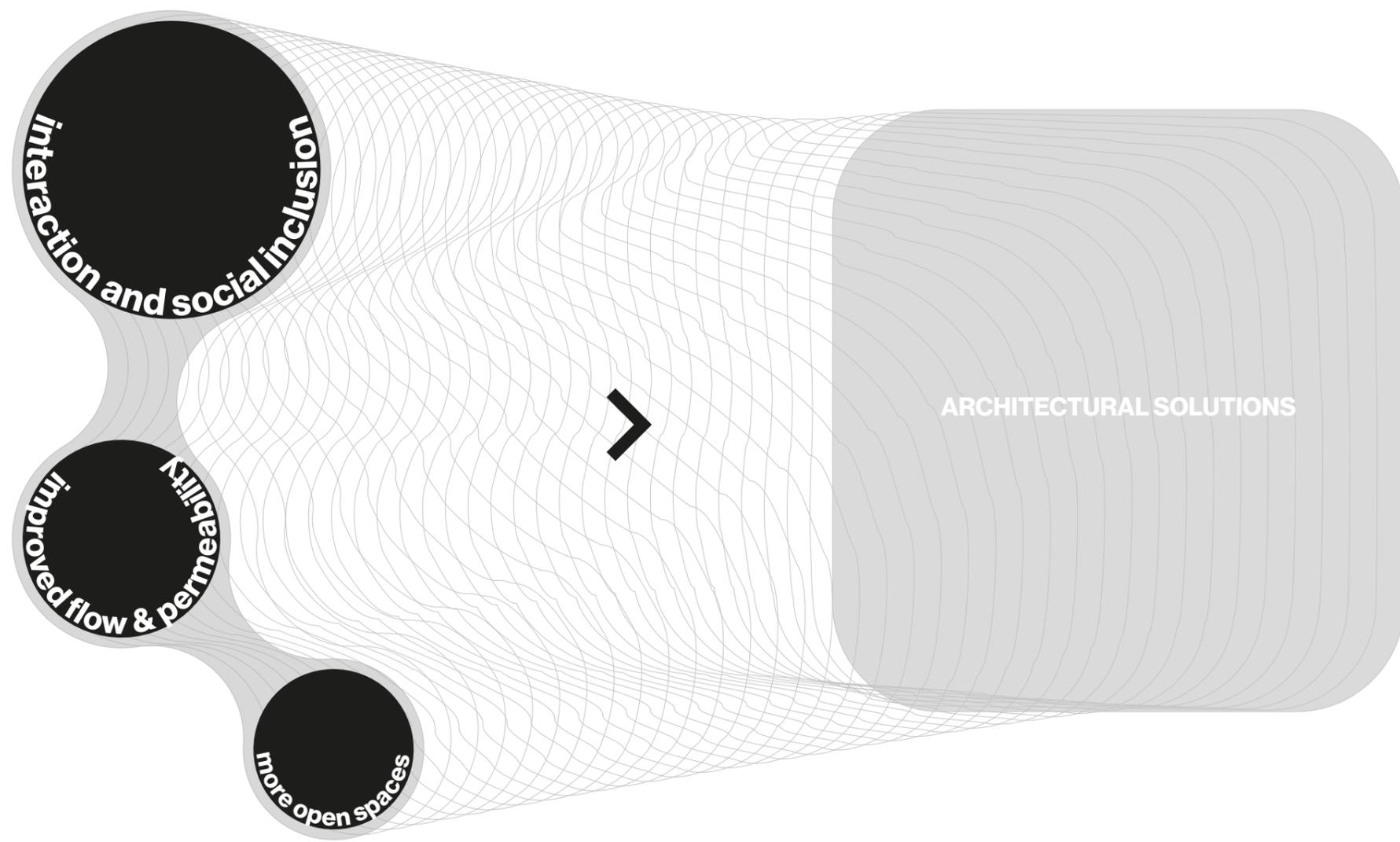
students

artists



■ usual use time ■ extra use time

informing the design



hybridity

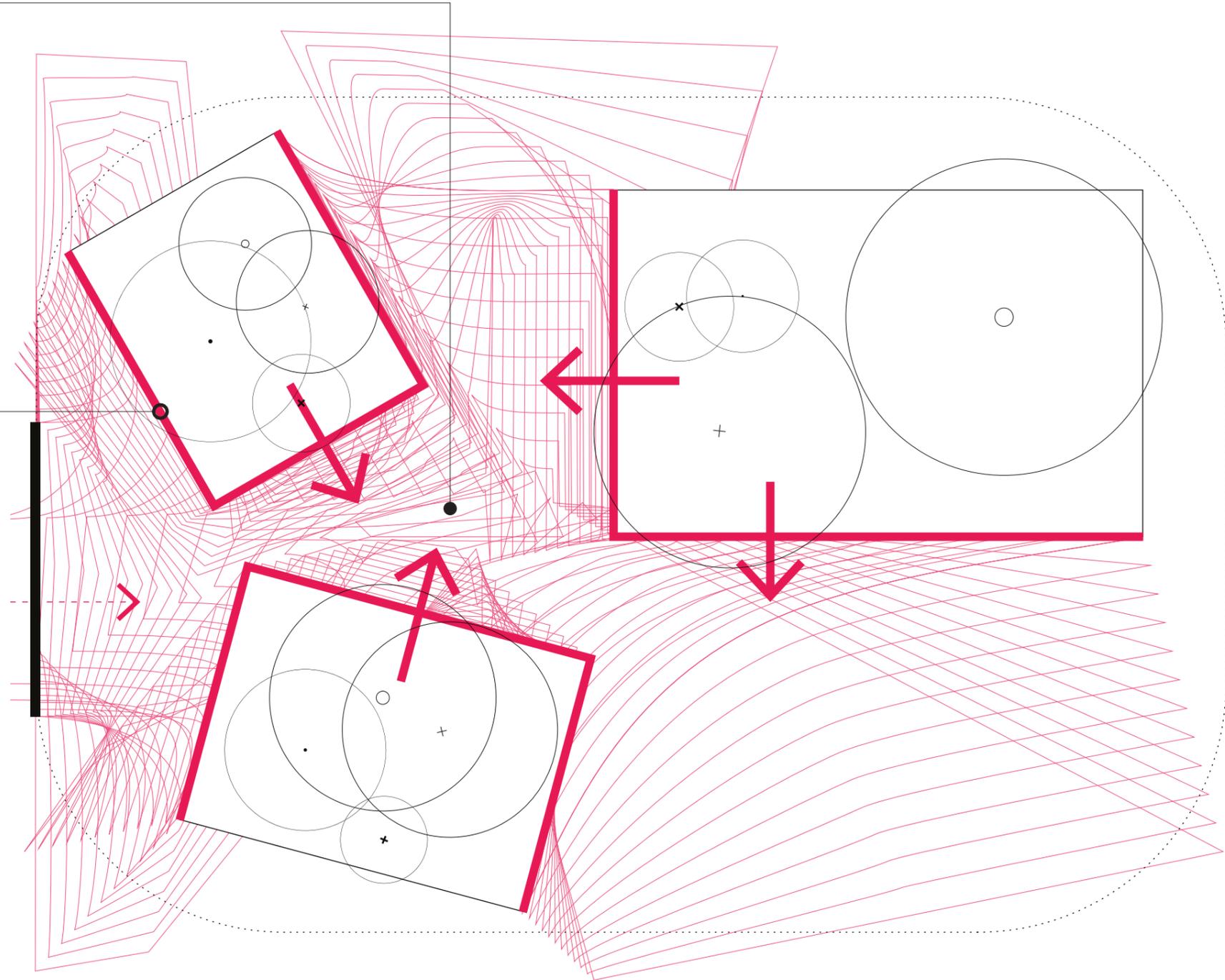
focus on permeability, flow and in-between spaces

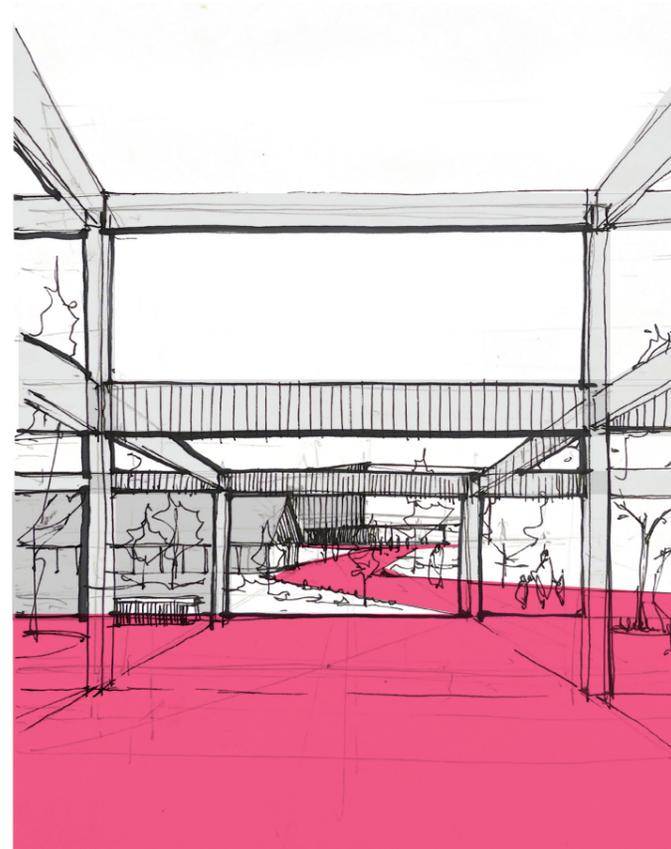
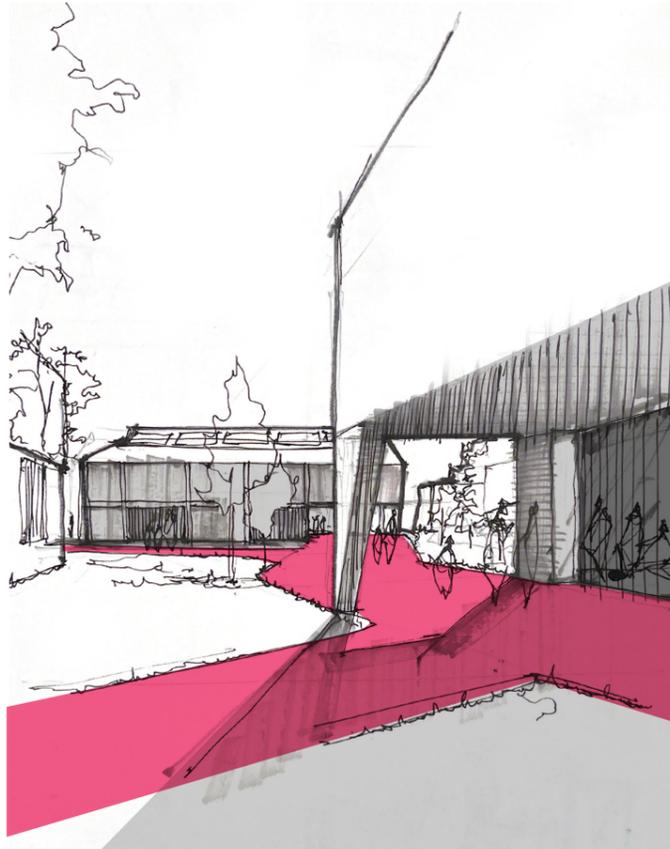
permeable, semi-open public space

- _slowing down the traffic = more lively space
- _more time spent = more potential for interaction

activating and open ground level

- _soft & hard edges that define space
- _edges as exchange zones
- _edges as staying zones

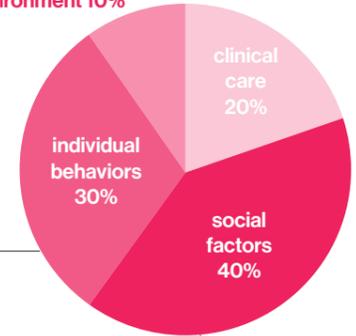




development goals

influence on the neighbourhood and the future

physical environment 10%



socialising & community safety

PHYSICAL EXERCISE

time spent in nature

EMPLOYMENT EDUCATION SOCIAL SUPPORT LEISURE

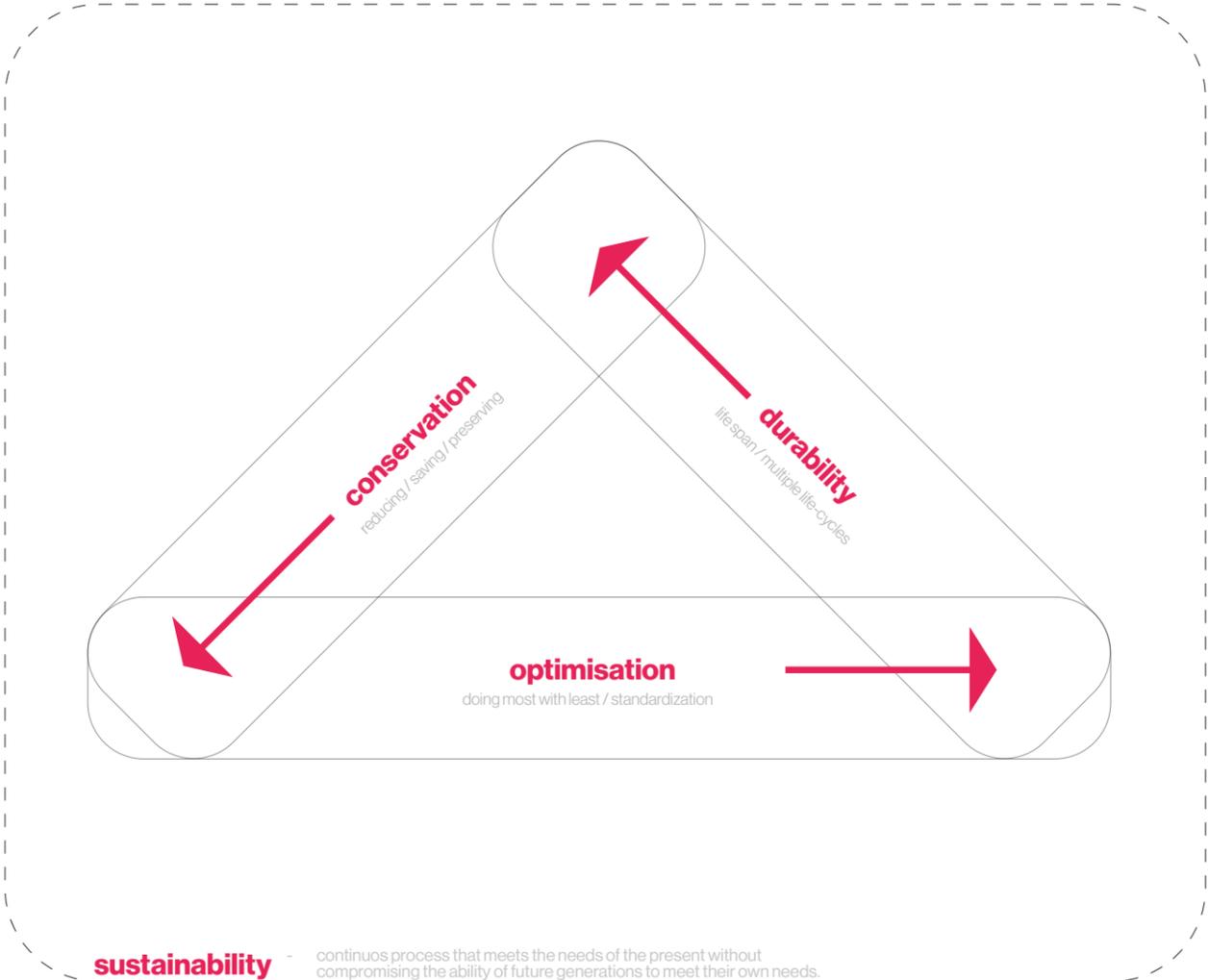
access to transport

water retention across site

improved flow & eyes on the street

development goals

sustainable design strategies



standardised grid
use of standardised structural elements with a focus on dry connections

PV panels
sustainable source of energy

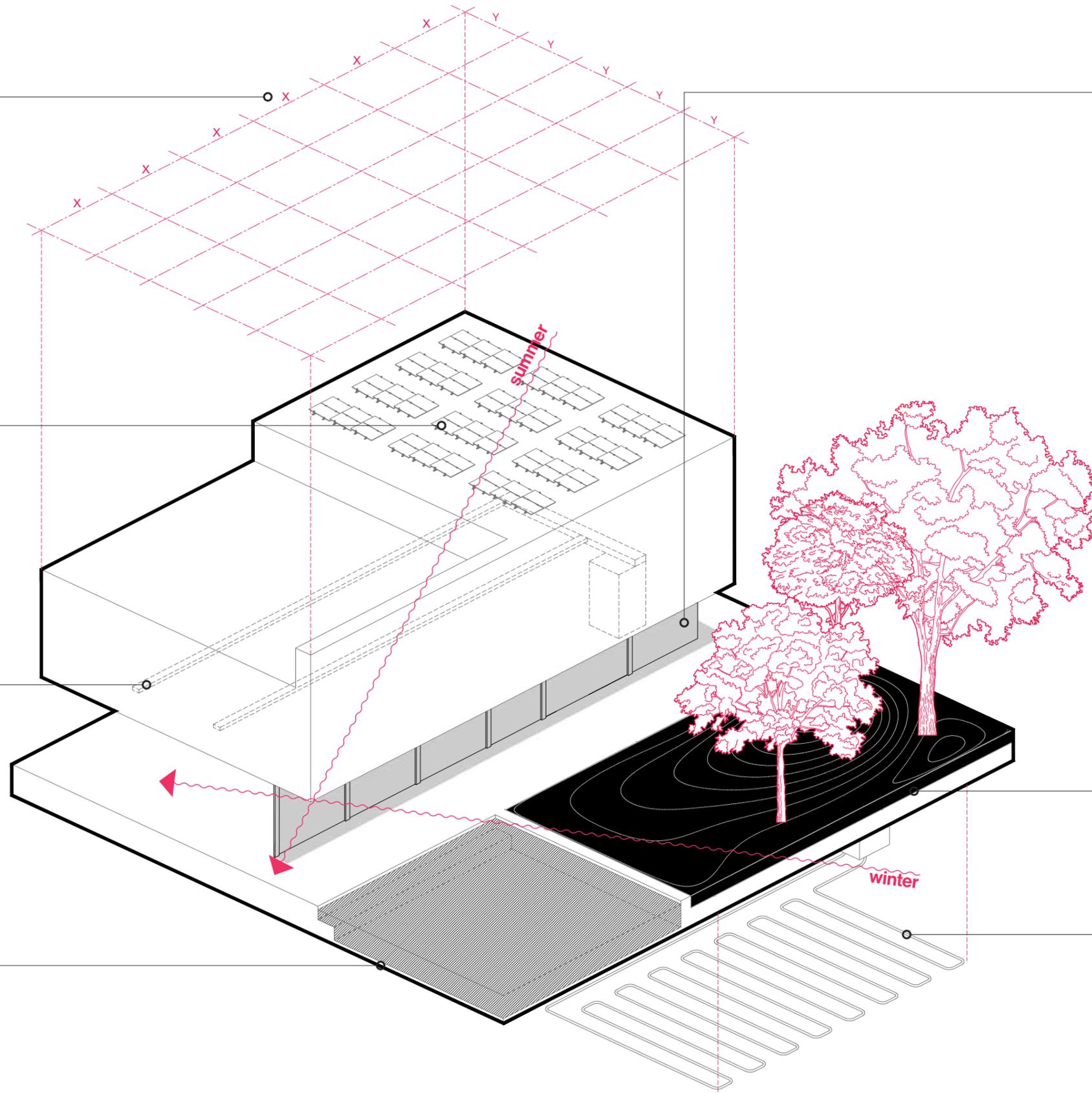
MVHR
fresh and filtered air with heat recuperation

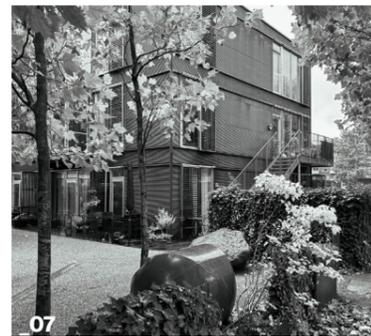
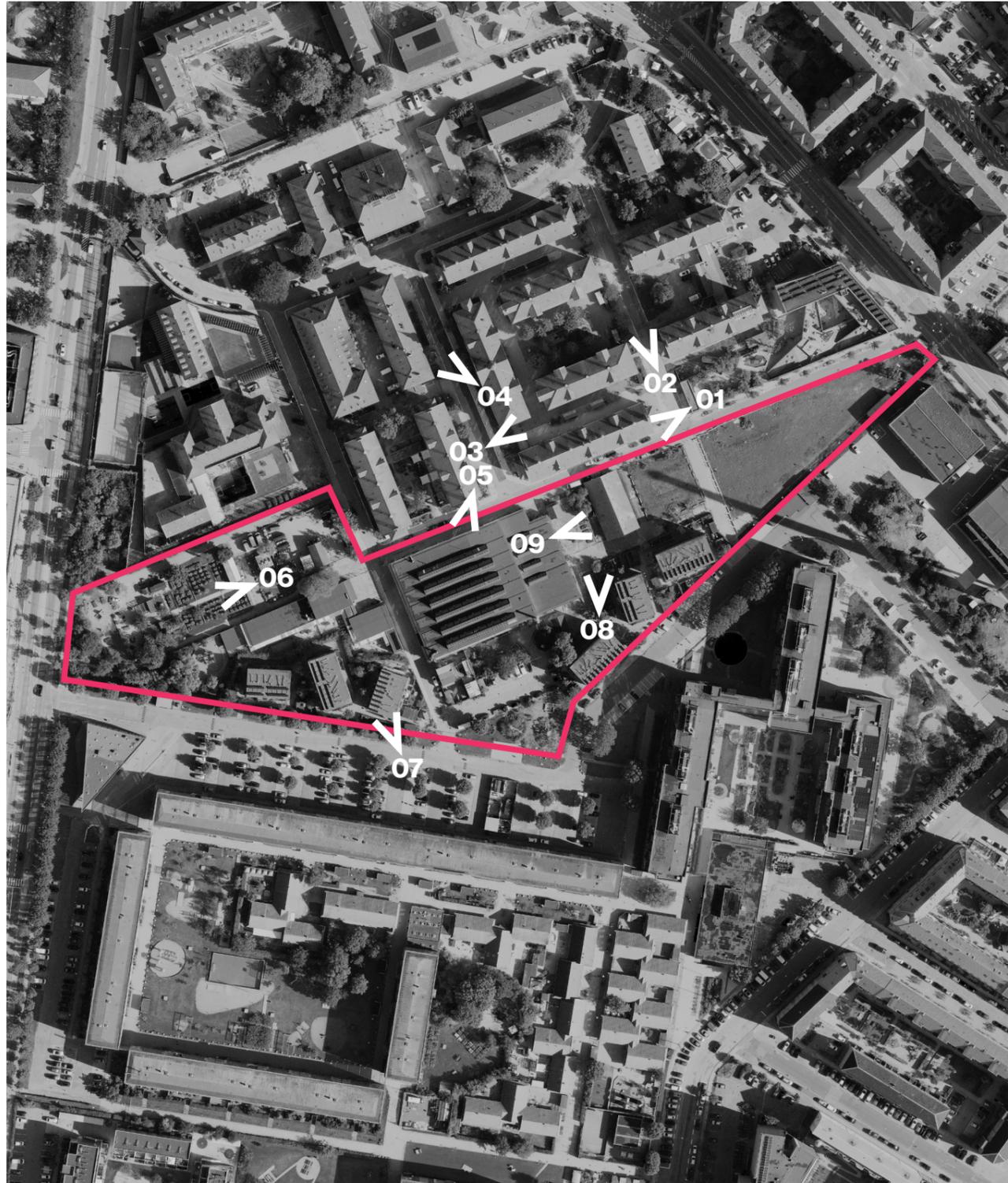
water retention
design allowing water retention when needed

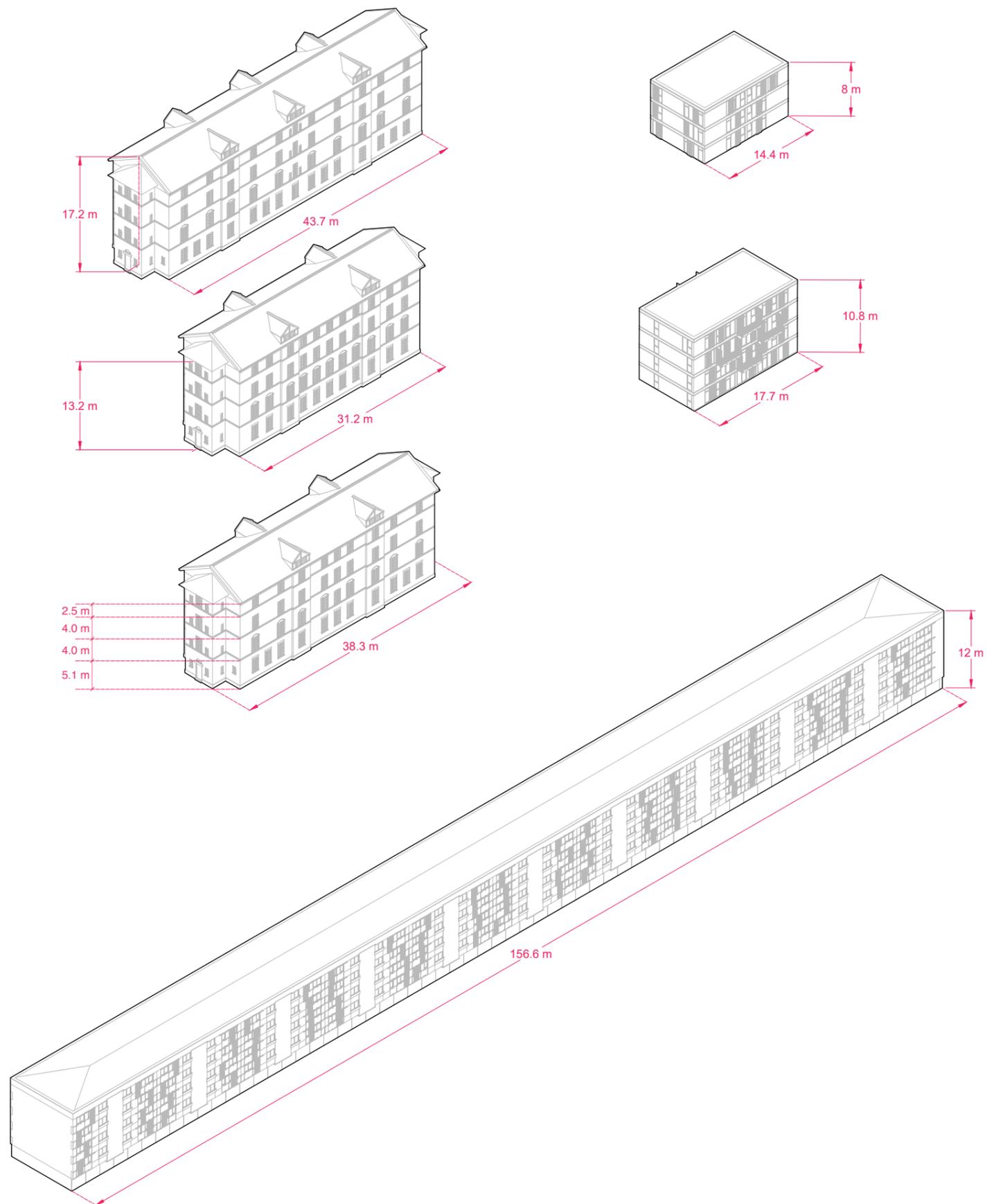
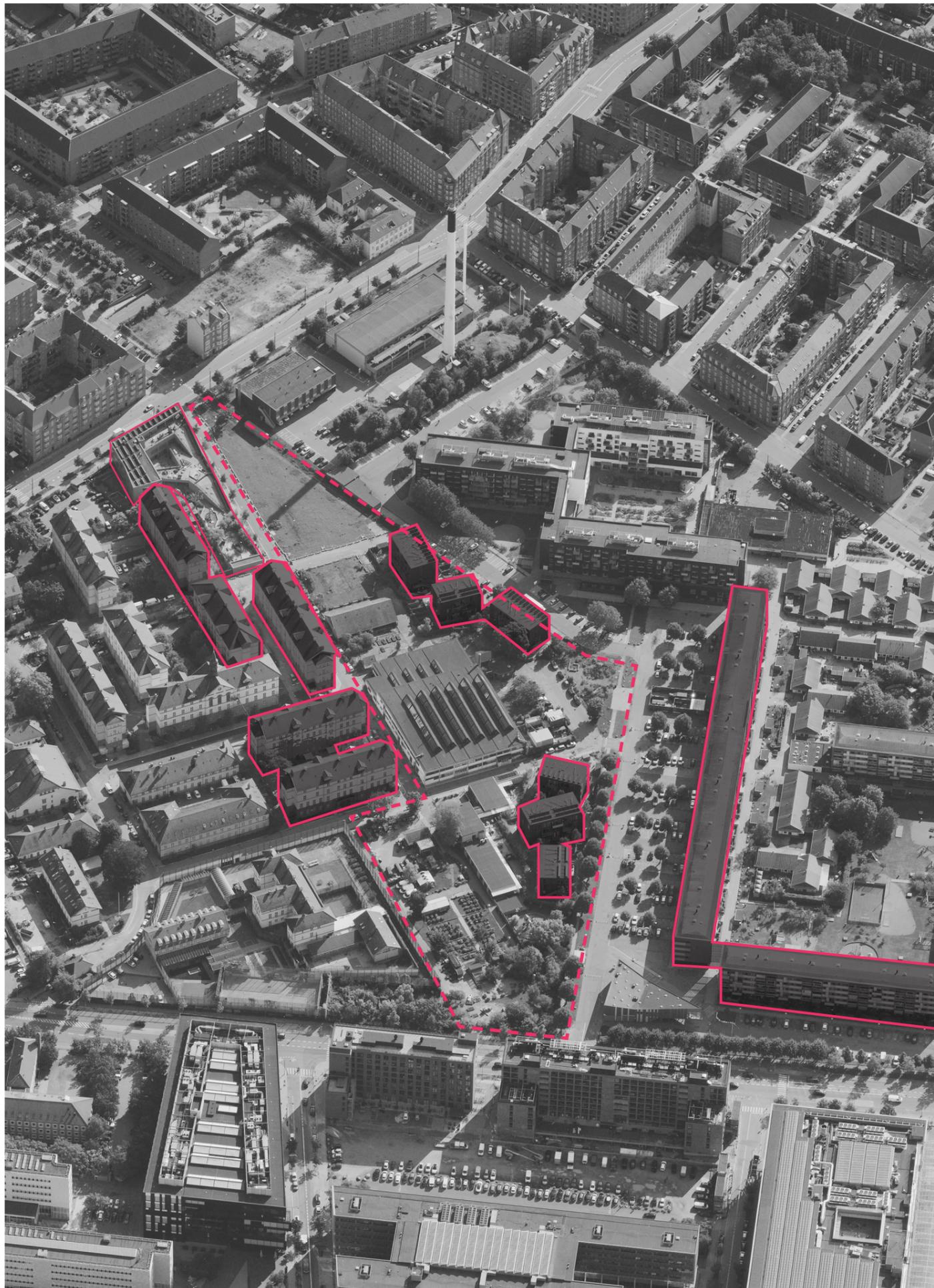
passive shading
Overhangs, louvres, and deciduous trees are used to block excessive solar heat during summer while allowing sunlight in winter.

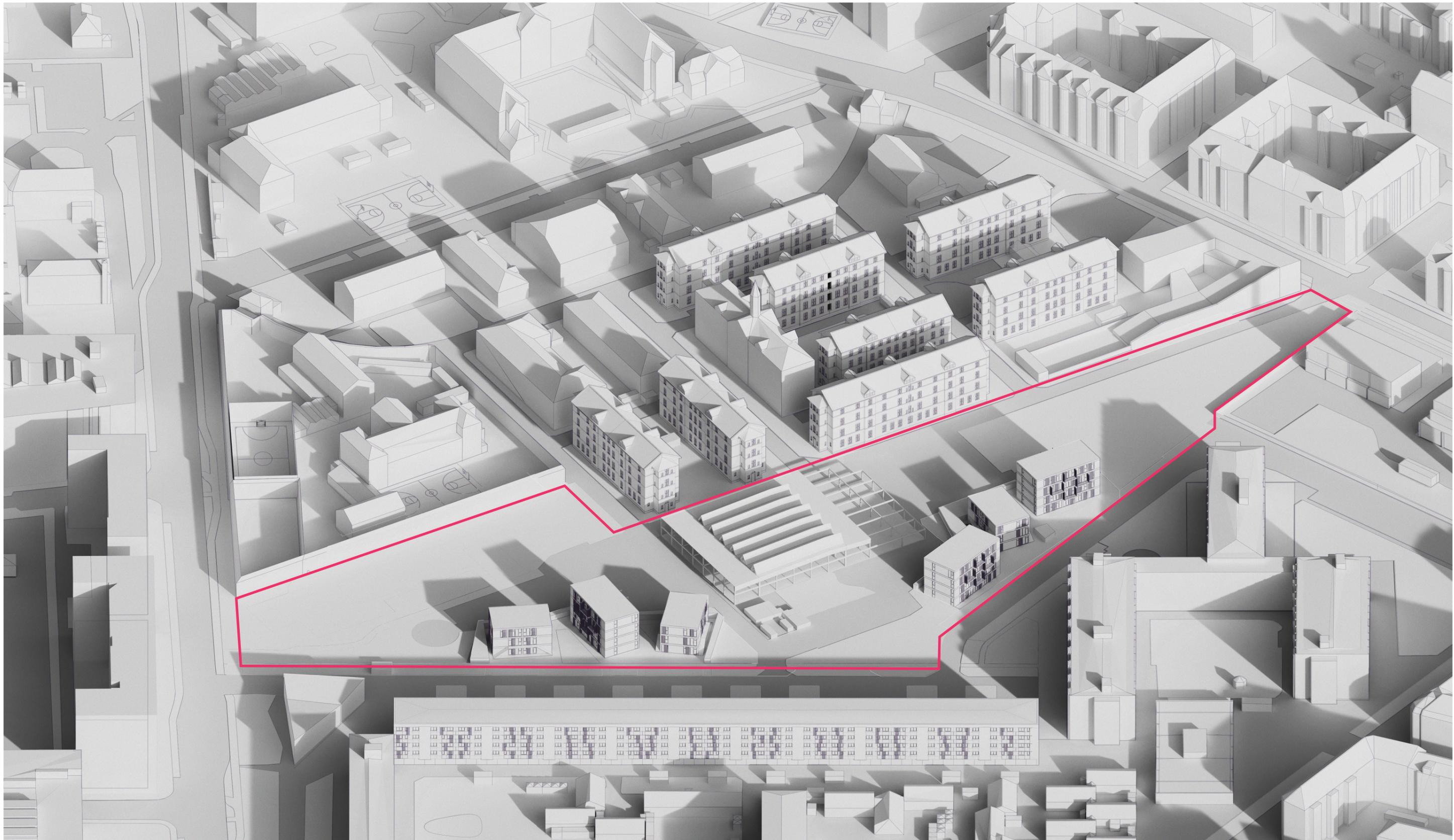
wild garden
deciduous trees used for passive shade
+ increased biodiversity

GSHP
sustainable source of energy for heating

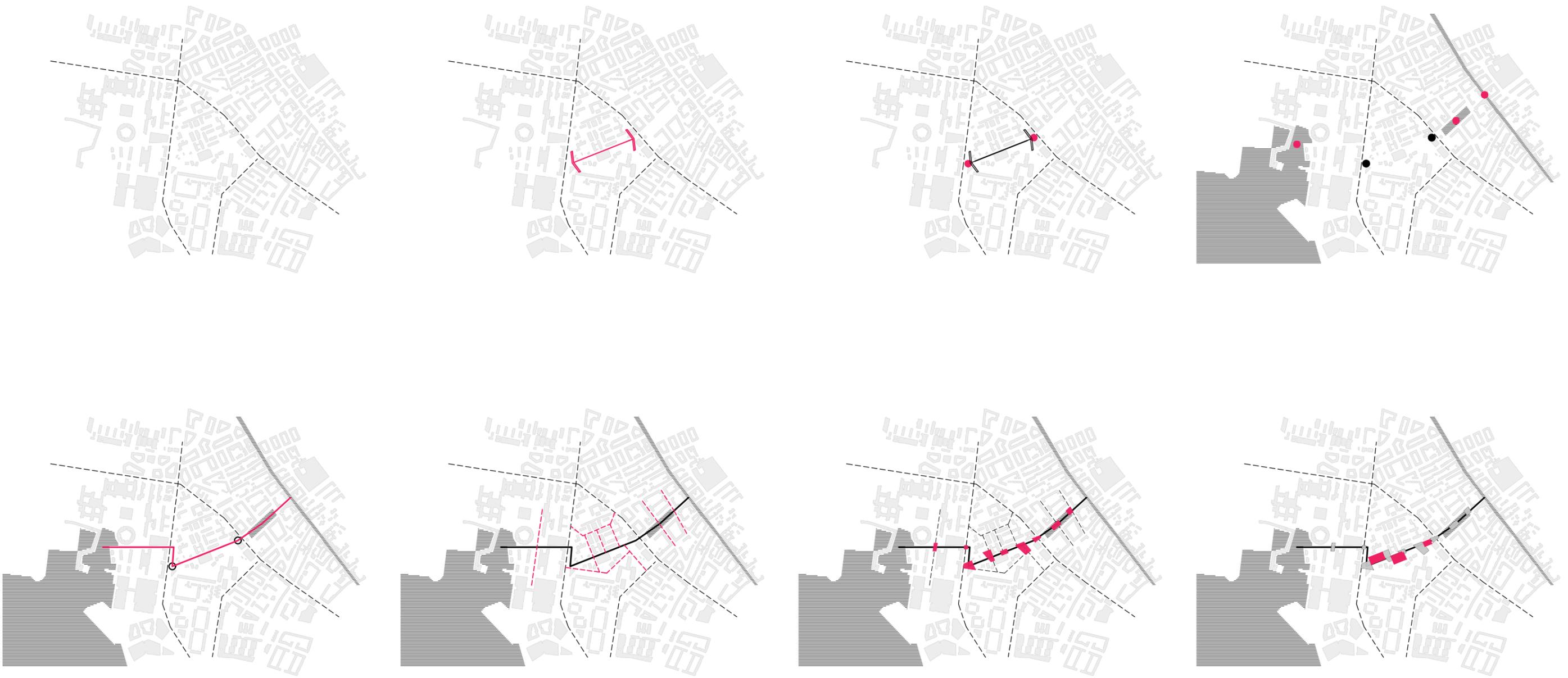


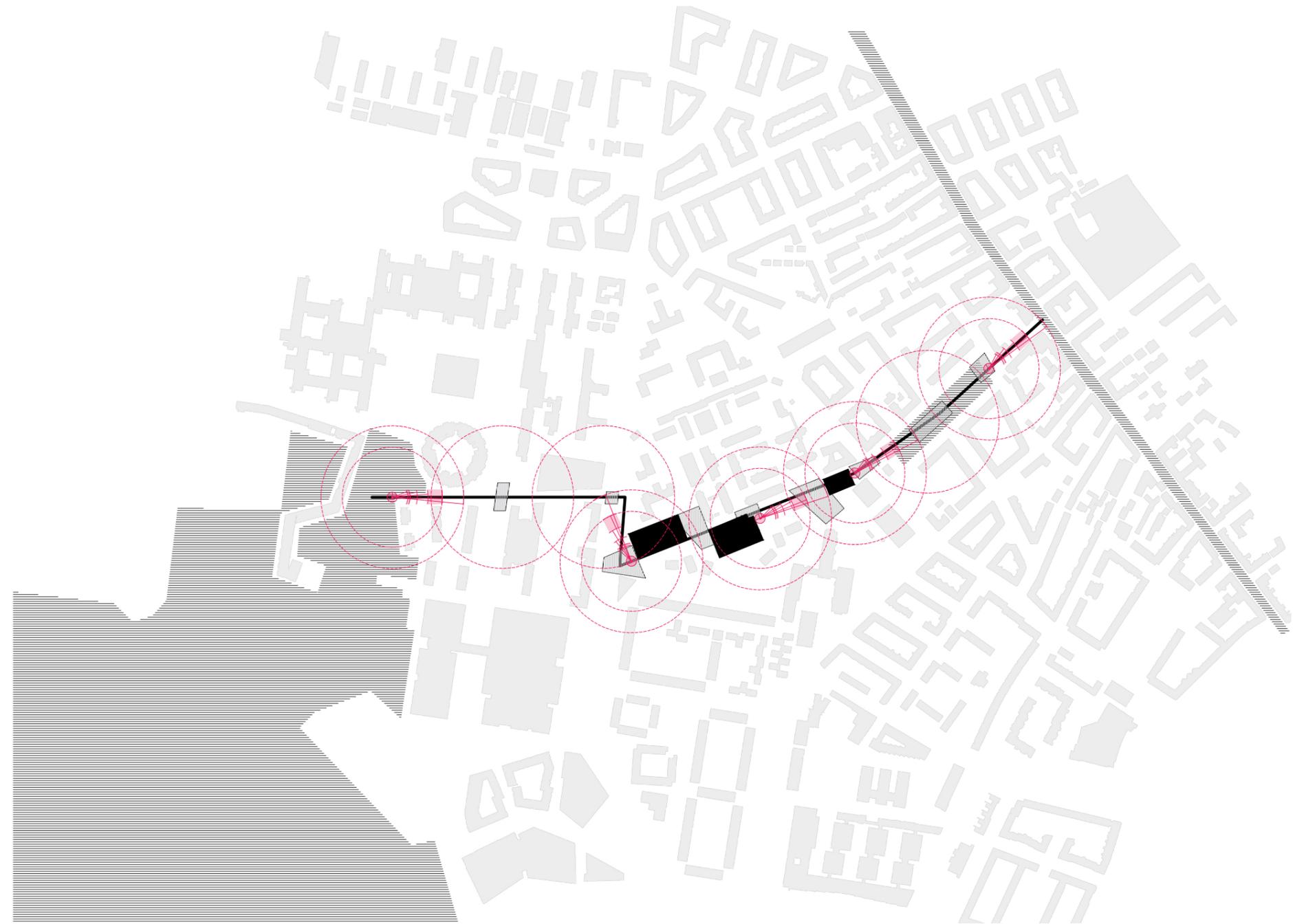
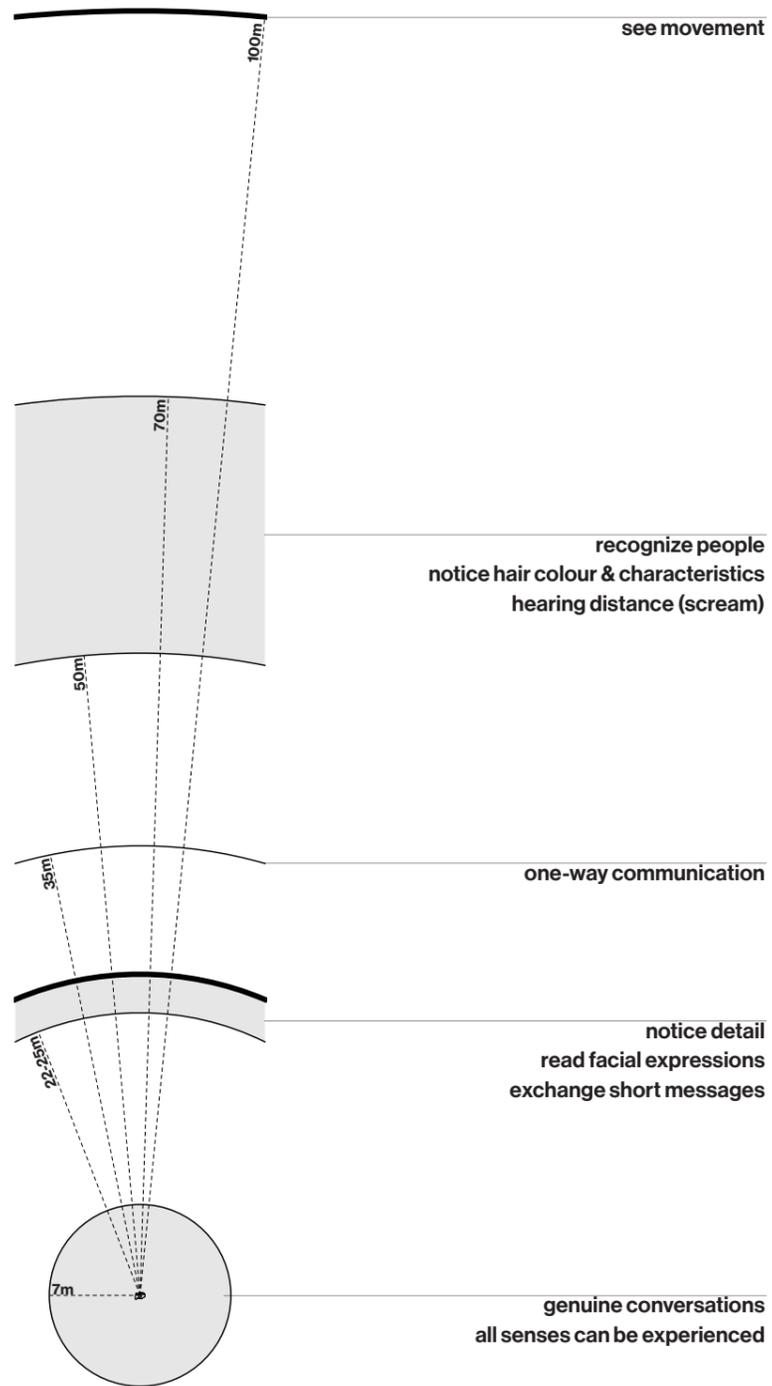




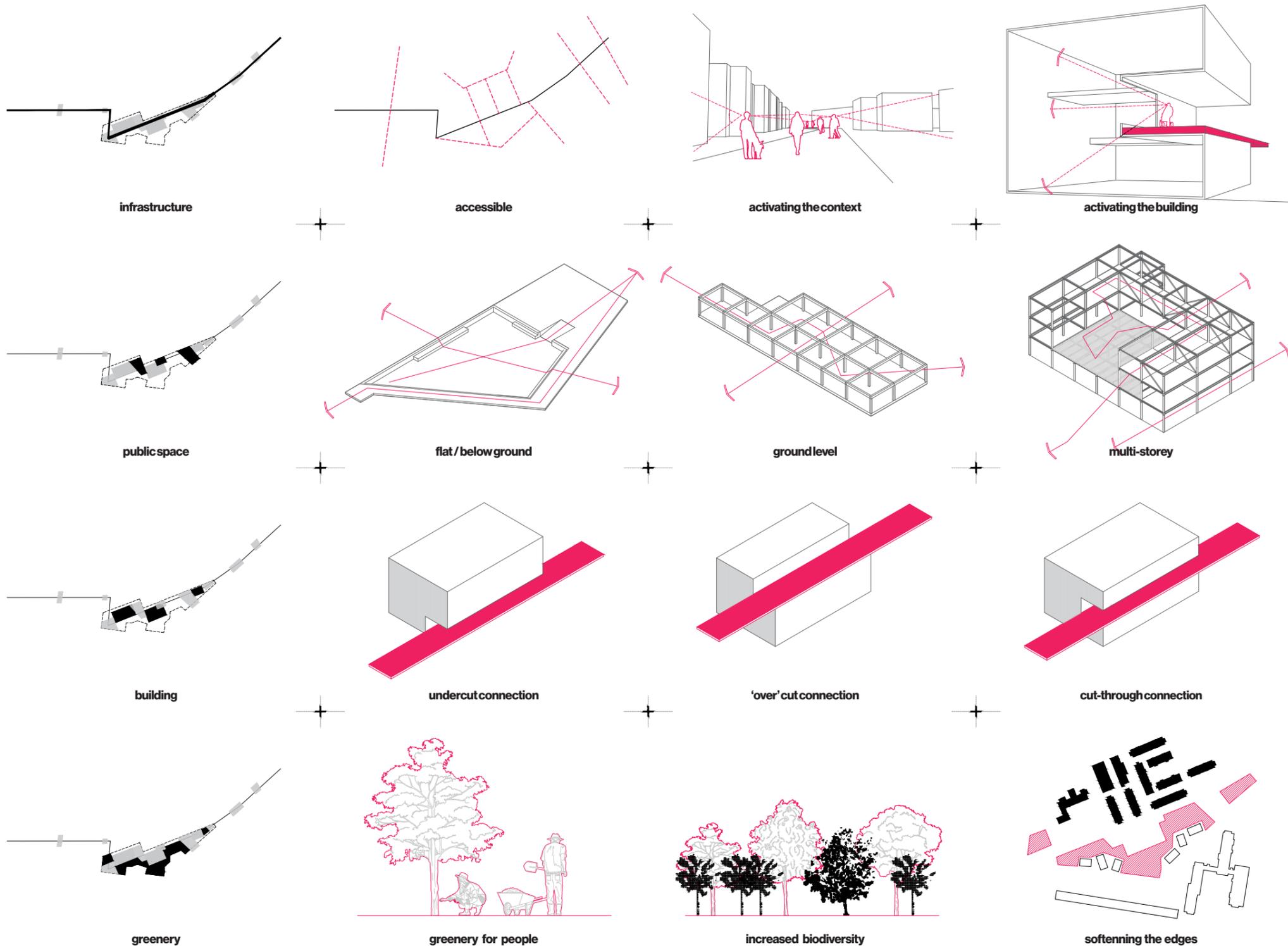


framework





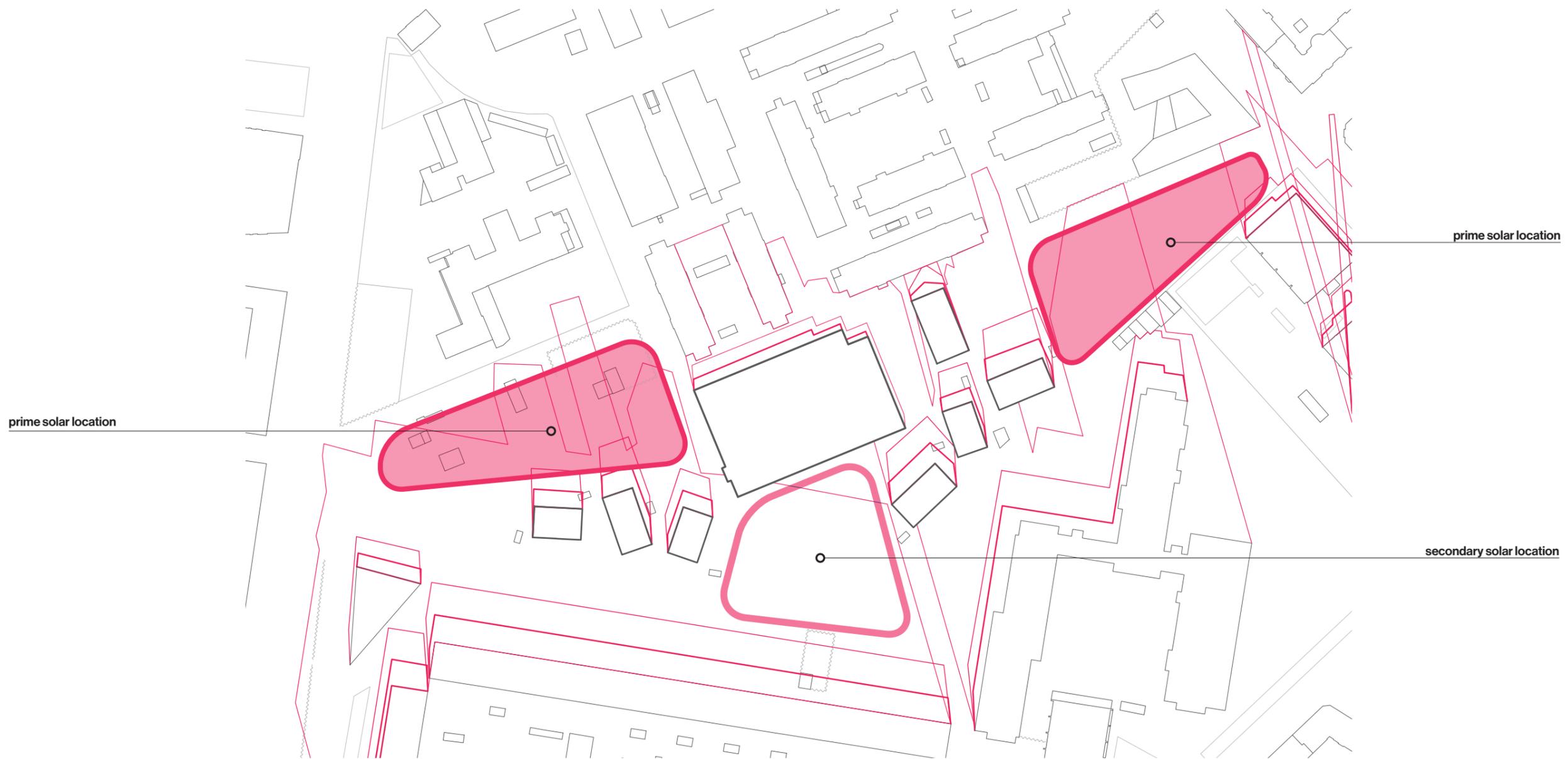
properties



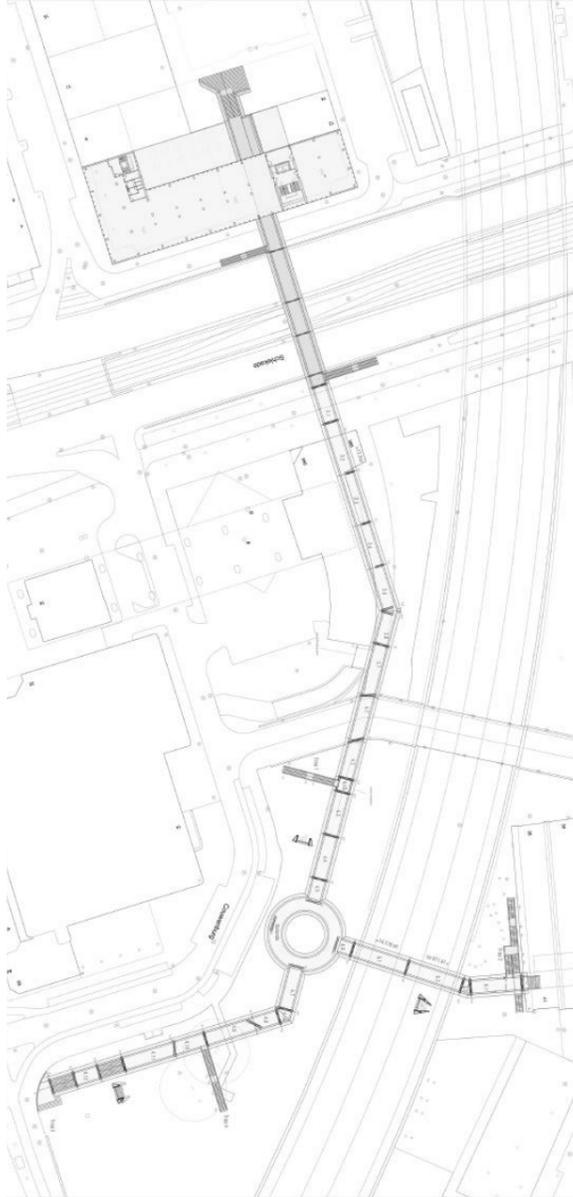
passive solar design

sustainable design strategies





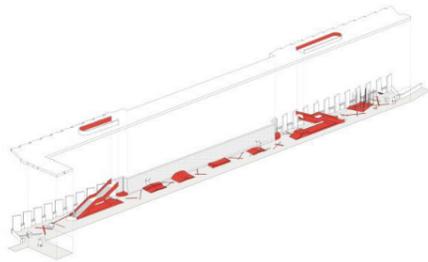
case studies_connections



case studies_public realm



XDGA // melopee school



U / U studio, Re place // Vitavská Underground



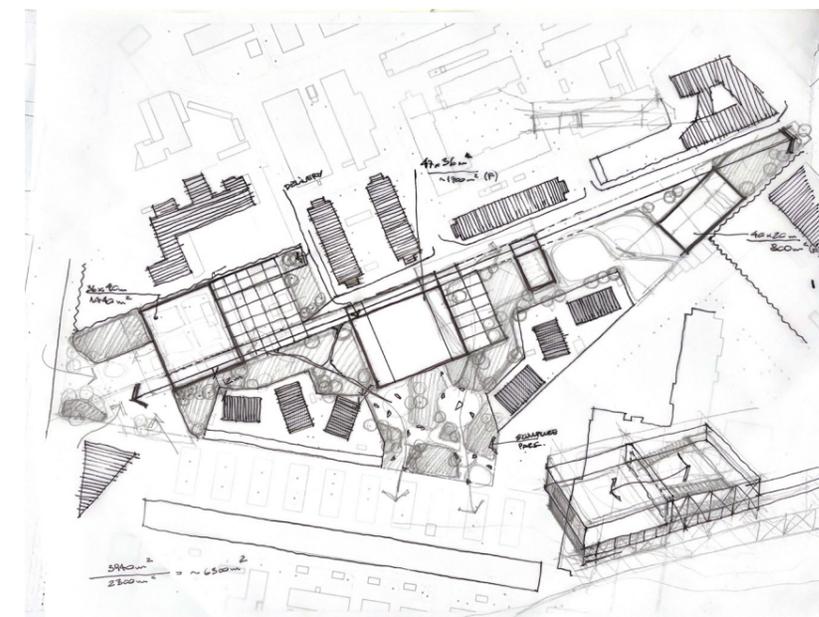
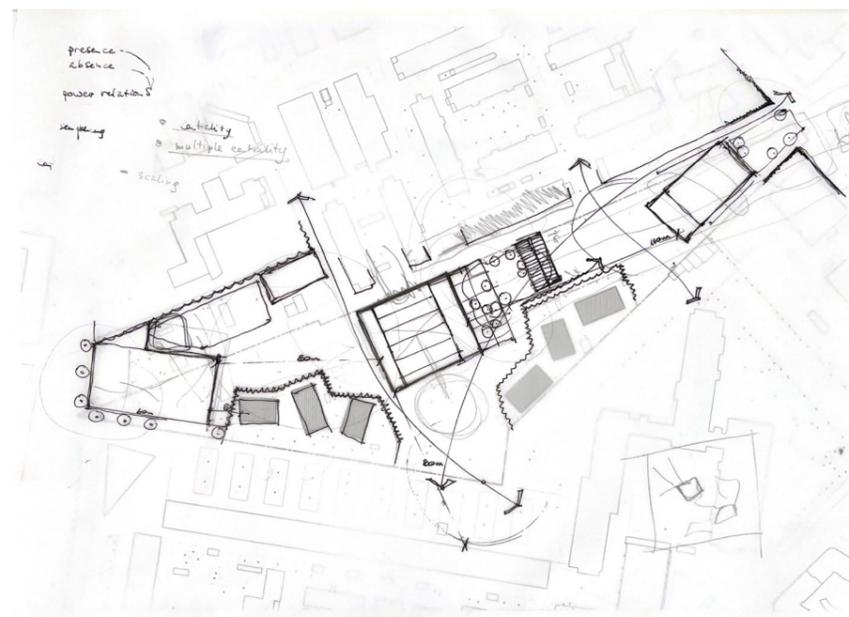
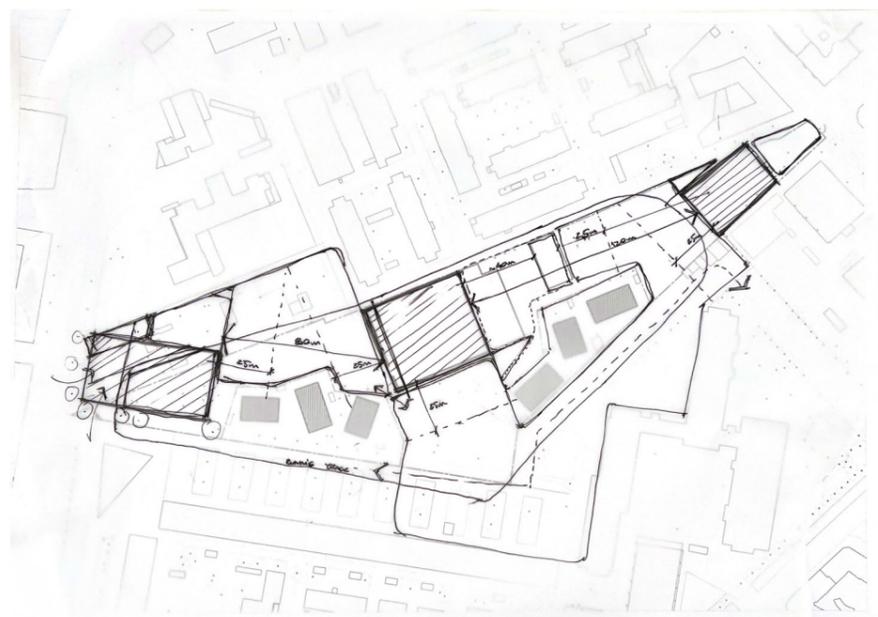
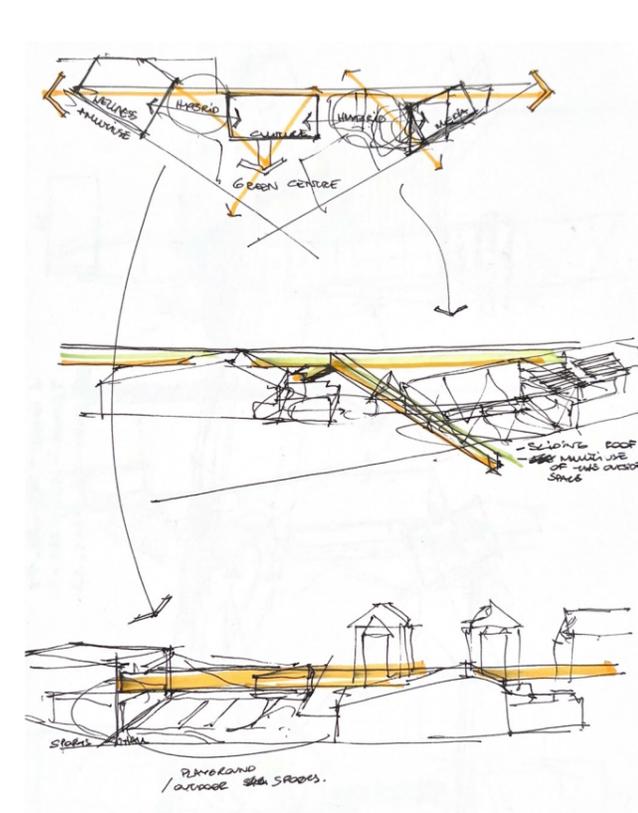
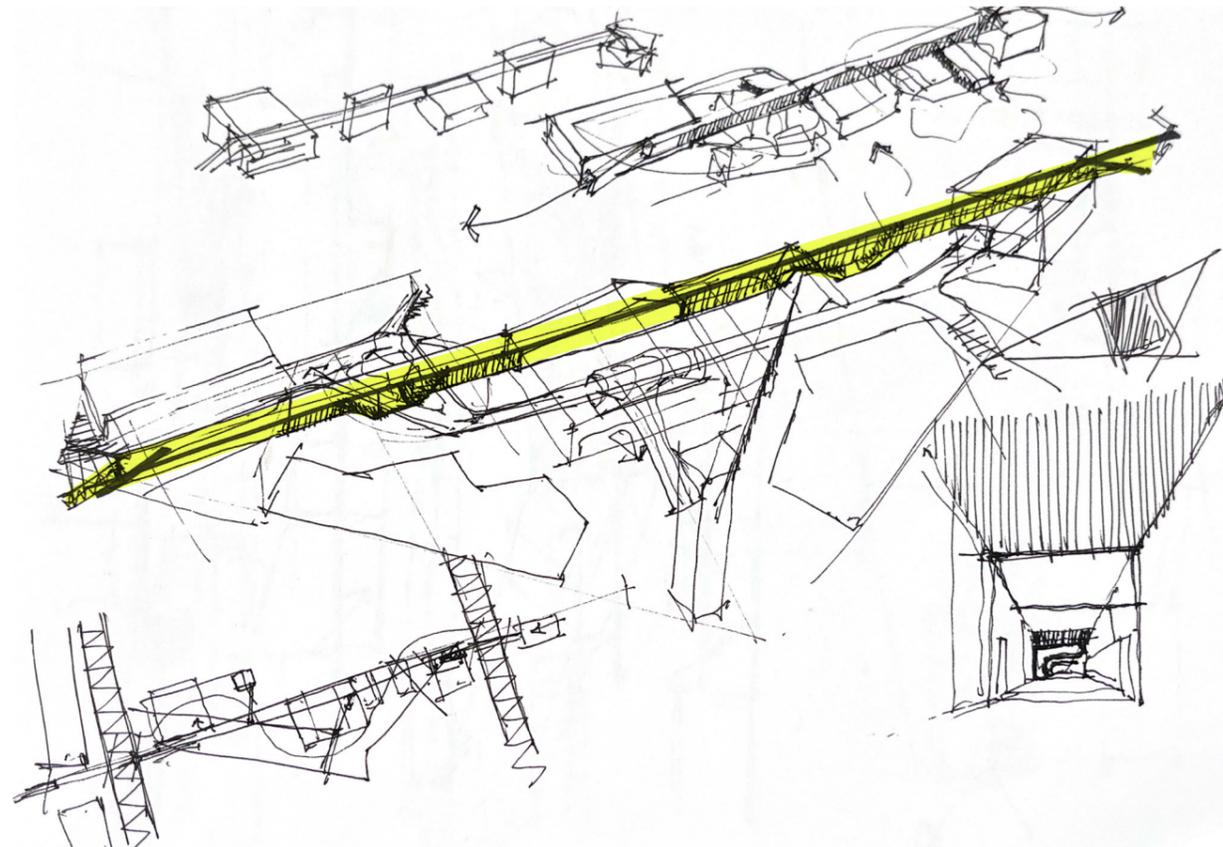
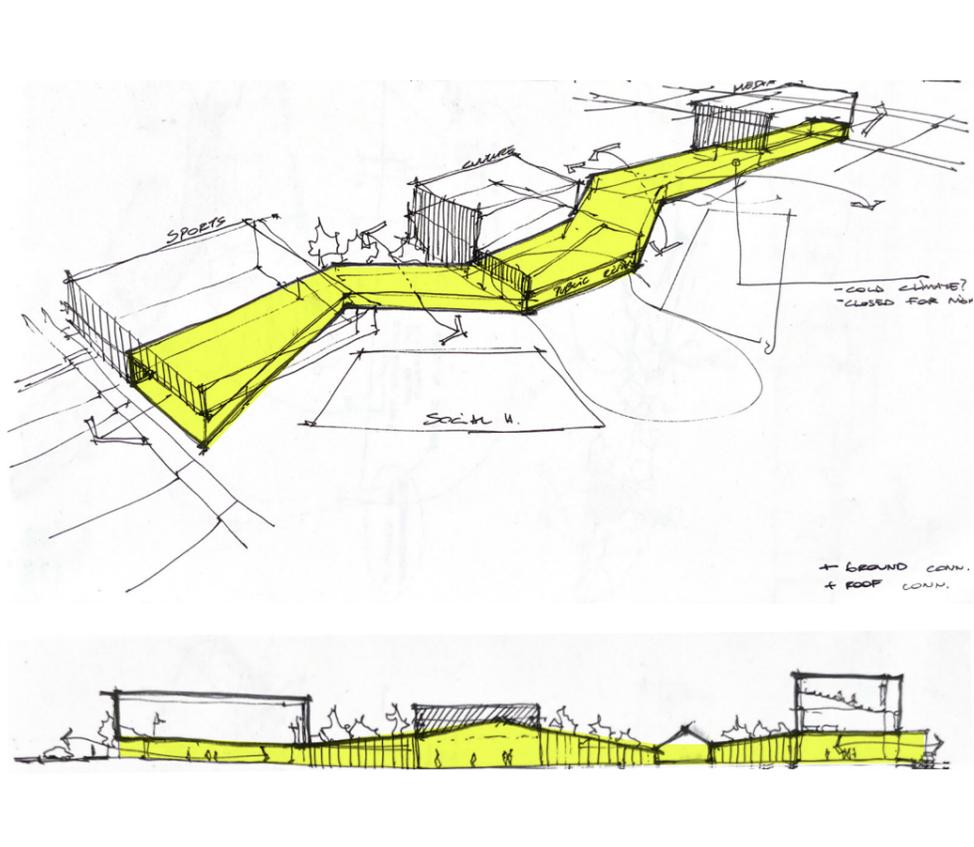
Vandriessche Architecten // Wijkpark de Porre

Public realm as an in-between tissue of the project should act as a public hybridizing space, uniting the scattered across the site program. Therefore, what is happening in this hybridized space should be ambiguous in its' nature, stimulating and inviting for interpretation and free use. This space should serve both as a connector, places to rest & reflect and as a place to play and be active.

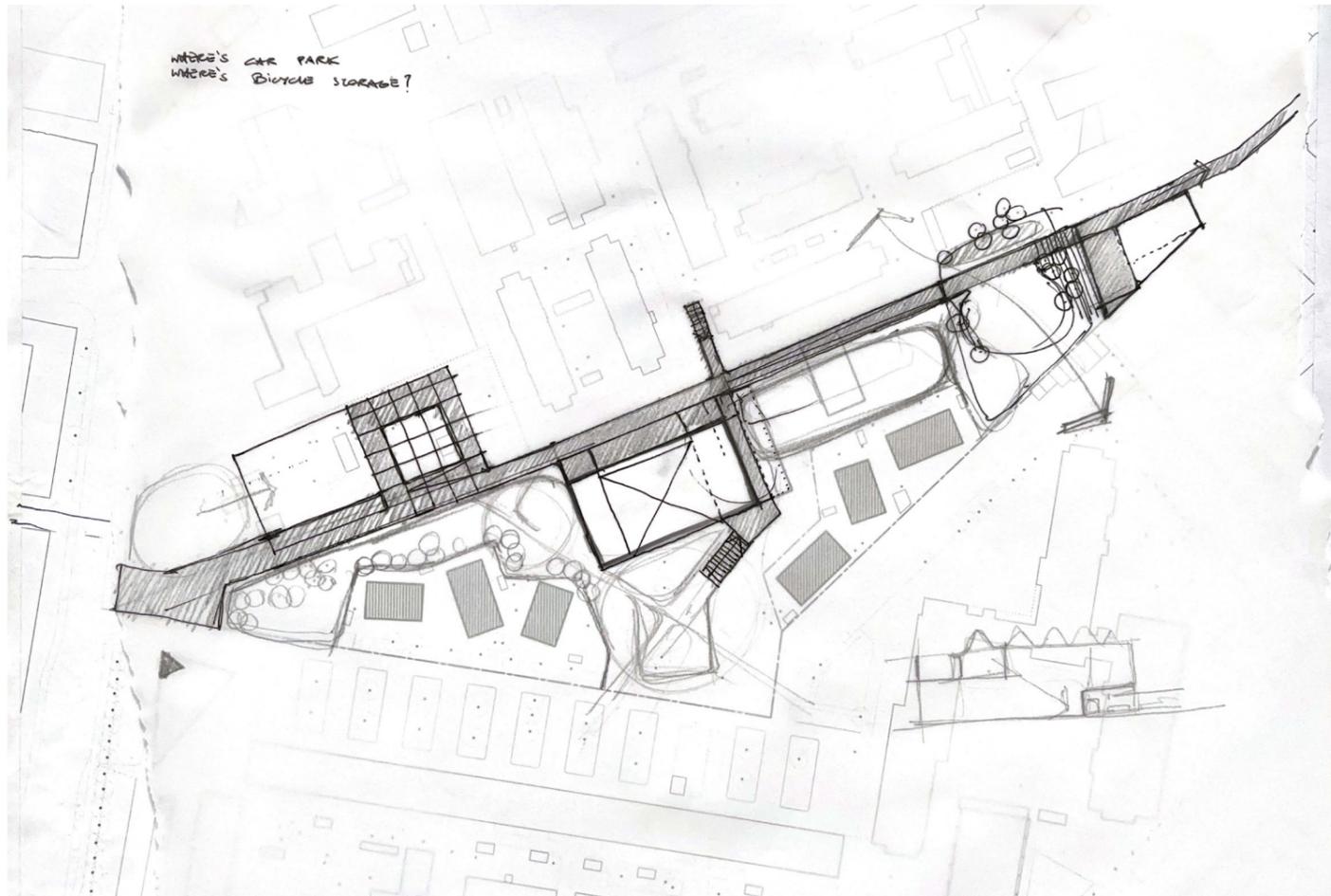
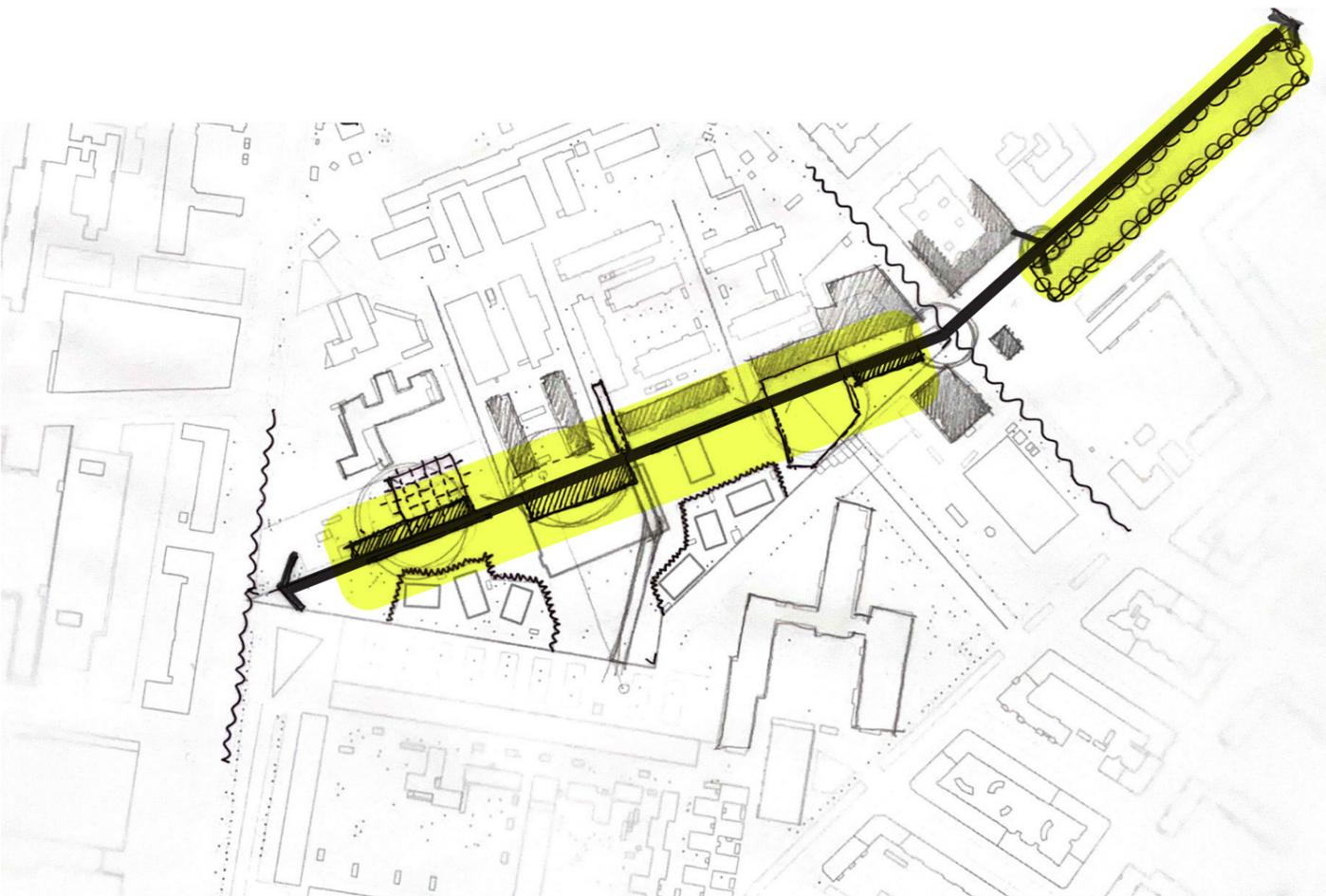
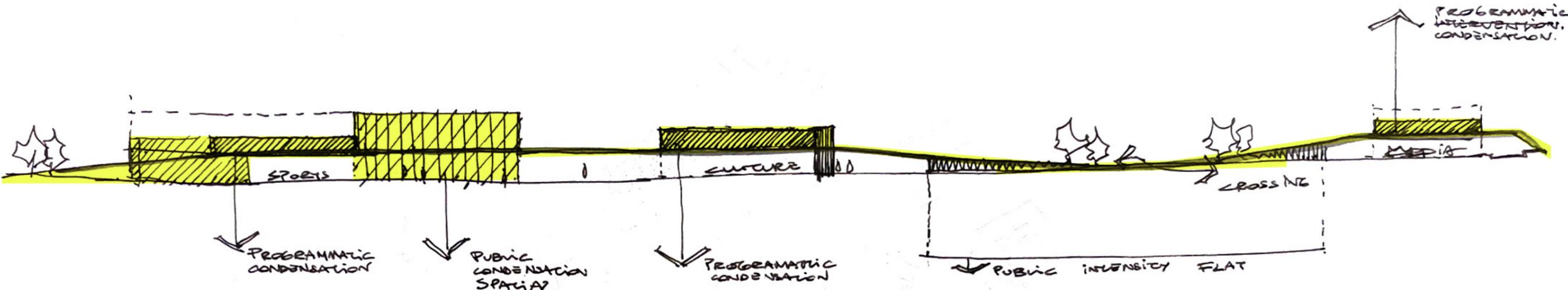


ELE Arkitektura // San Antonio school playground

exploratory sketches

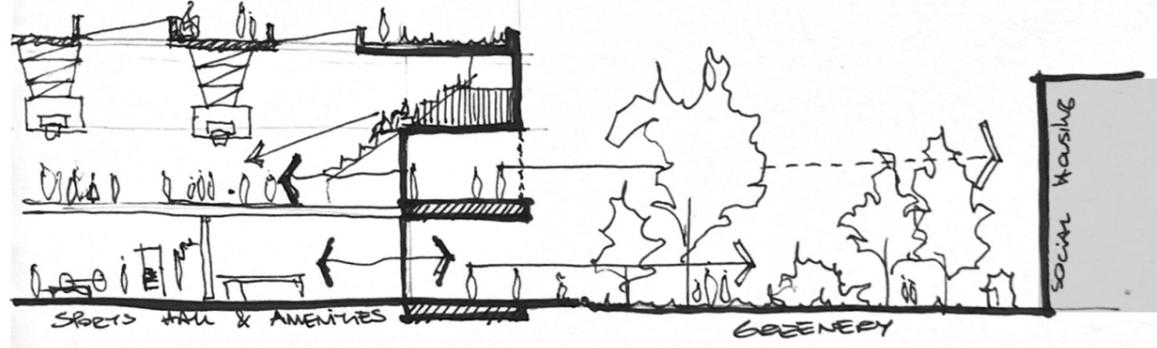
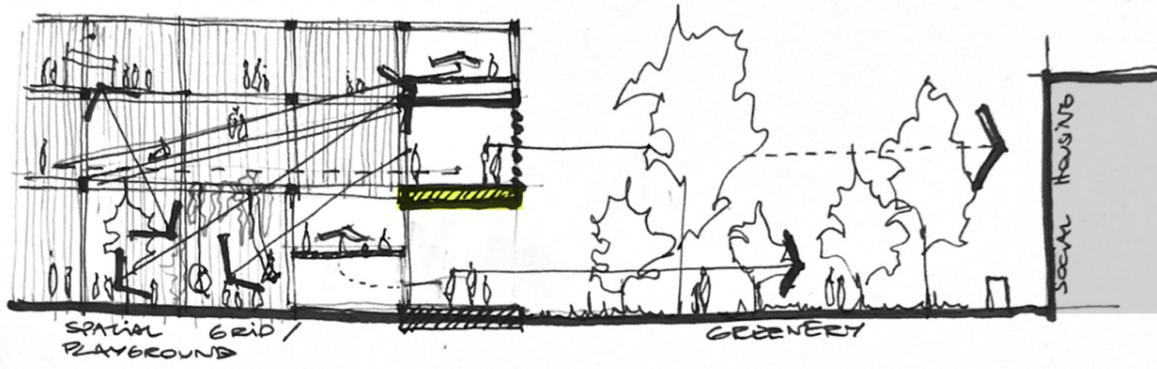
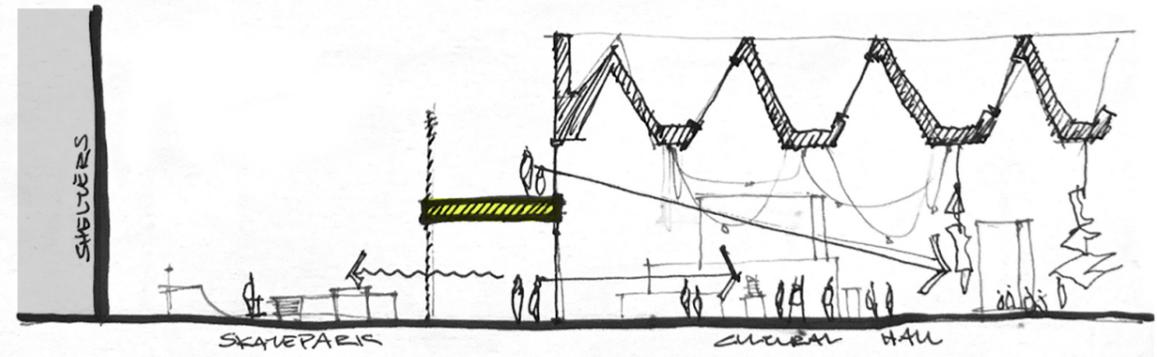
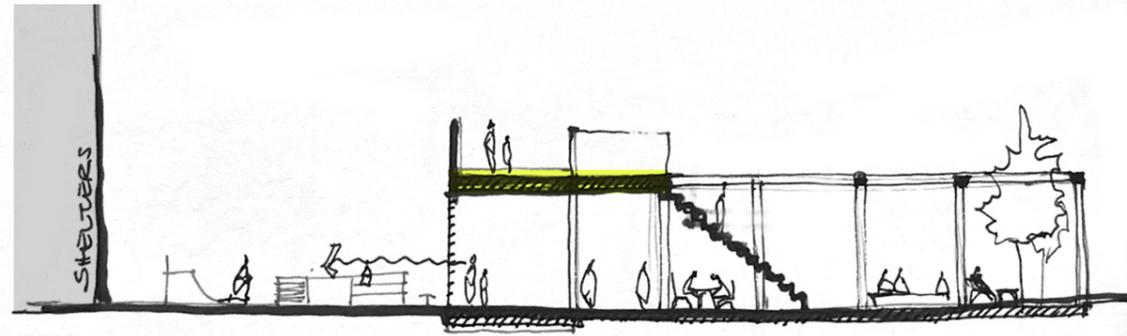
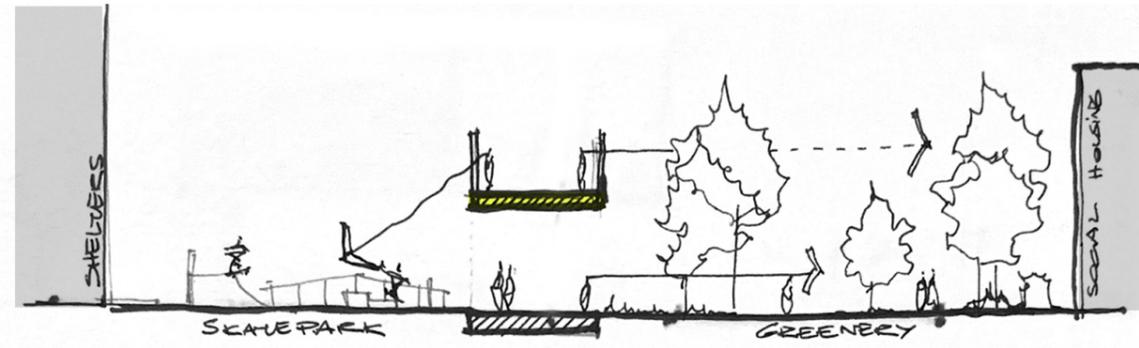
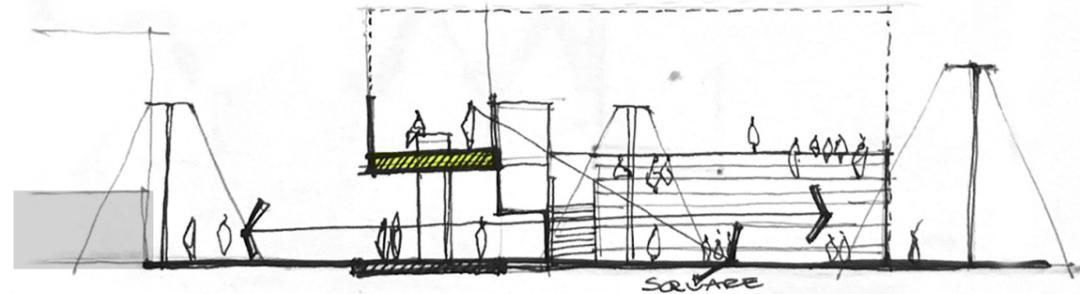
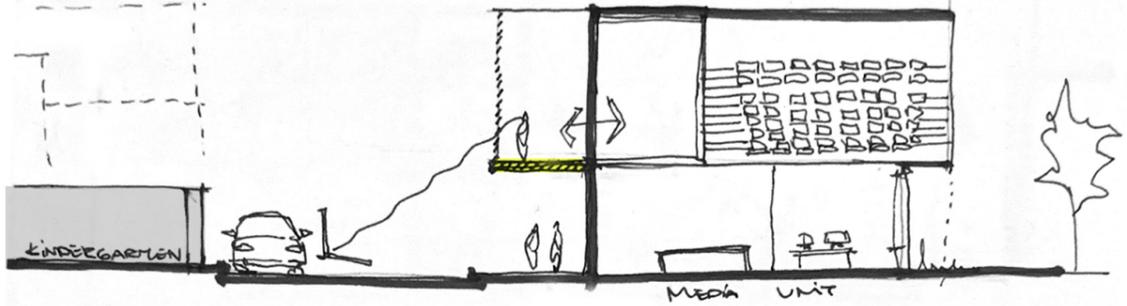


public space as a condenser



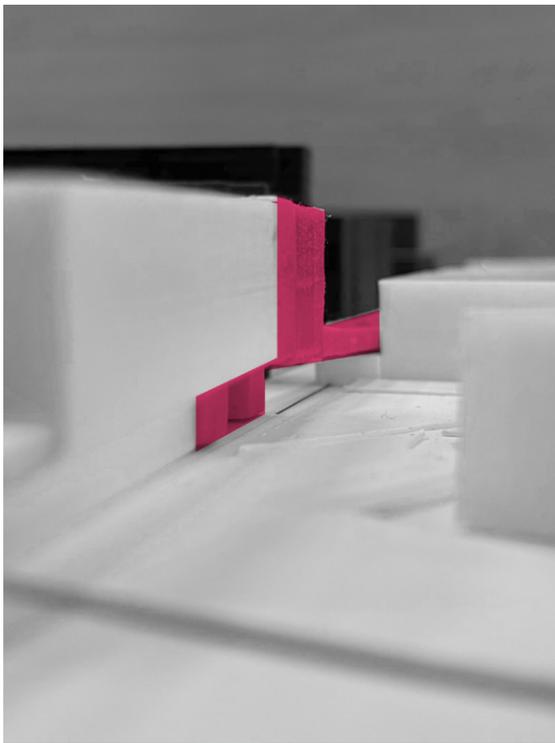
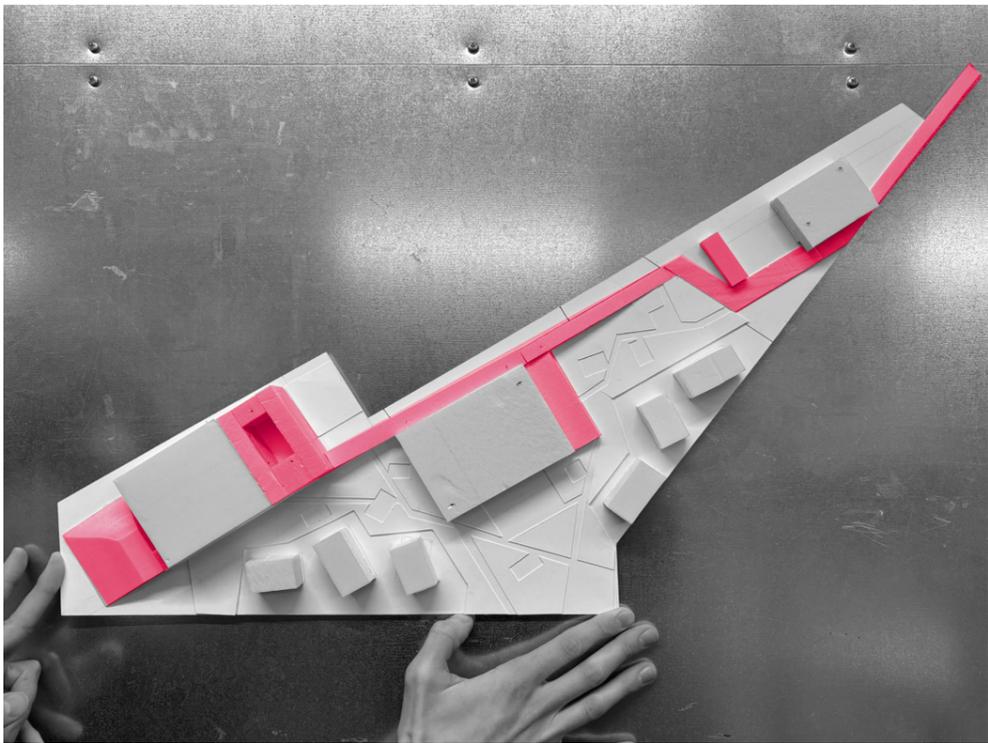
sequencing & intensities

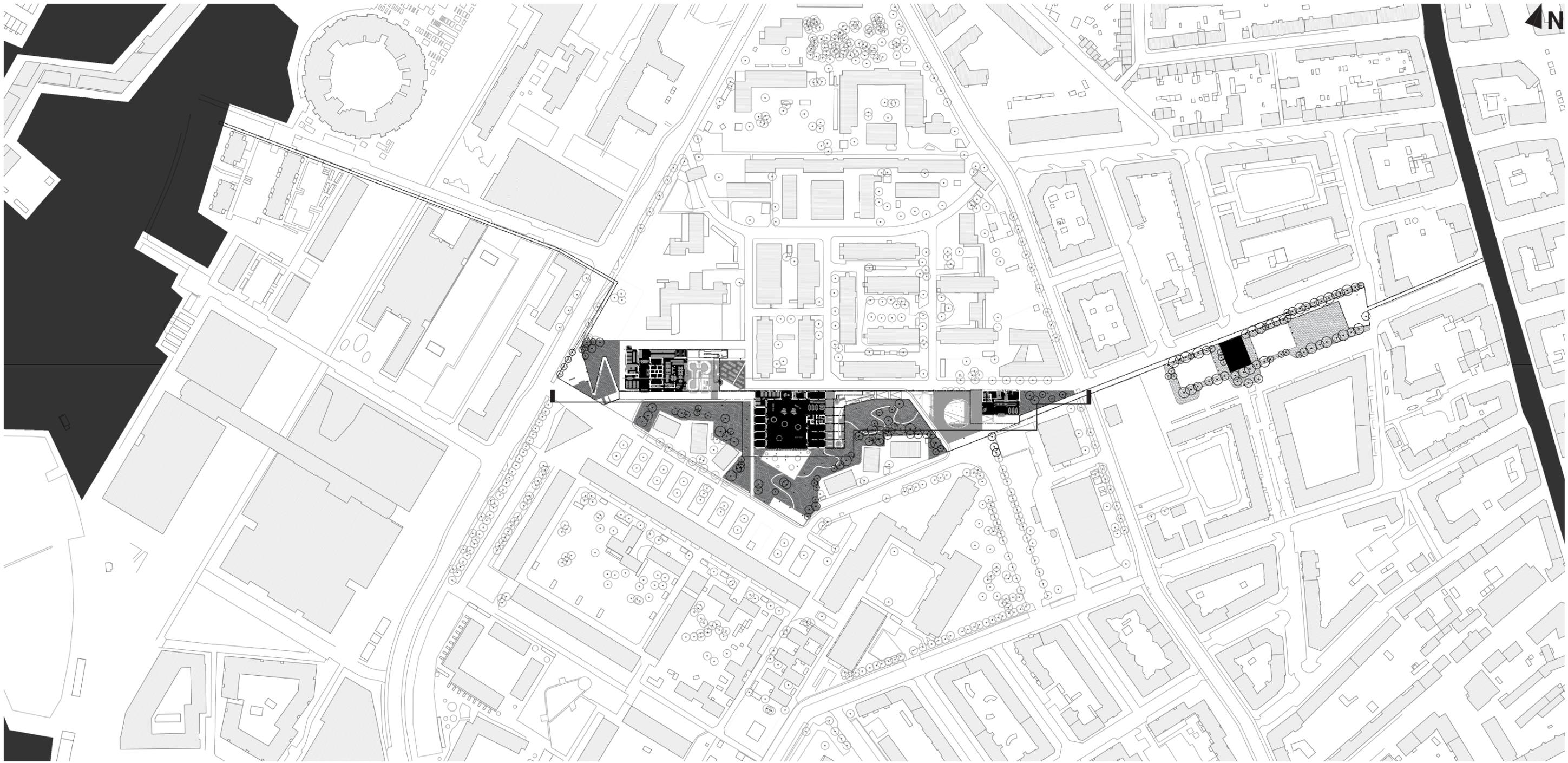
exploratory section sketches_activities along the path



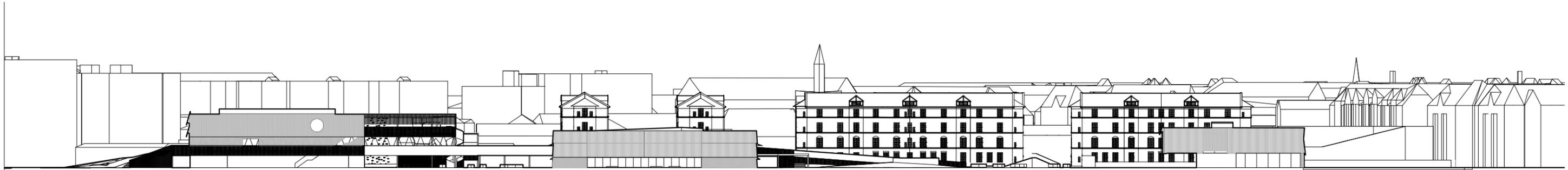
massing study

physical model testing

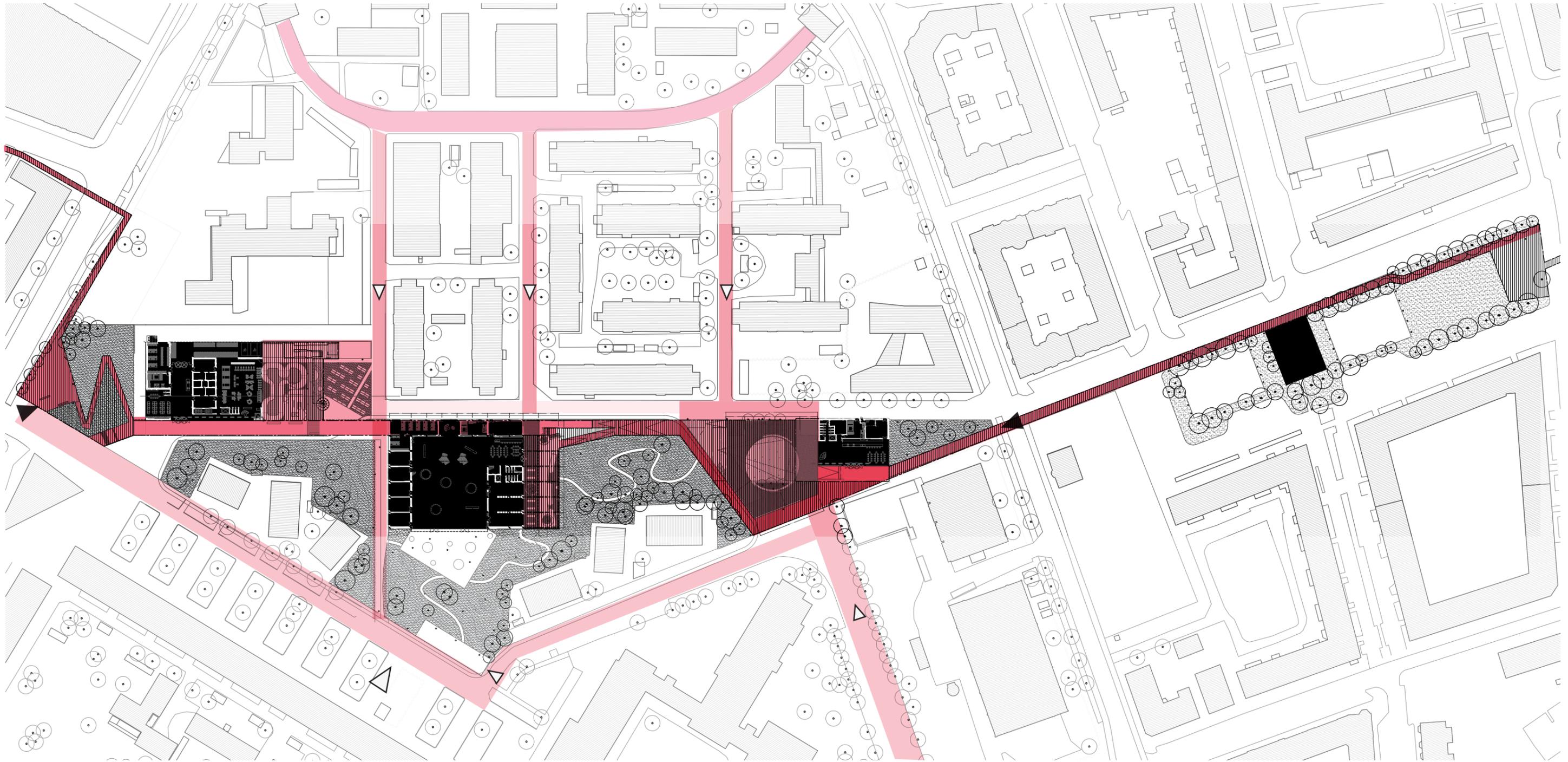




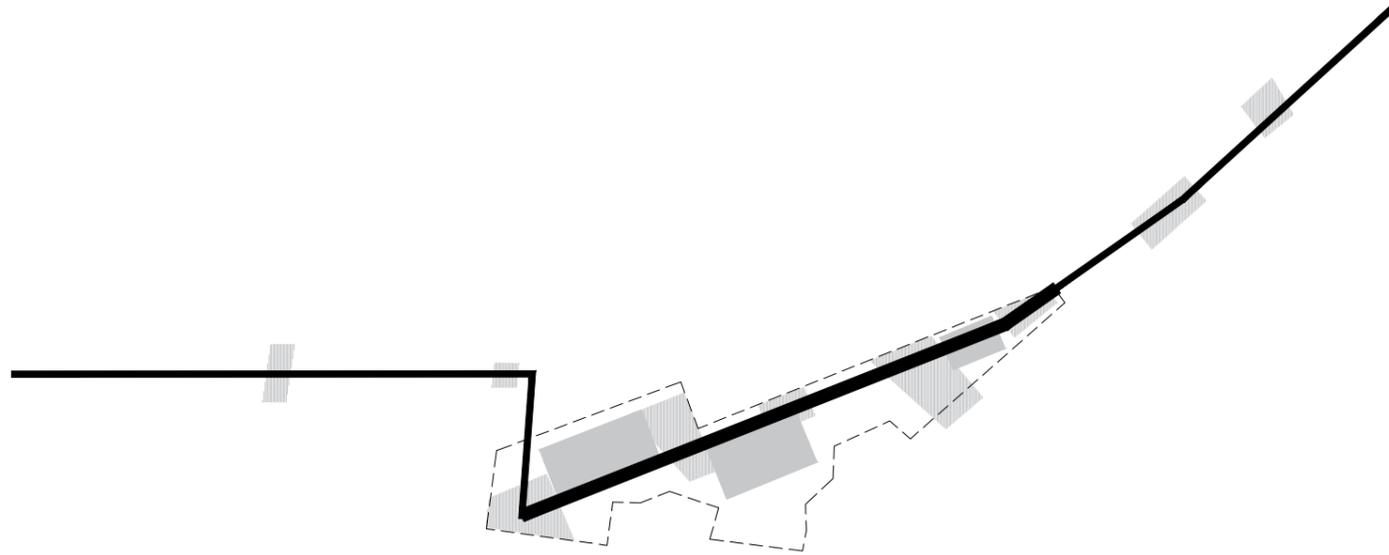
masterplan_urban



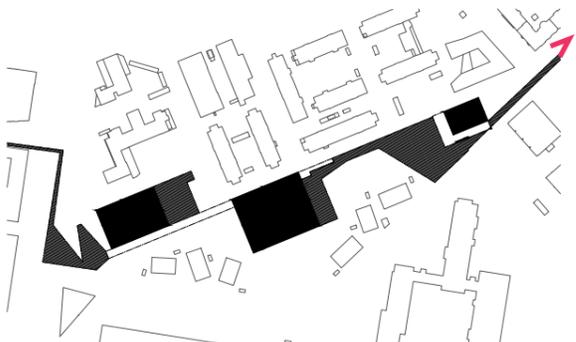
urban elevation

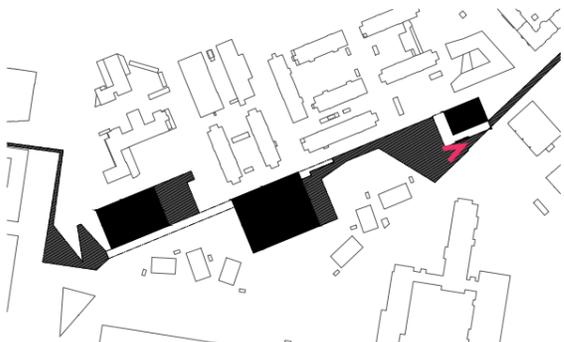


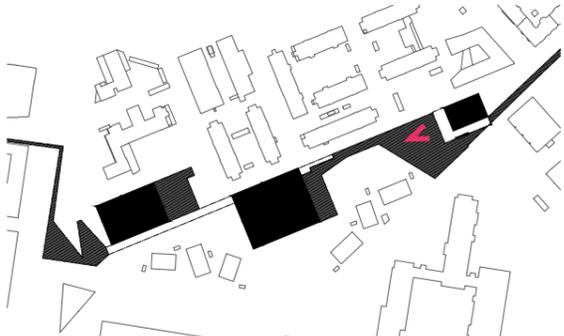
masterplan_site

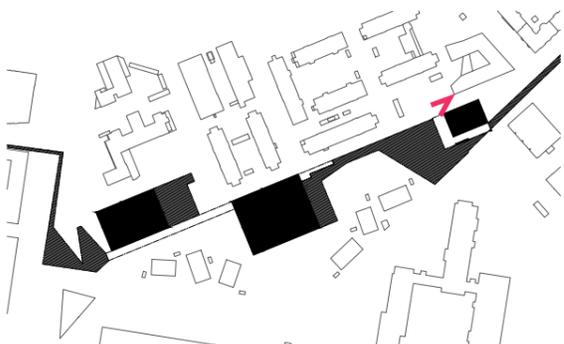


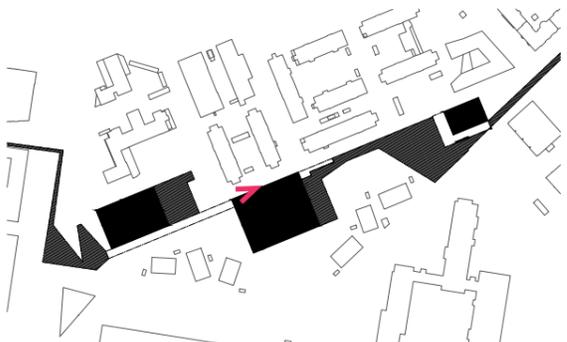
01_path

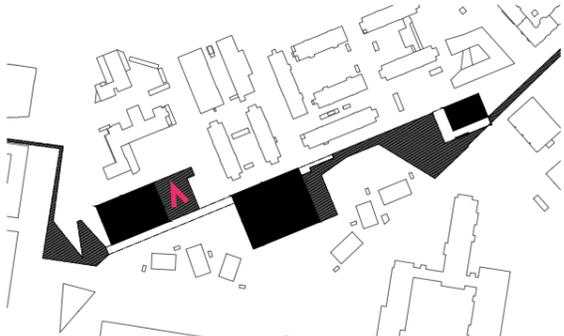


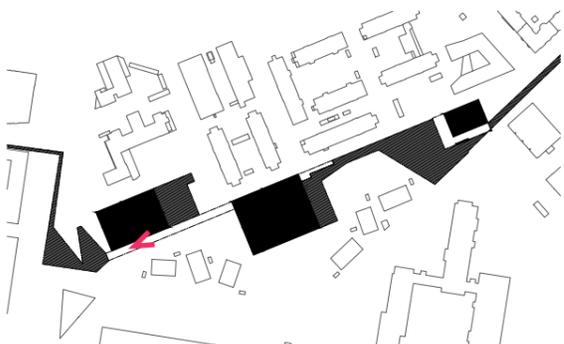


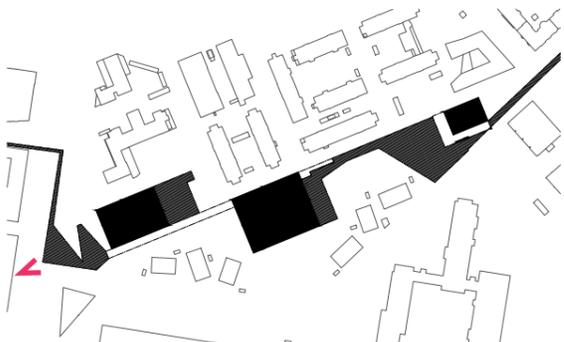


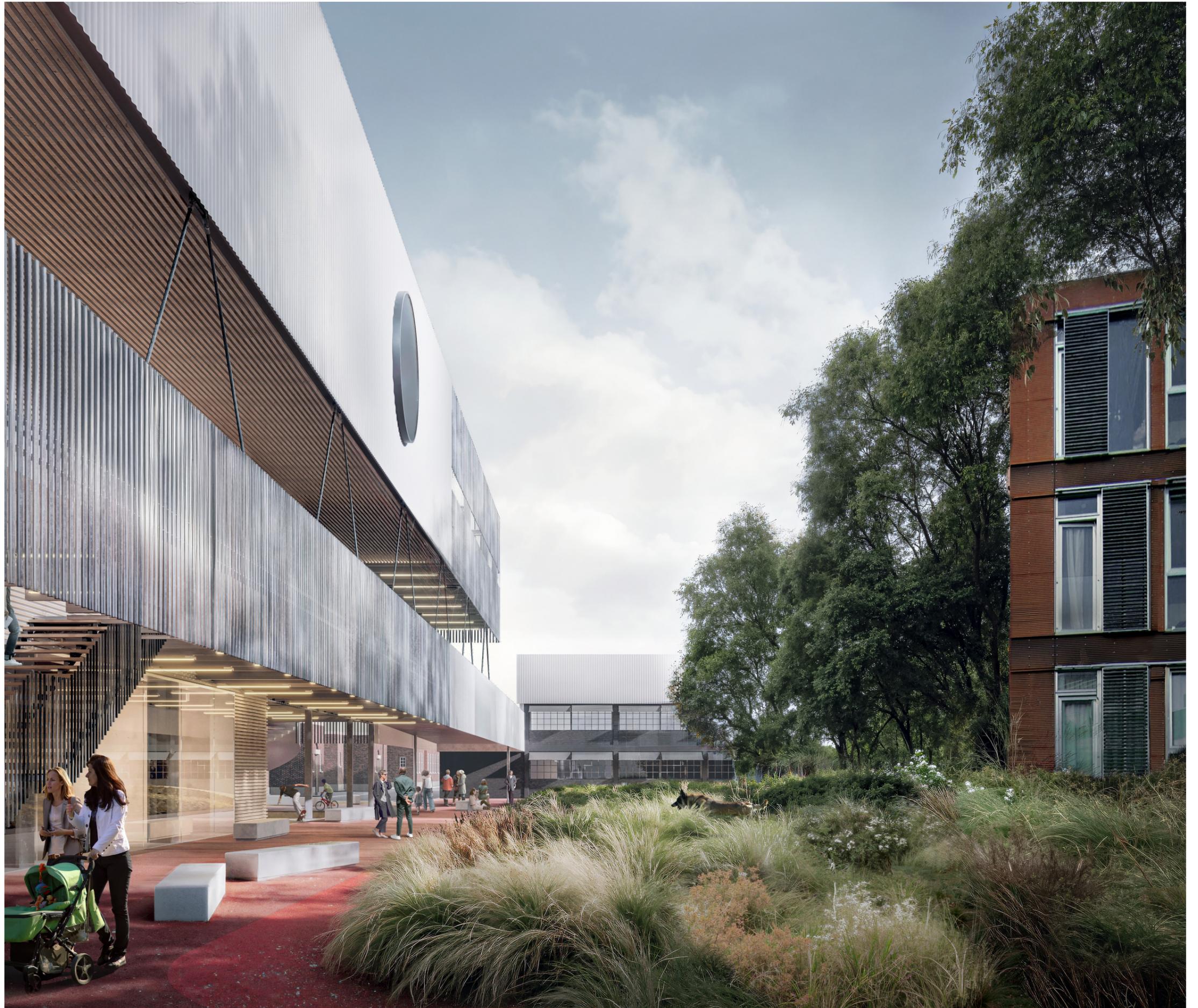
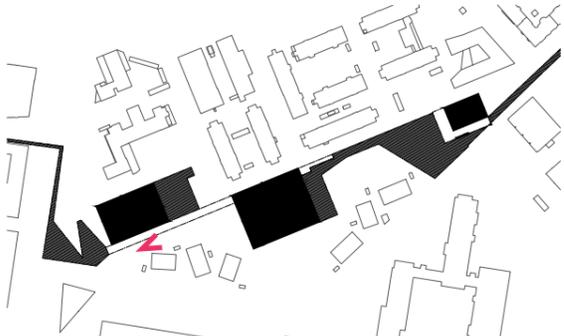


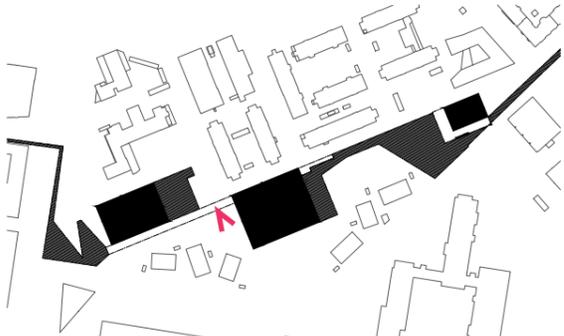


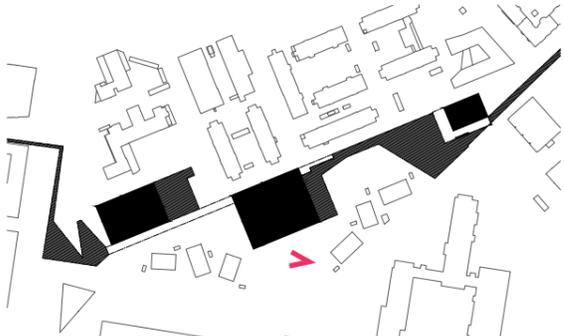


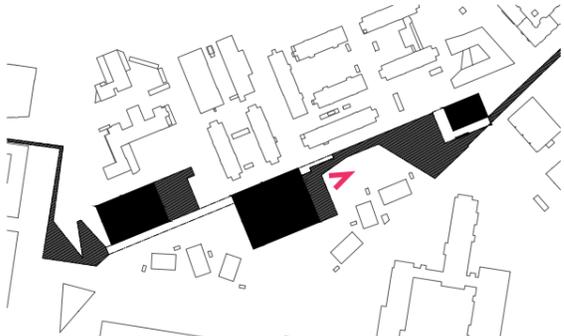


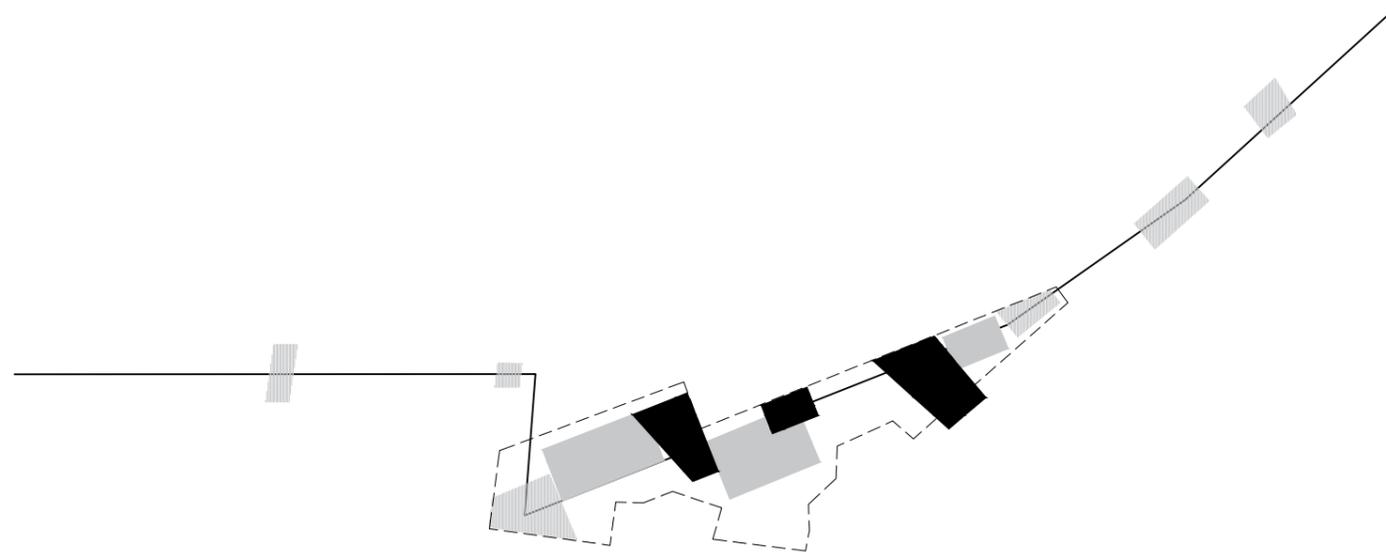






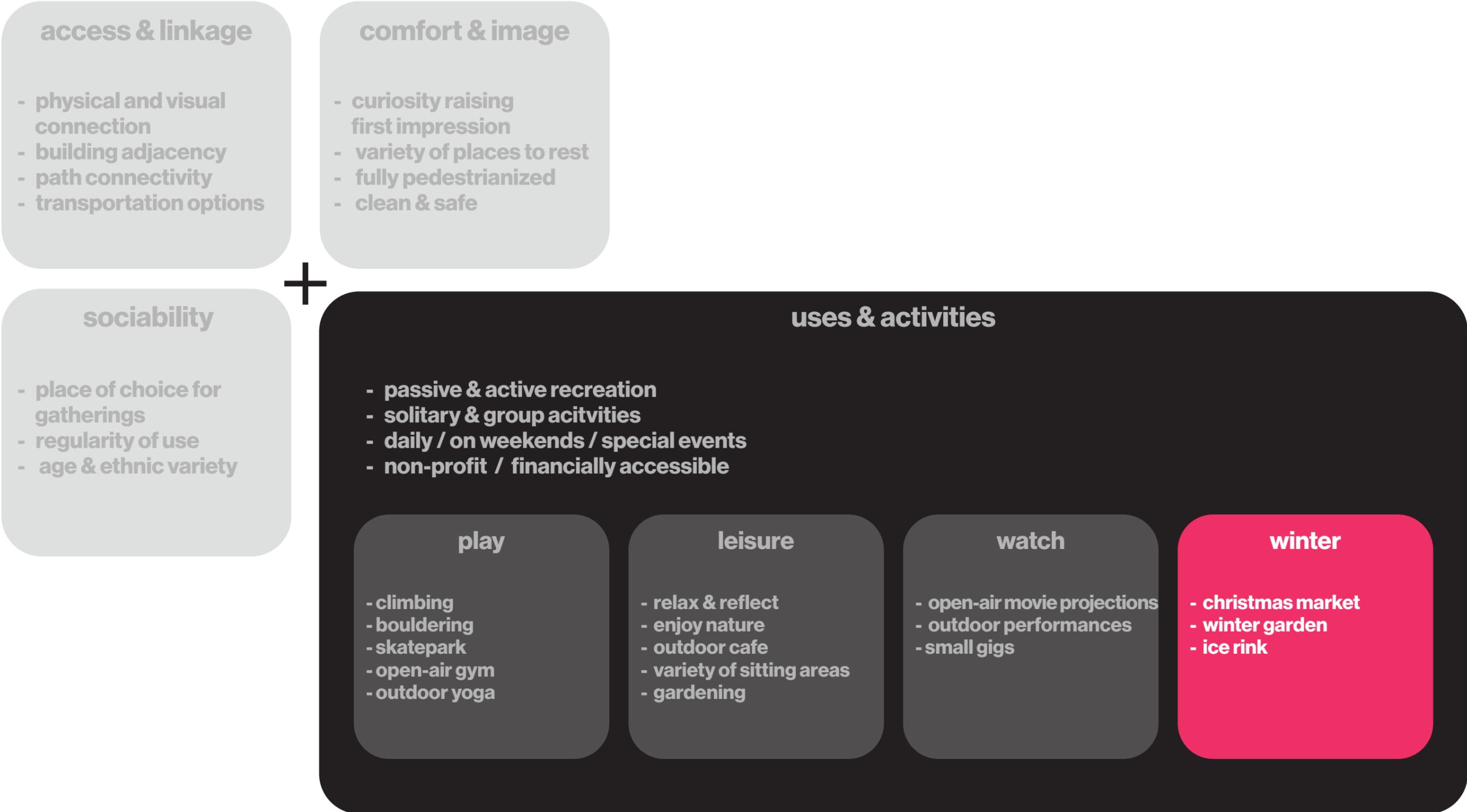


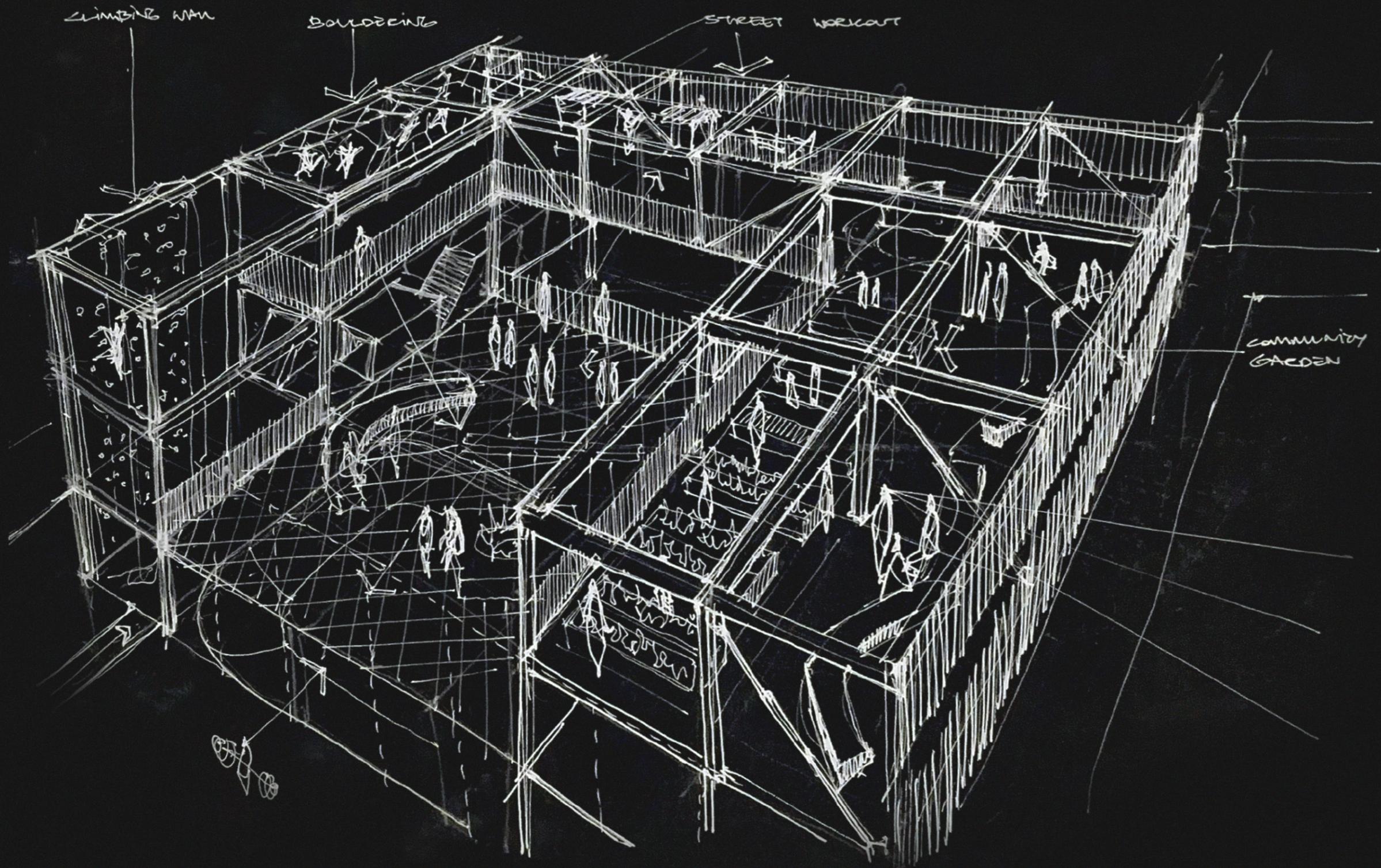




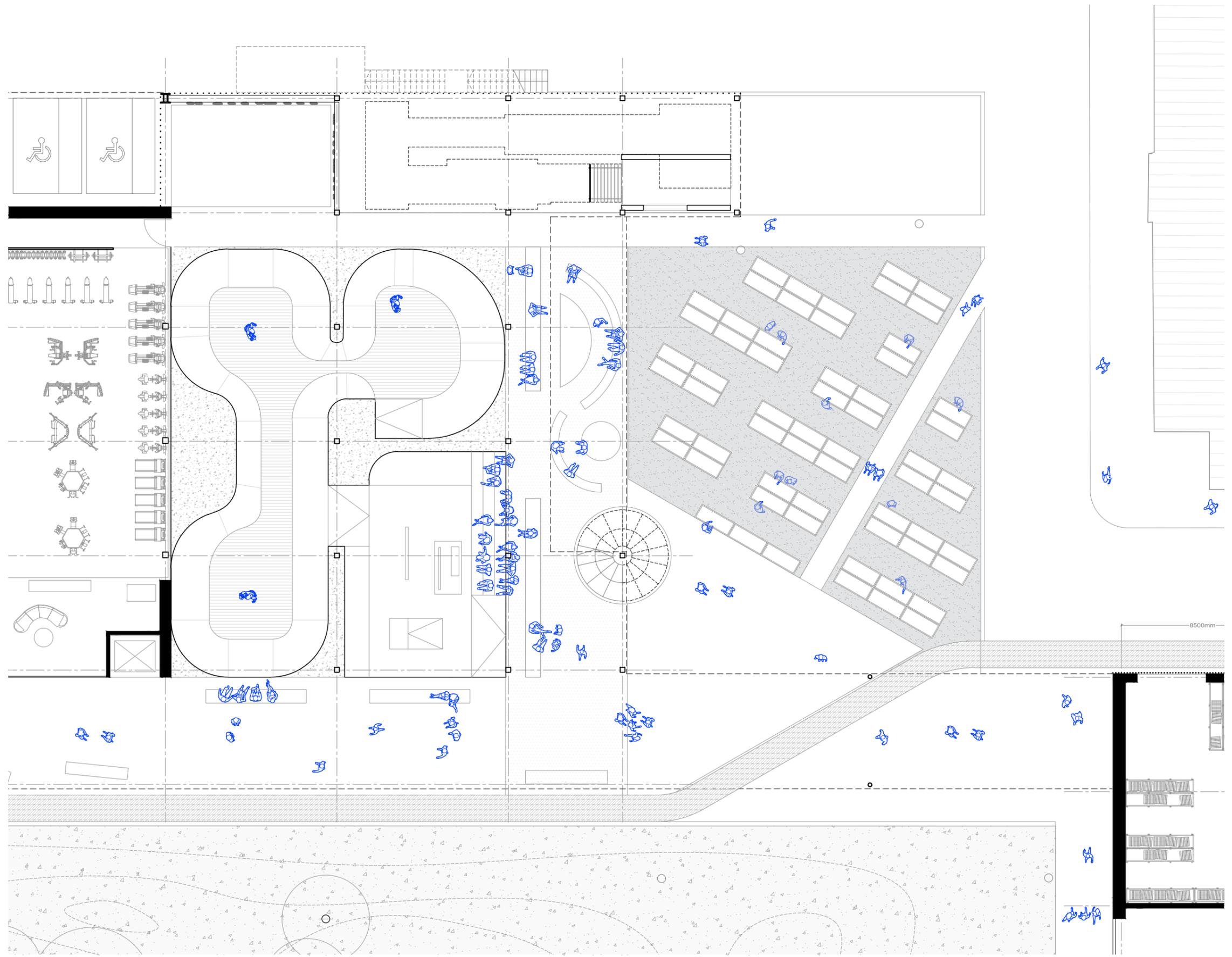
02_external condensers / public spaces

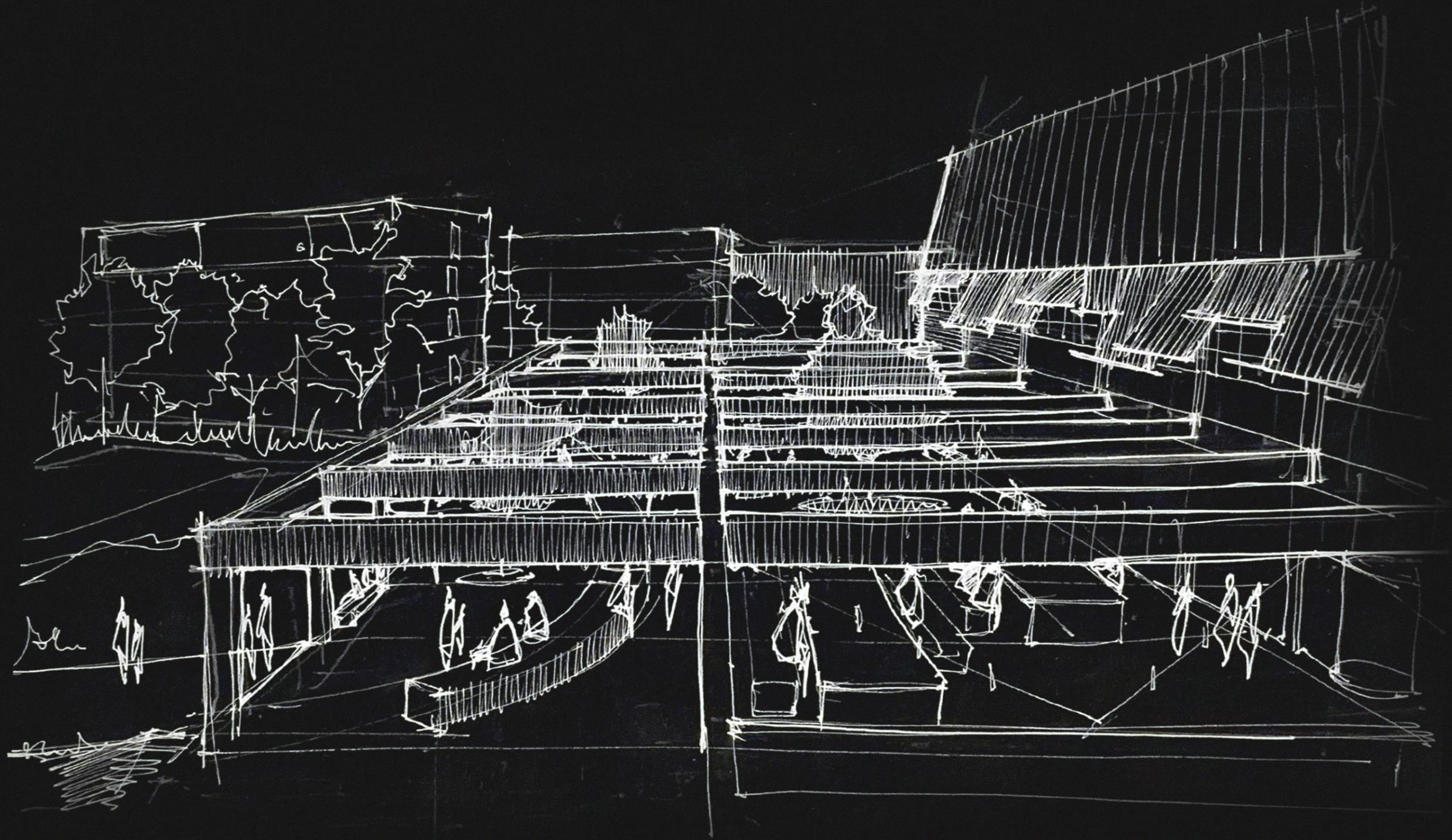
what can public space be?



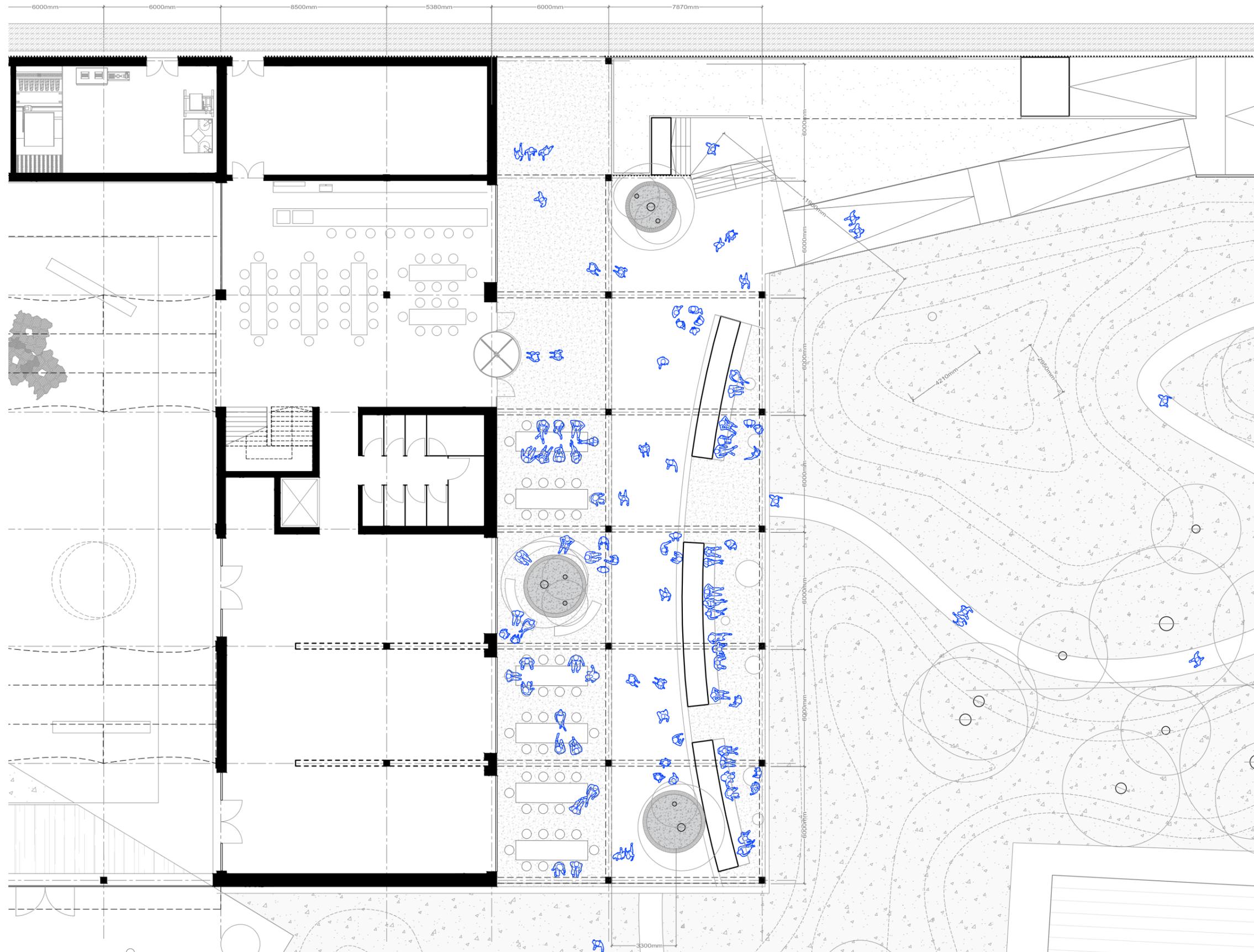


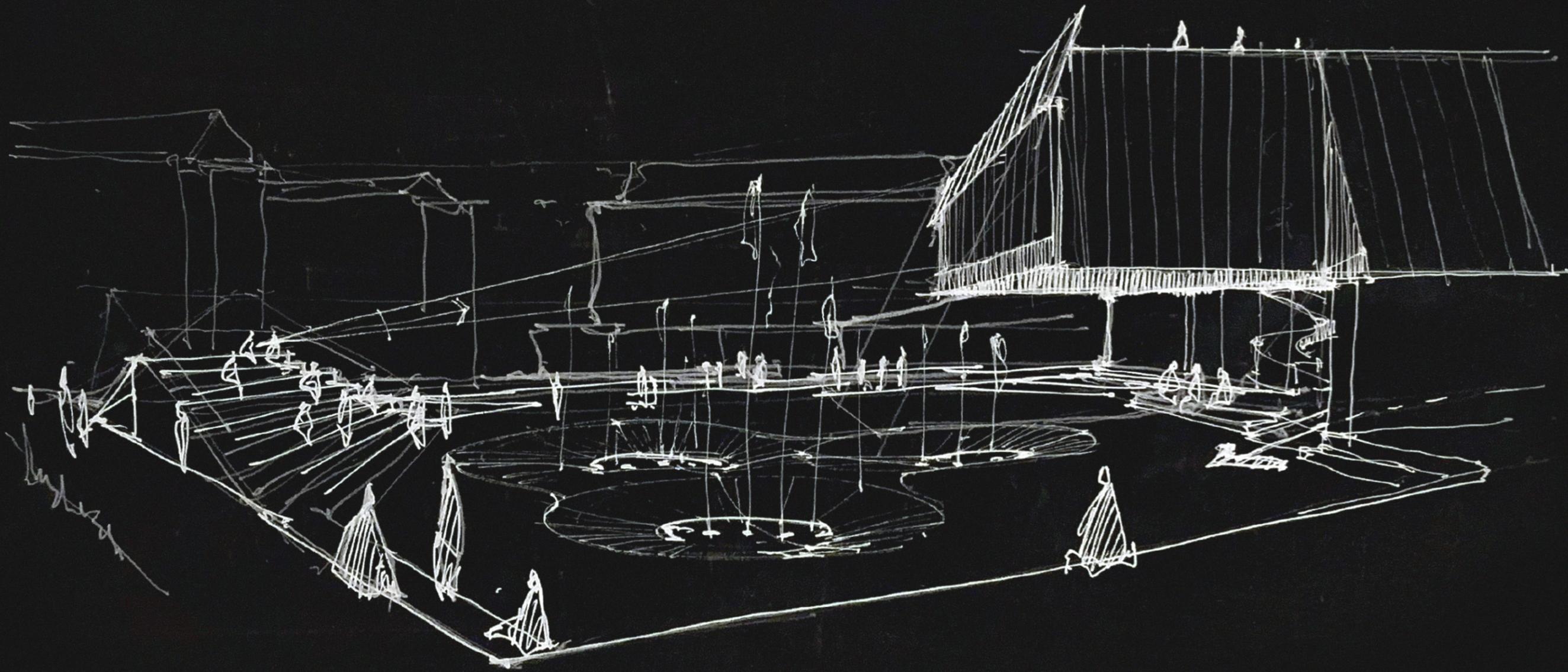
sports hall / spatial play-hub



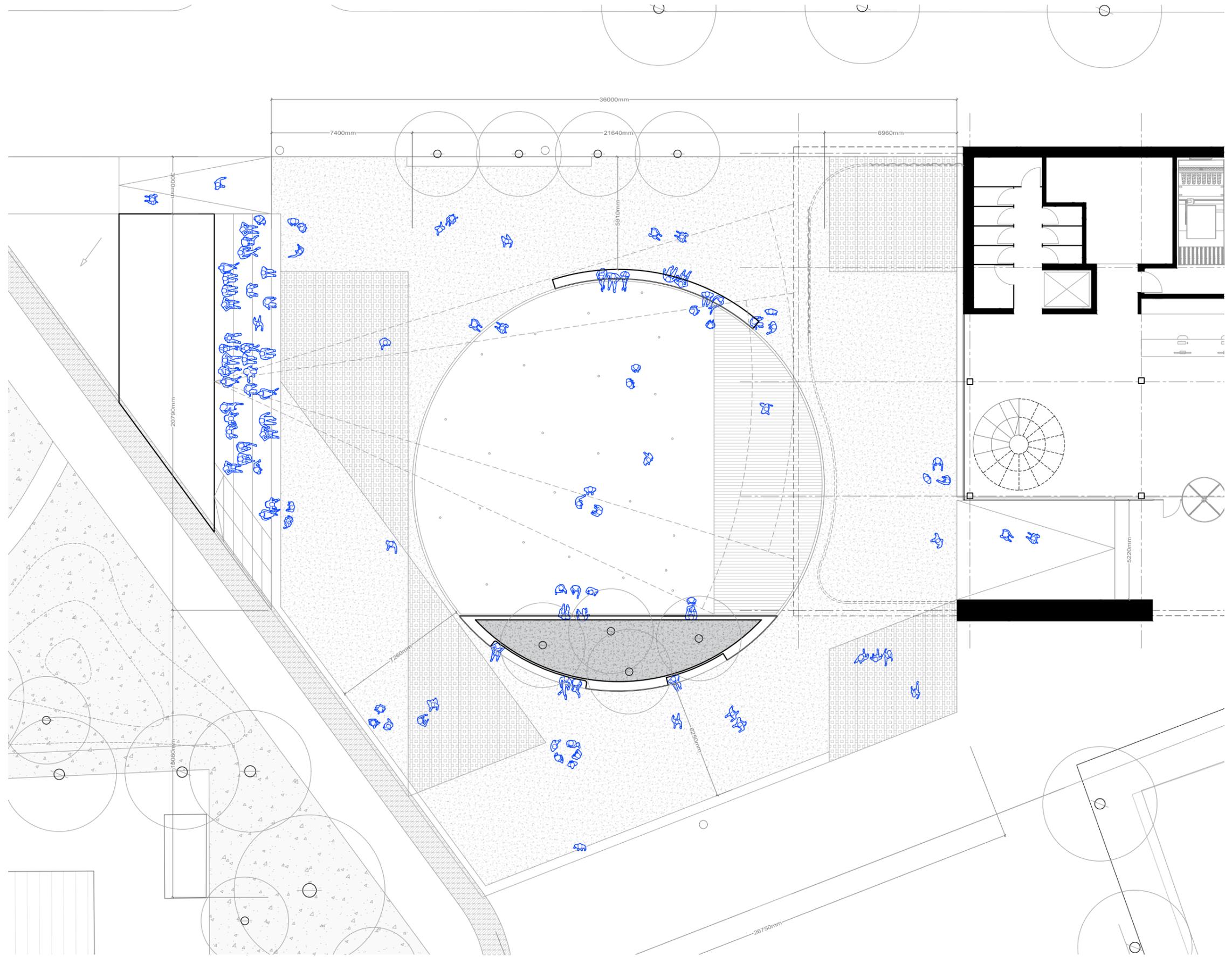


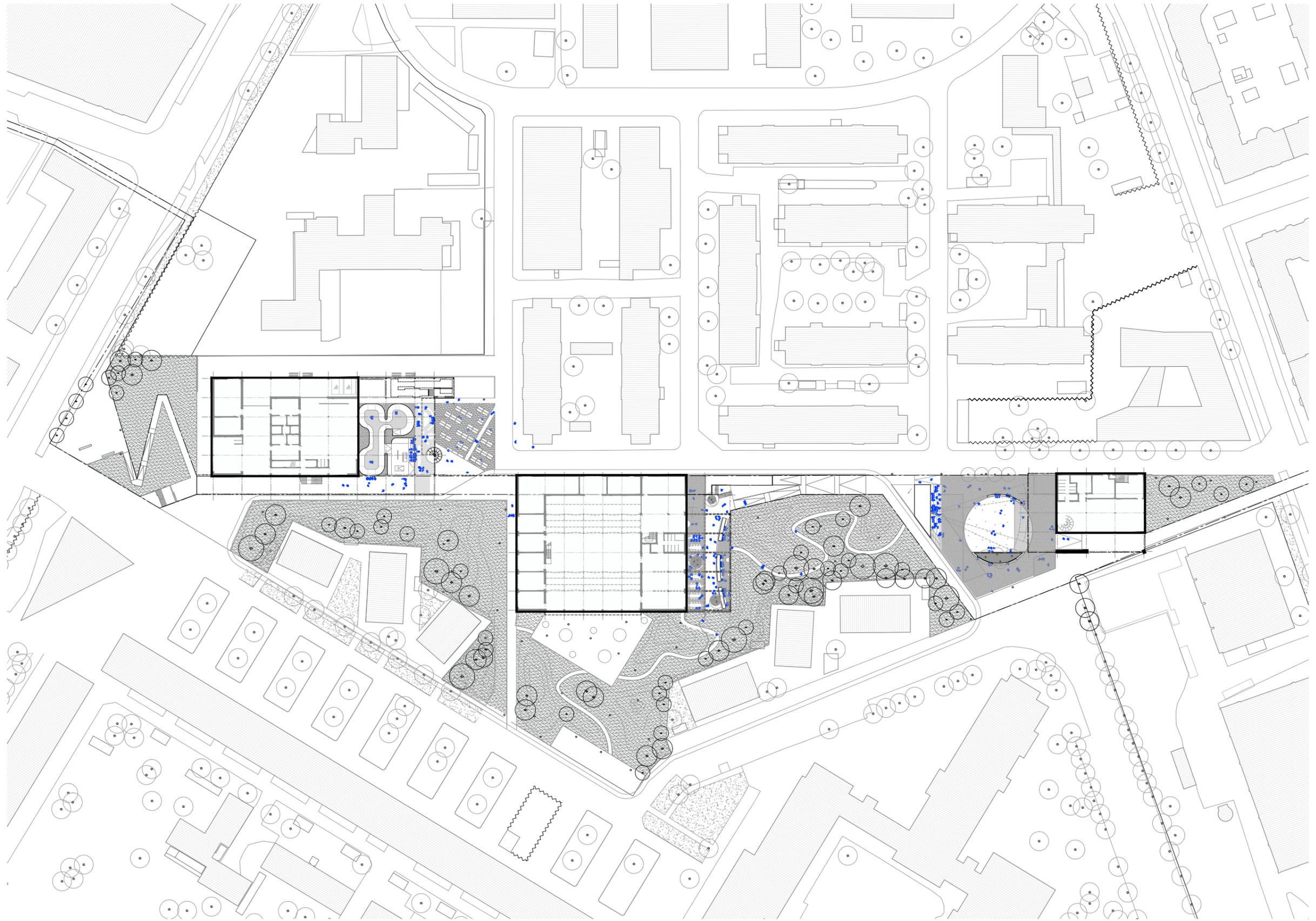
fabrikken / open structure - buffer zone

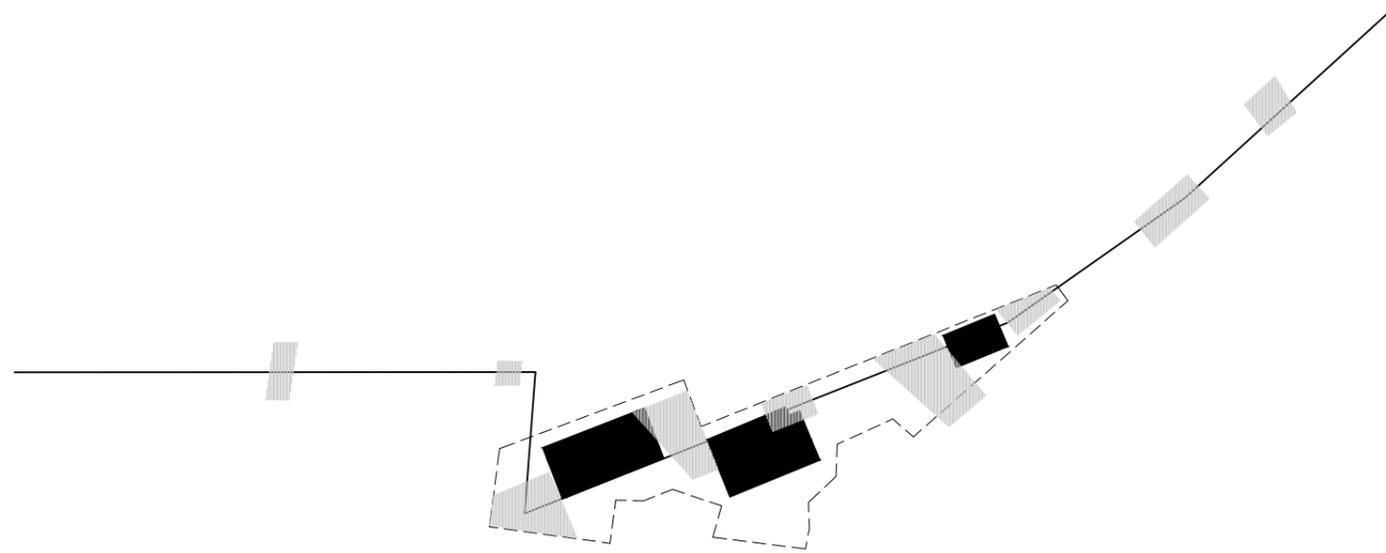




media unit / multi-purpose square

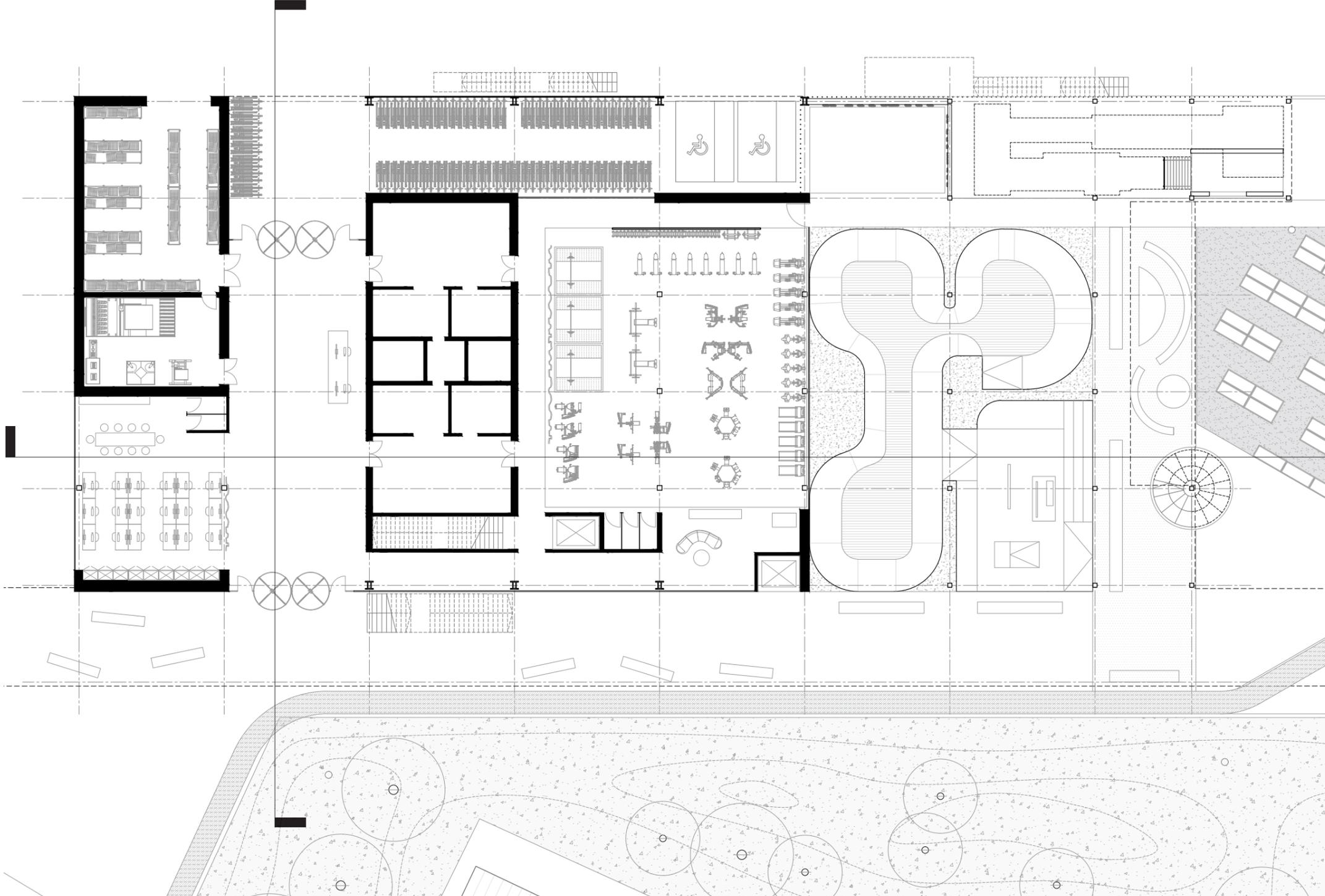




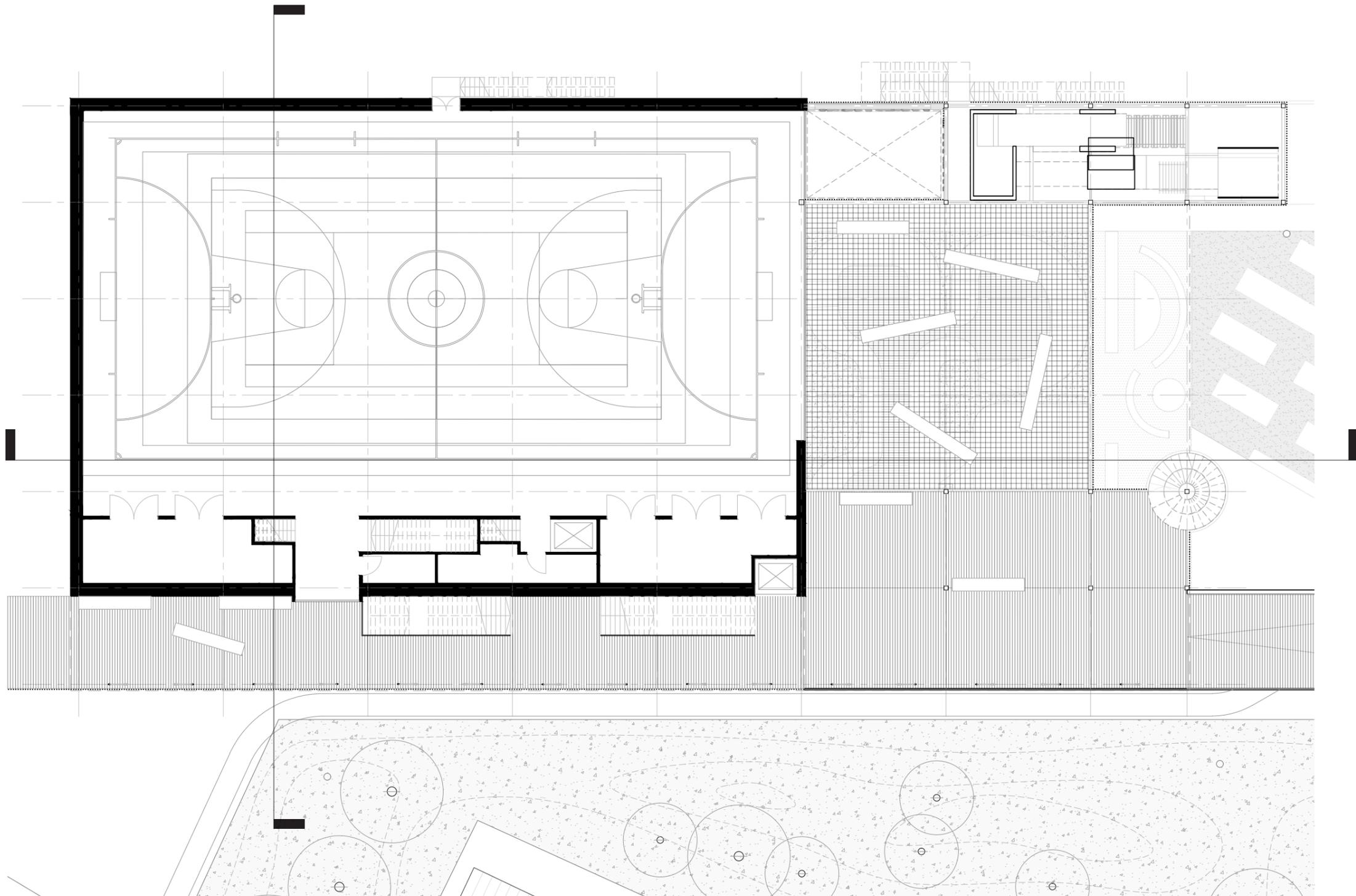


03_internal condensers / built interventions

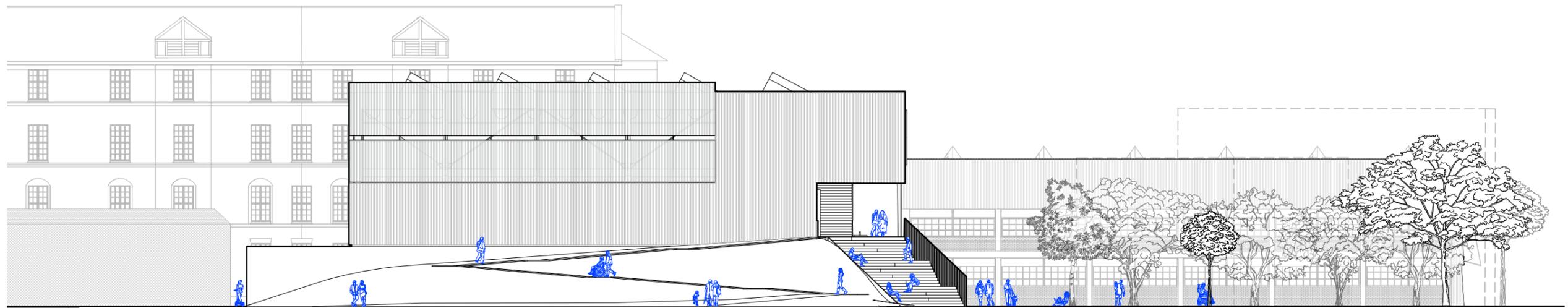
sports hall



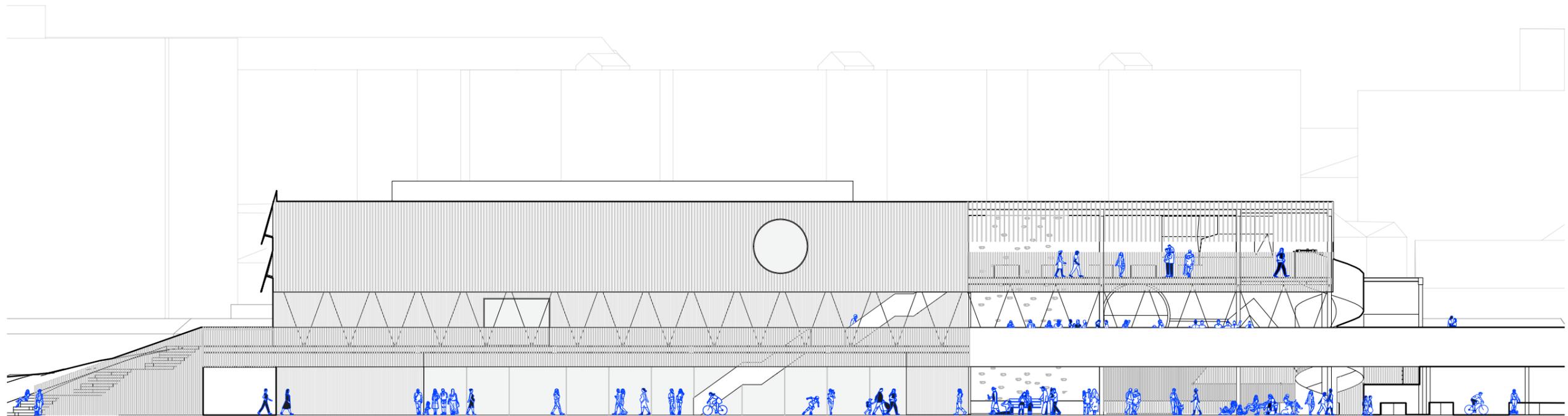
sports hall_00



sports hall_01

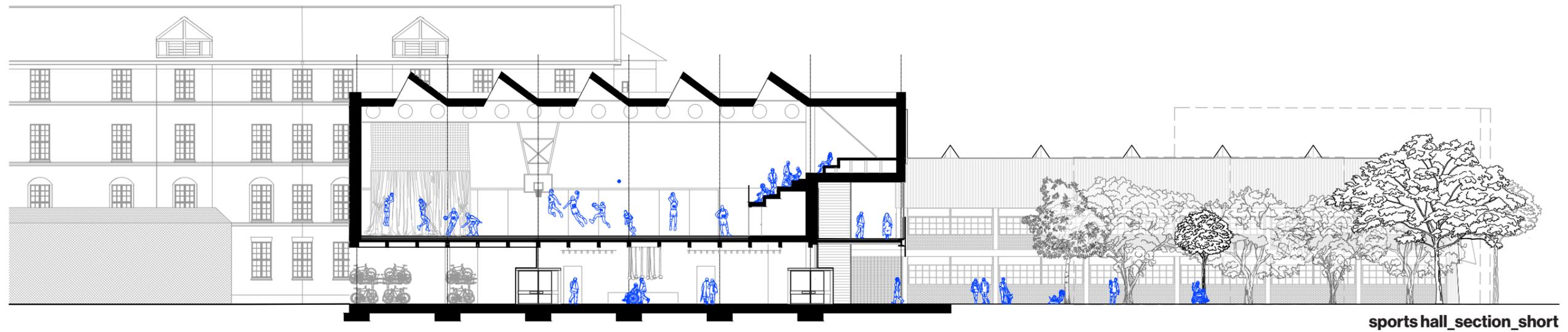


sports hall_elevation_west

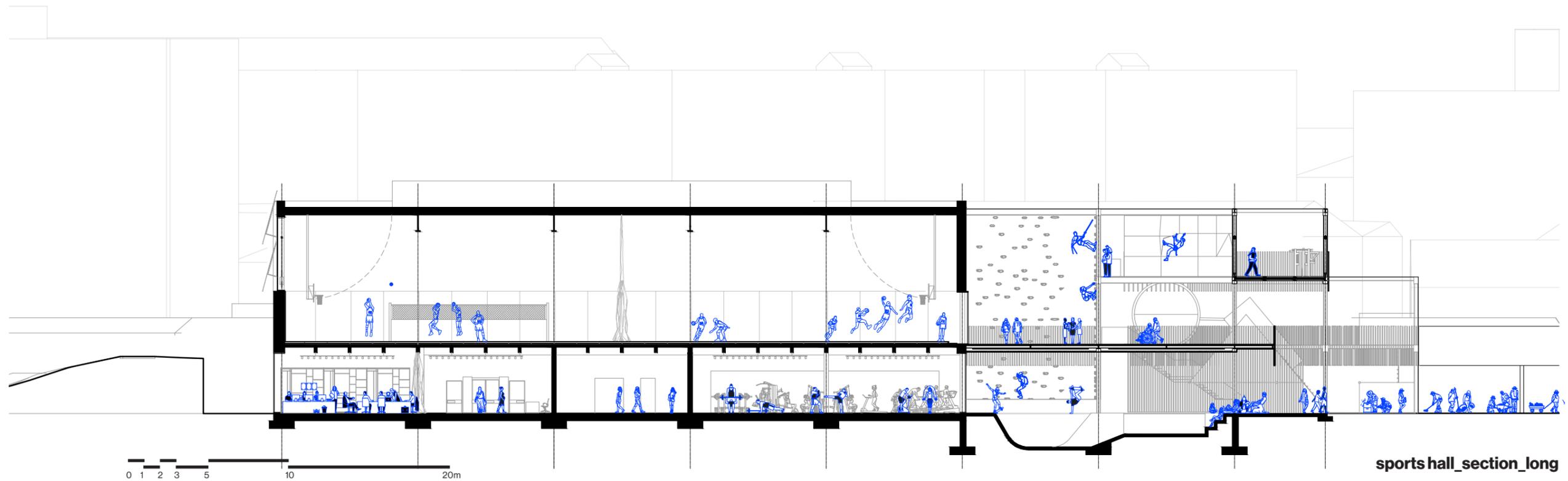


sports hall_elevation_south



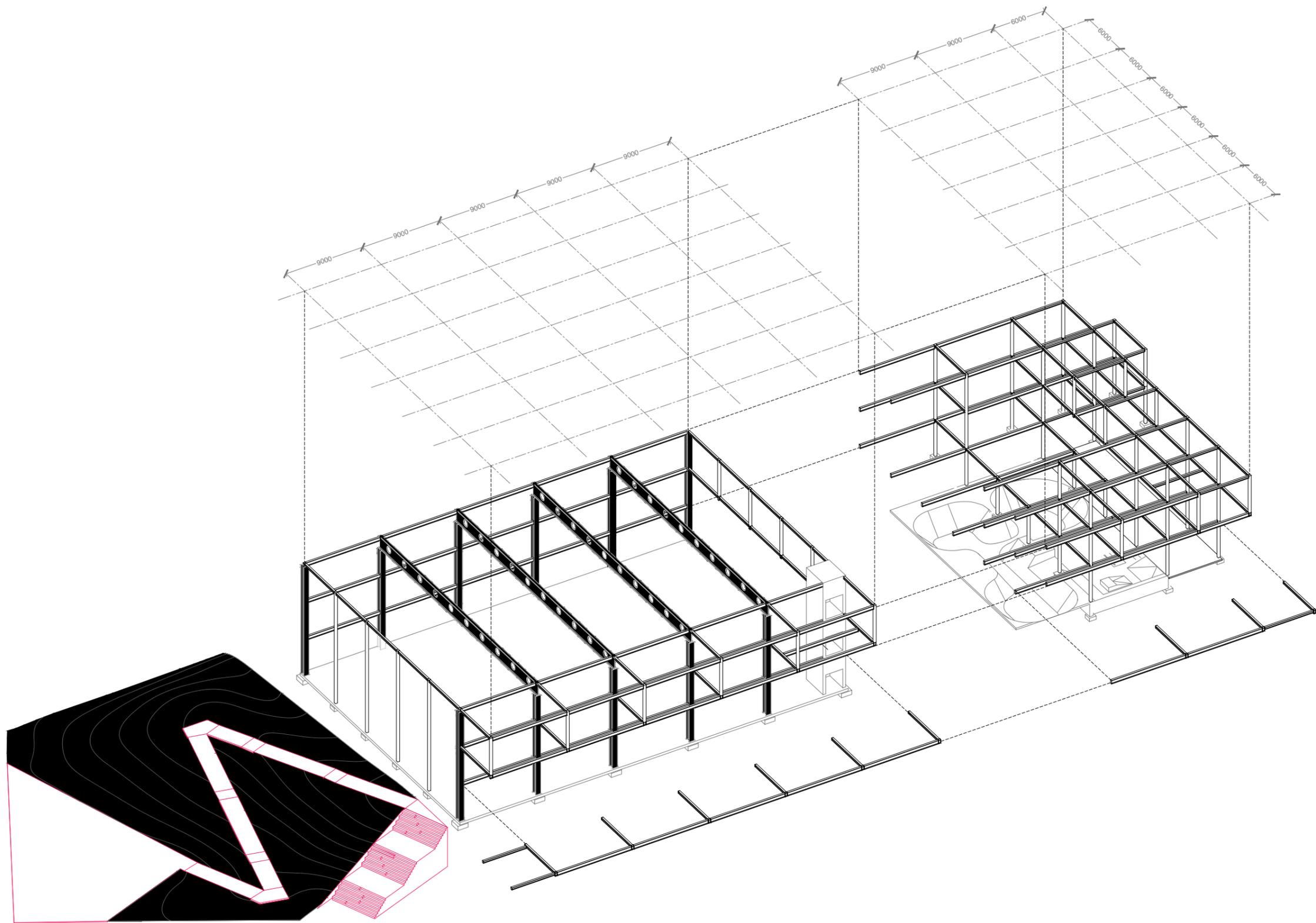


sports hall_section_short

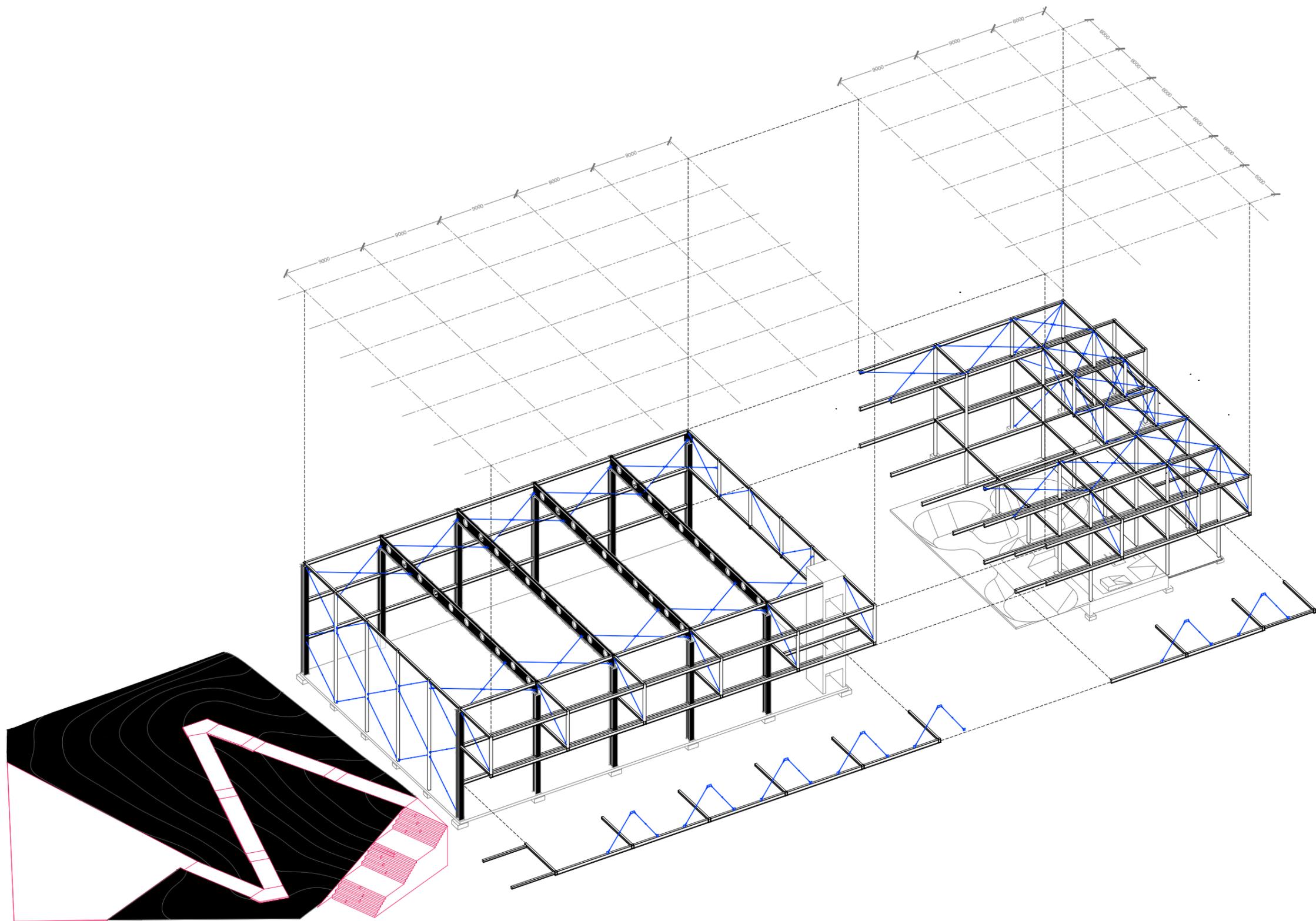


sports hall_section_long

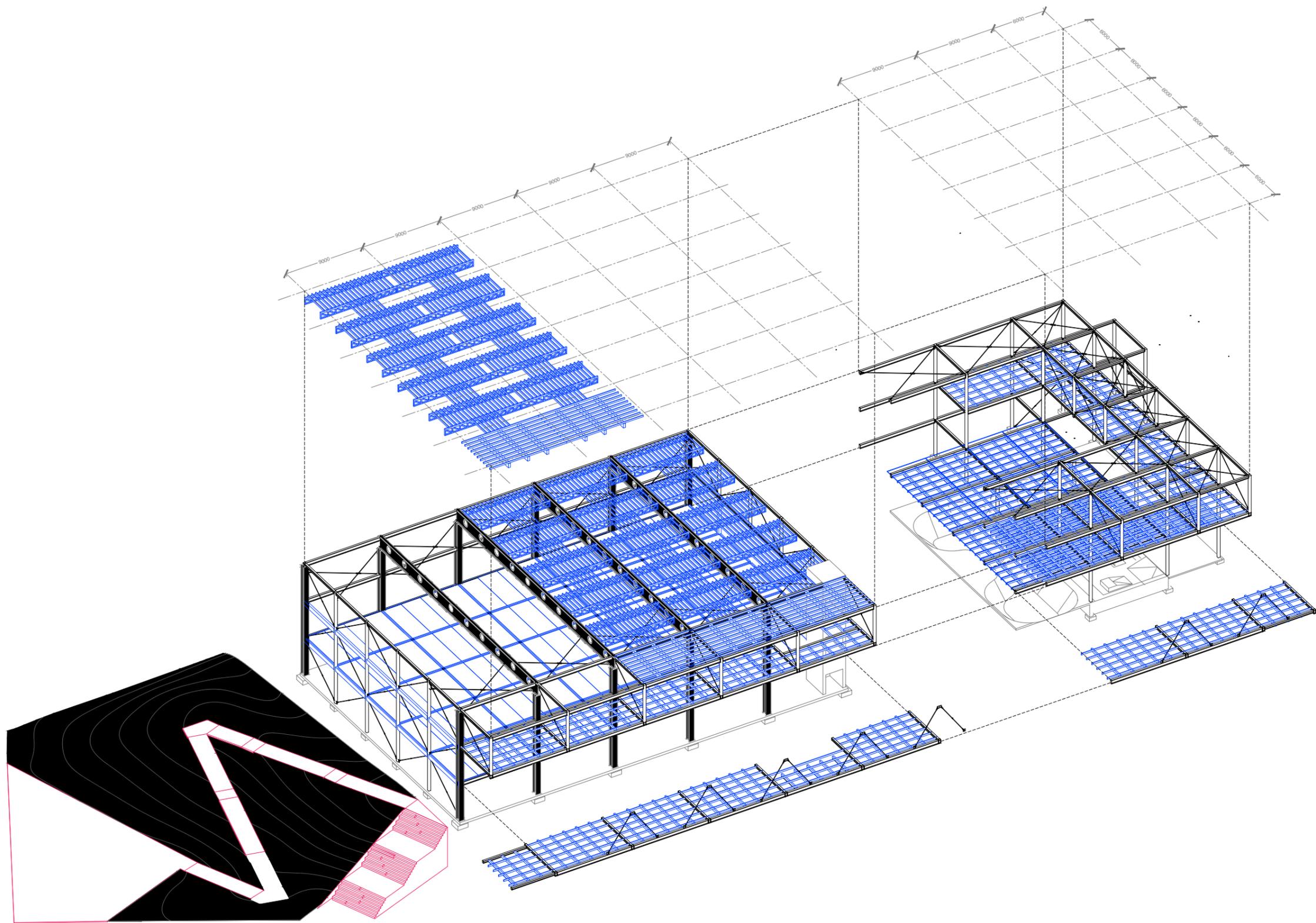




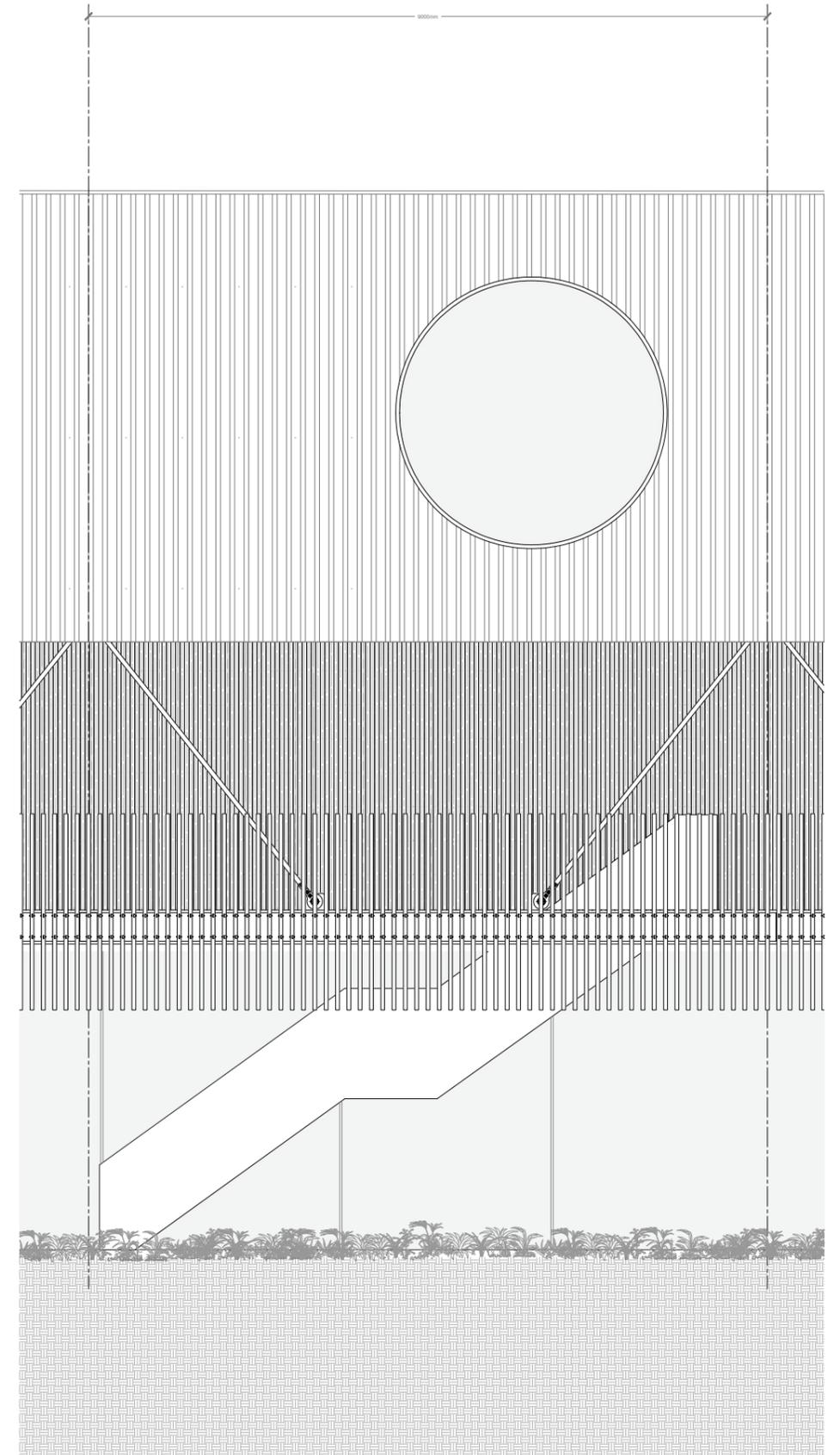
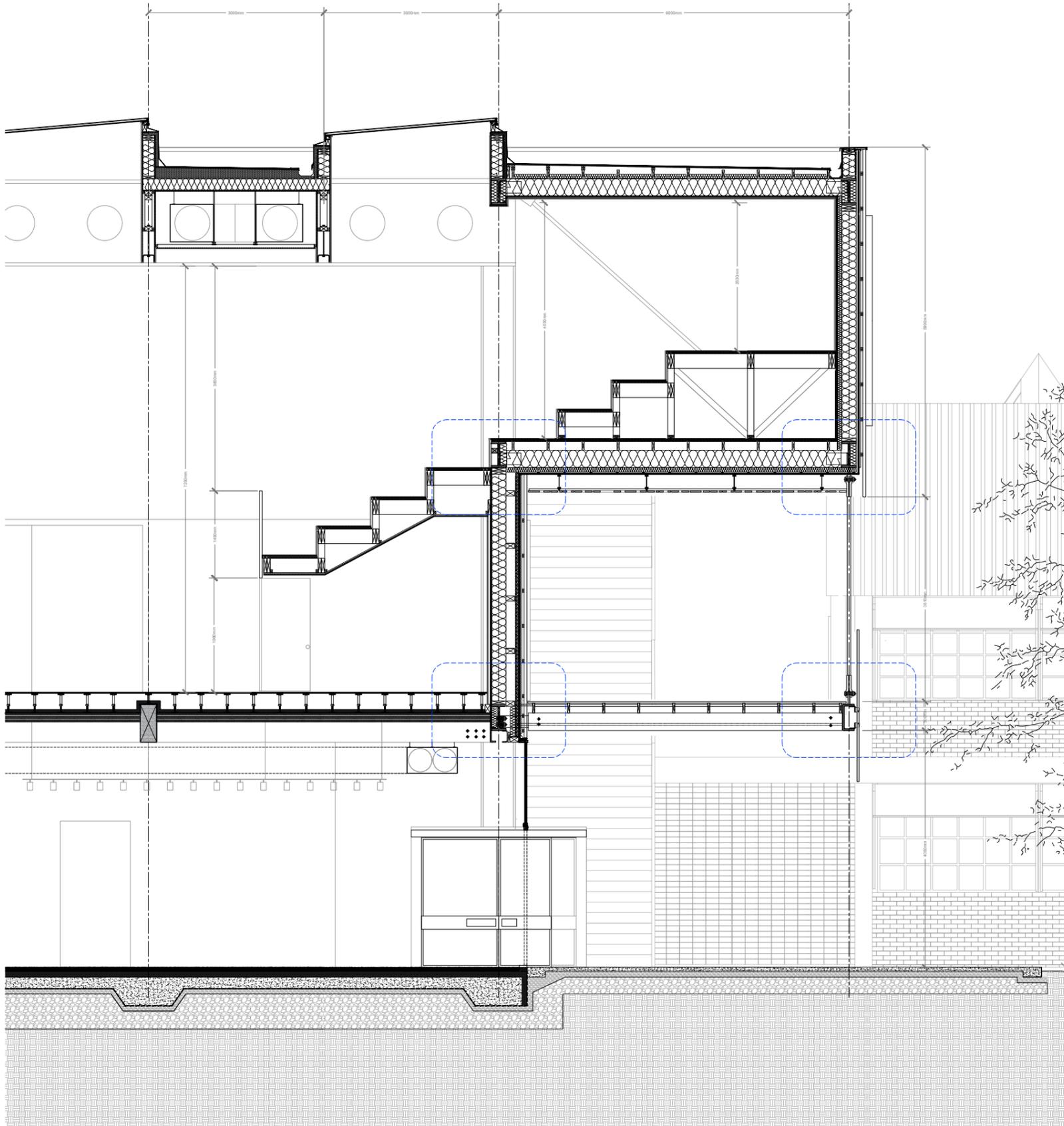
steel ■



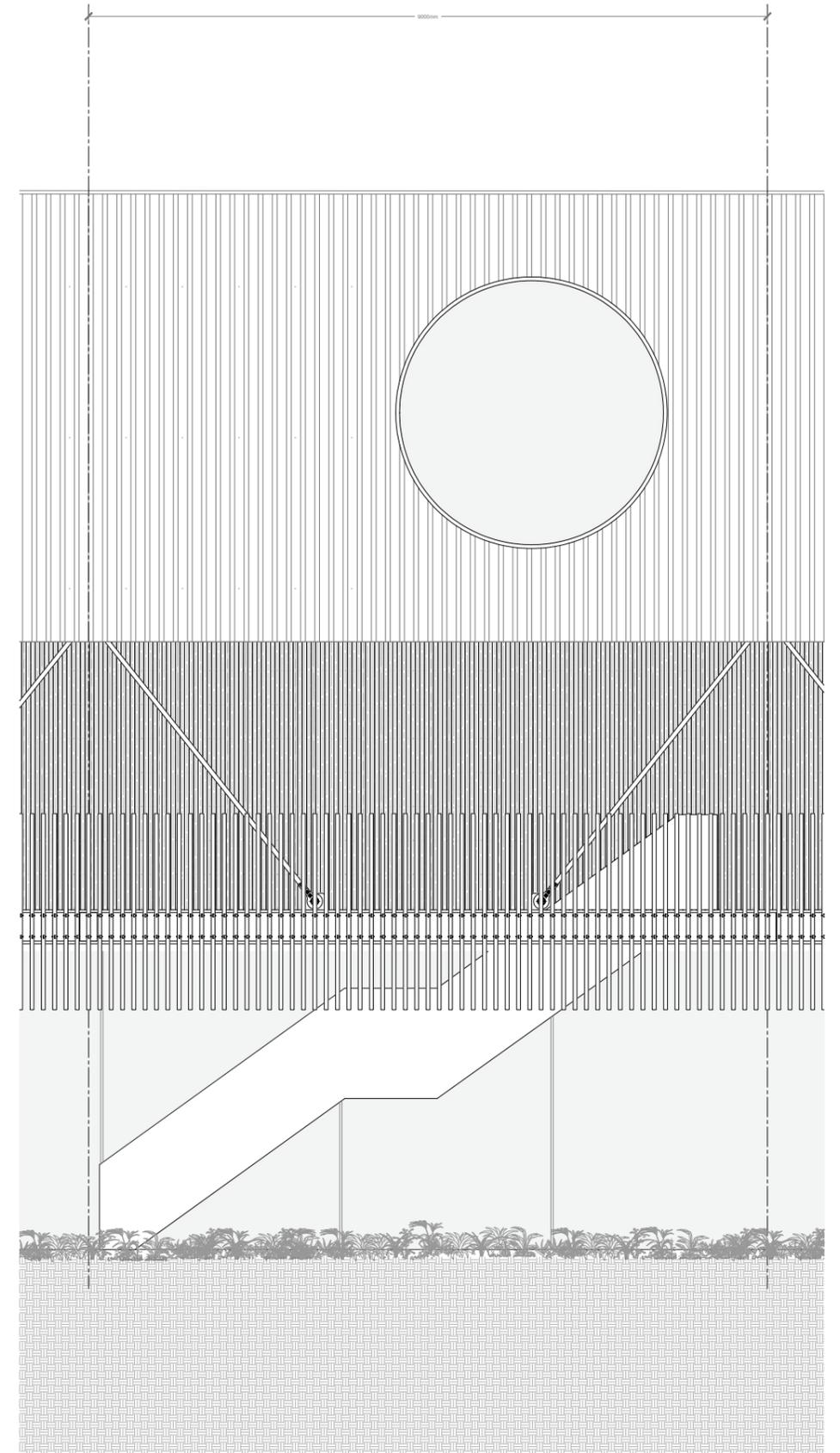
steel ■
bracing ■



steel ■
timber ■



sports hall_fragment_1:50 on A2



sports hall_fragment_1:50 on A2

01_external wall type A

corrugated metal sheet 50mm
 counter battens 38x56mm at 600mm centres
 battens 38x56mm
 OSB board 18mm
 breather membrane
 air gap 30mm
 hemp insulation 250 + 75mm
 250x250mm steel column
 vapor control membrane
 gypsum board 2x16mm
 internal finish

02_hybrid steel & timber floor

timber floor finish 18mm
 sound insulation seal 20mm
 vapor control membrane
 plywood 18mm
 timber joists 38x150mm at 600mm centres
 hemp insulation 300 + 75 mm
 steel I-beam 250mm / glulam beam 300mm
 air gap 30mm
 breather membrane
 OSB board 18mm
 suspended (270mm) wooden ceiling 25mm
 hidden lighting fixtures

03_external wall type B

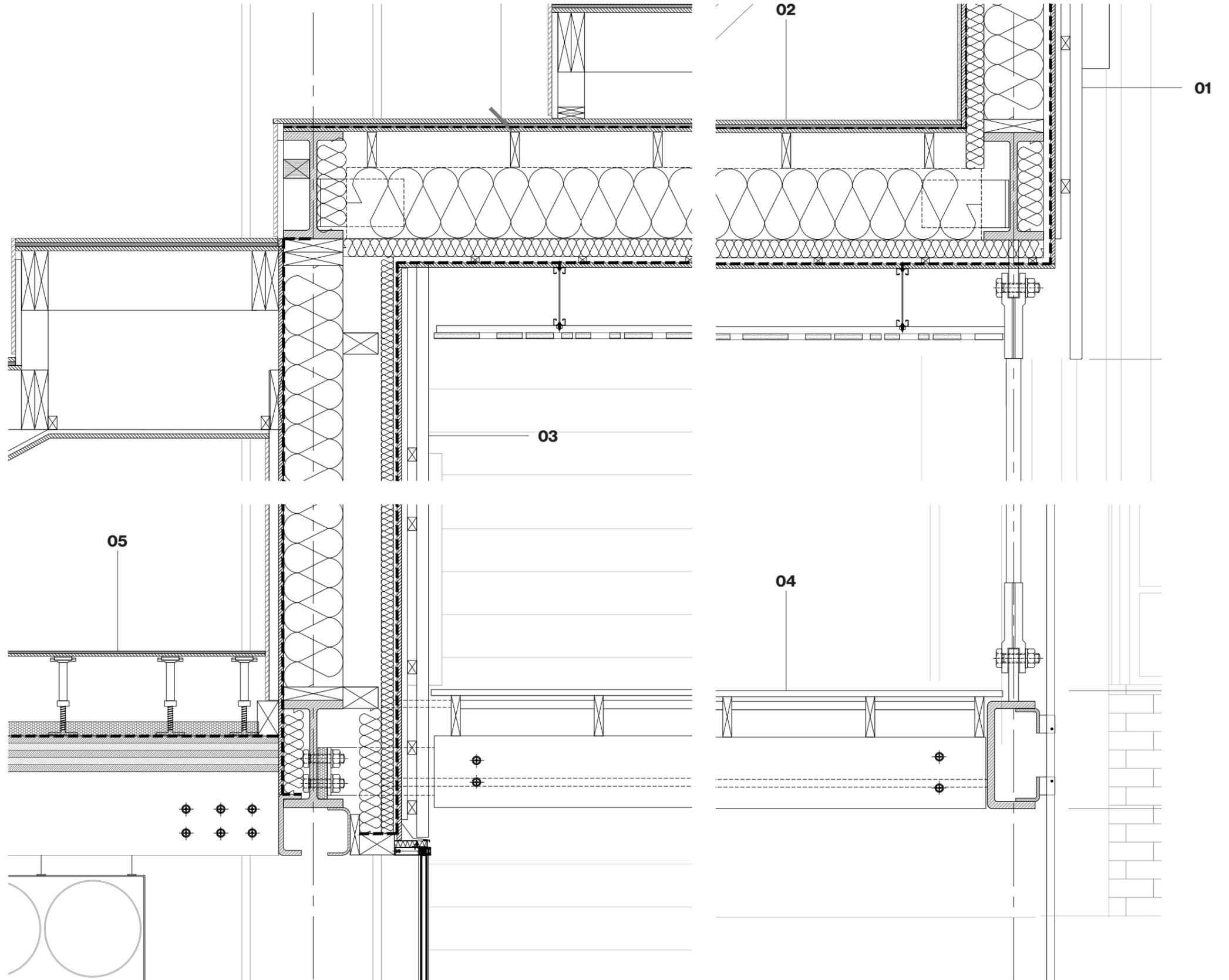
timber battens finish 50x60mm
 counter battens 38x56mm at 600mm centres
 battens 38x56mm
 OSB board 18mm
 breather membrane
 air gap 30mm
 hemp insulation 50mm
 air gap 160mm to accommodate column
 hemp insulation 250mm
 500x500mm steel column
 vapor control membrane
 gypsum board 2x16mm
 battens 38x56mm
 plywood internal finish

04_steel & timber deck

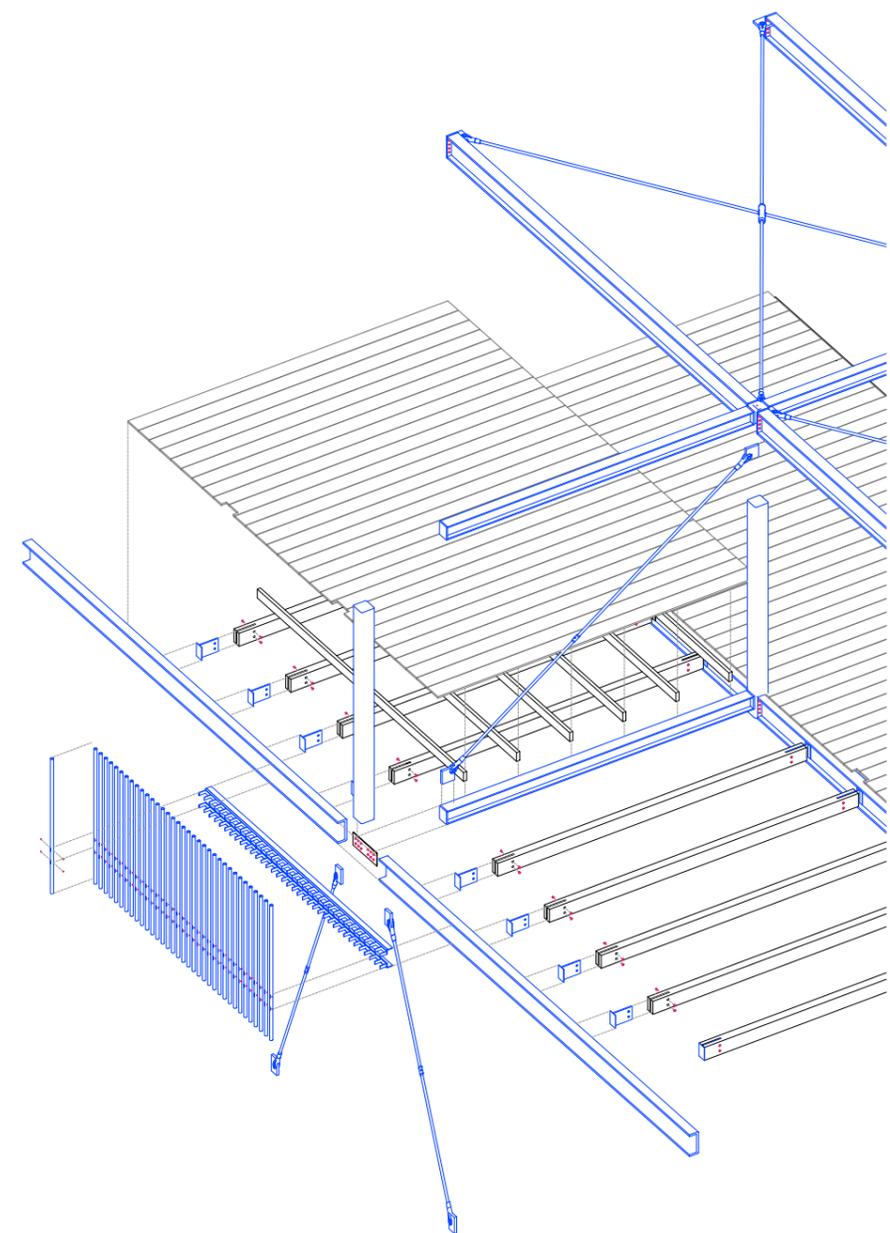
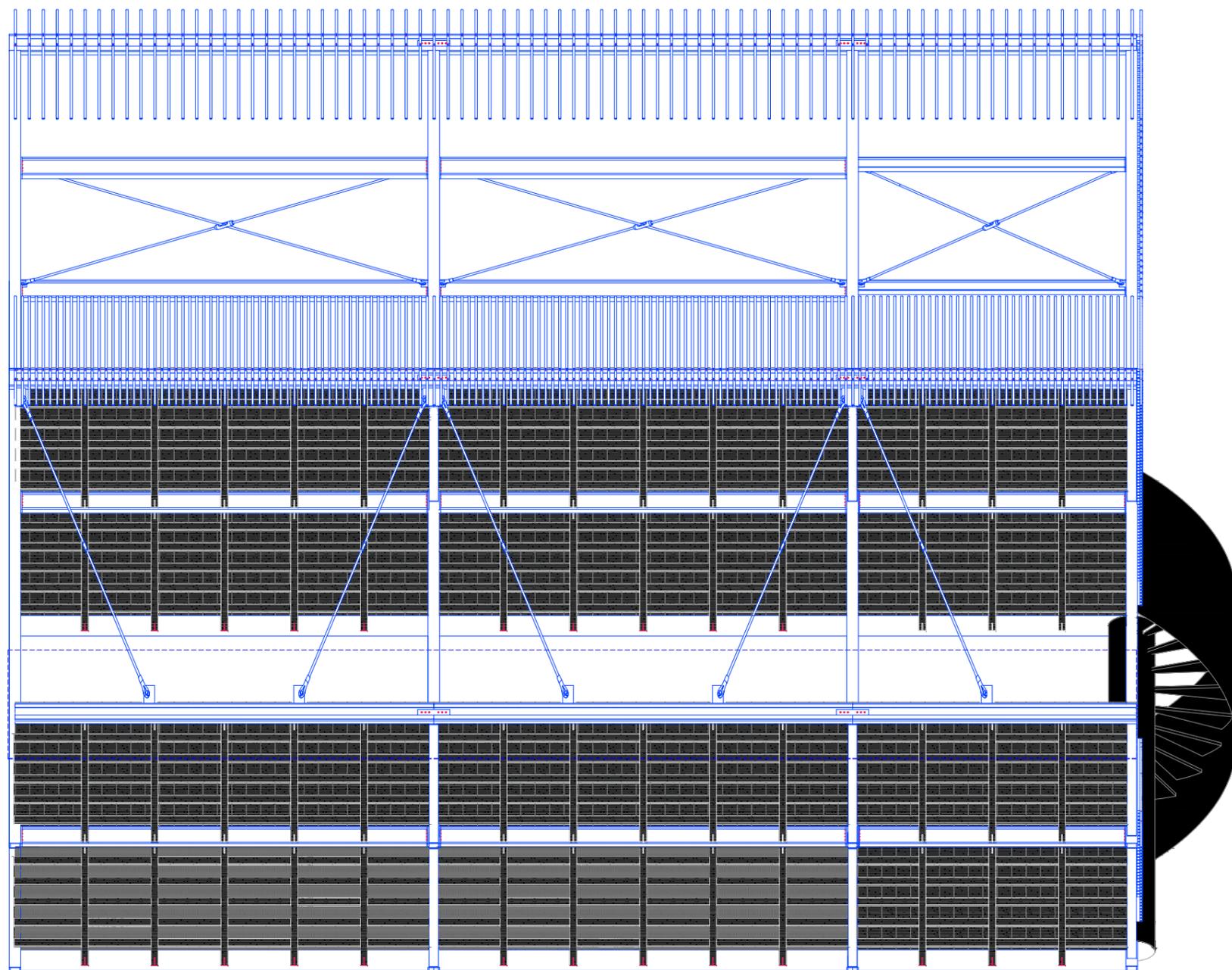
composite timber deck 25mm
 timber joists 38x170mm at 600mm centres
 glulam beam 300mm
 / steel I-beam 250mm

05_sports floor

ASB glass sports floor 20mm
 metal substructure 15mm
 raising support structure 180-330mm
 sound insulation 60mm
 CLT floor 150mm
 Glulam beam 650 / 350mm
 suspended services and lighting fixtures 800mm



sports hall_detail_1:10 on A2



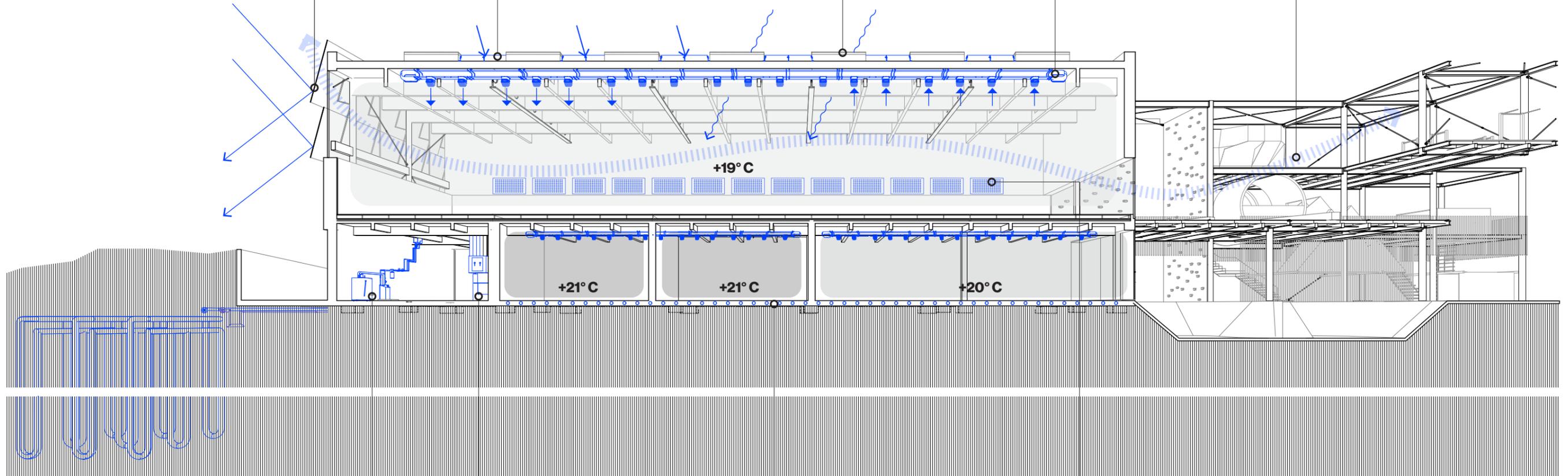
solar shade
west oriented solar shade
minimises overheating

PV panels
sustainable source of energy

skylights
natural source of light
across the day

air ducts
fresh air distribution /
collection of stale air

natural ventilation
during sommer days, cross
ventilation through partly
openable glazing

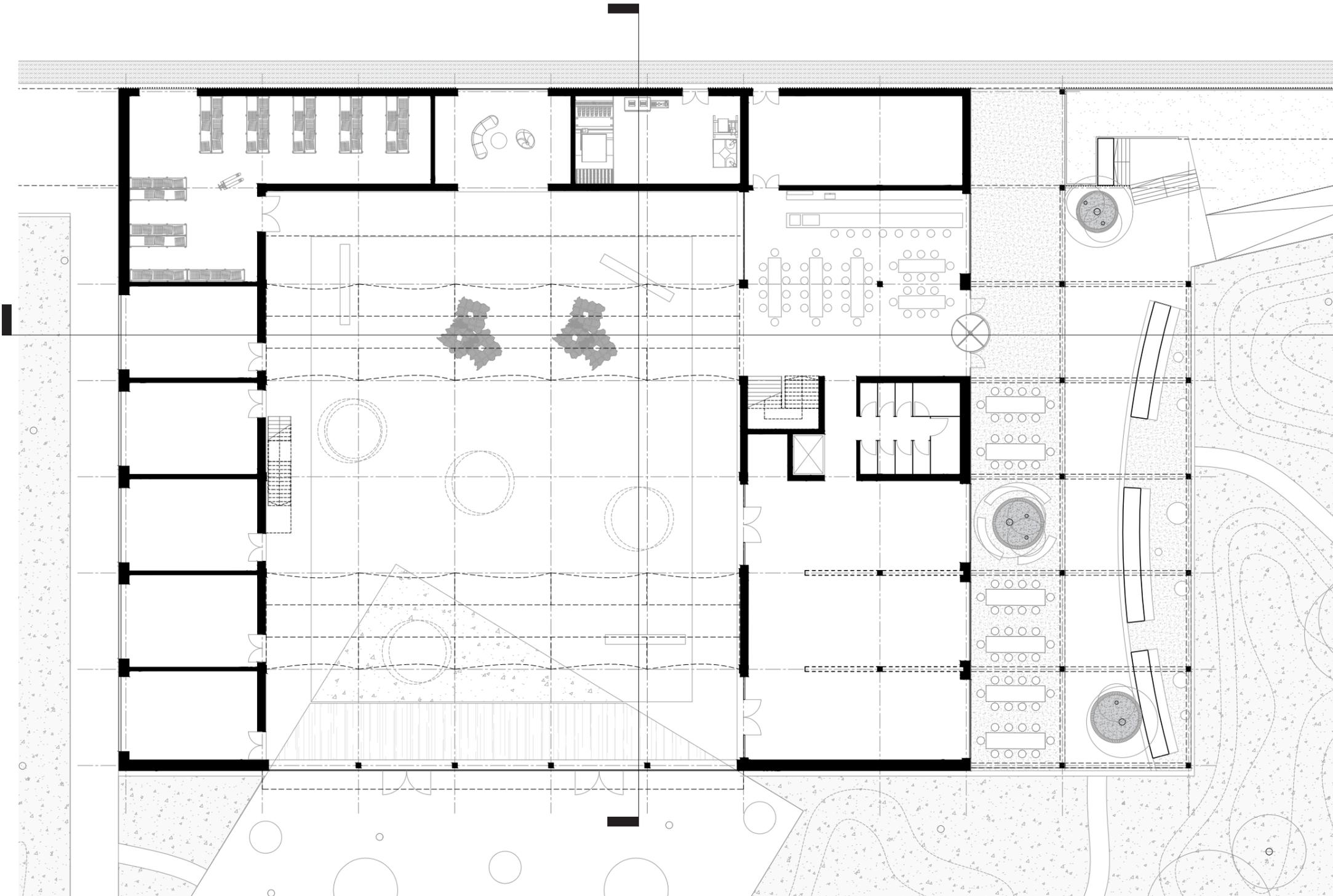


GSHP
sustainable source of energy /
50-200m accessible boreholes

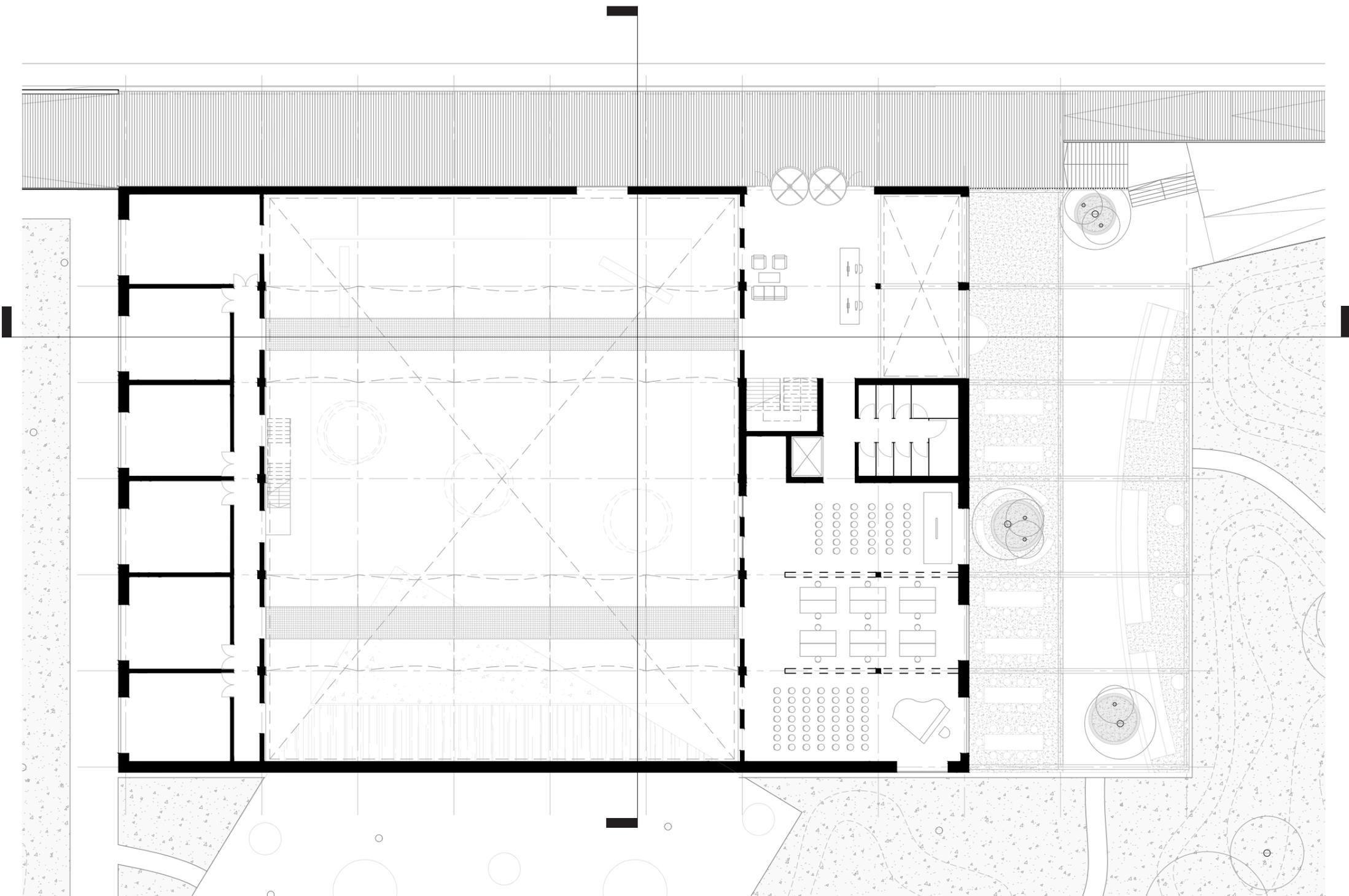
MVHR
+ pollutant free filtered air from the outside
+recuperation of already heated air -
minimises heat loss

floor heating
floor heating within the ground level slab,
acting as a thermal mass

radiators
wall mounted radiators for heating during
winter

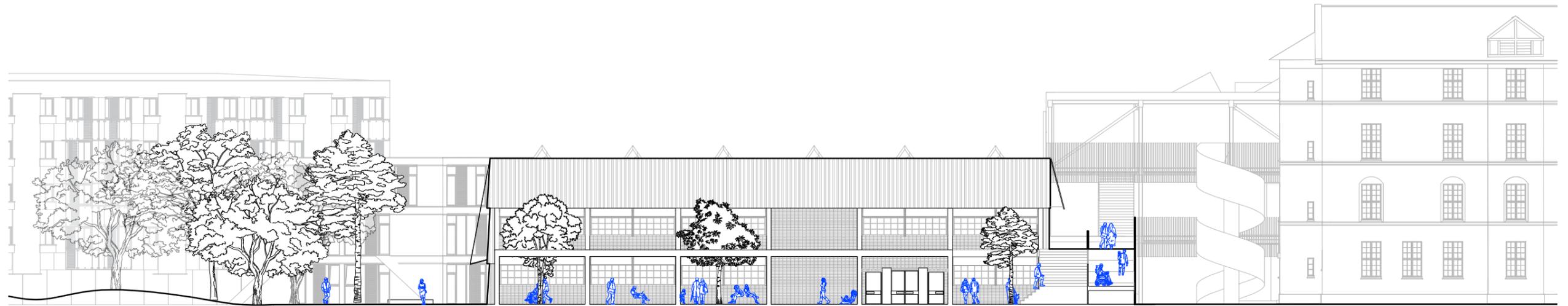


fabrikken_00

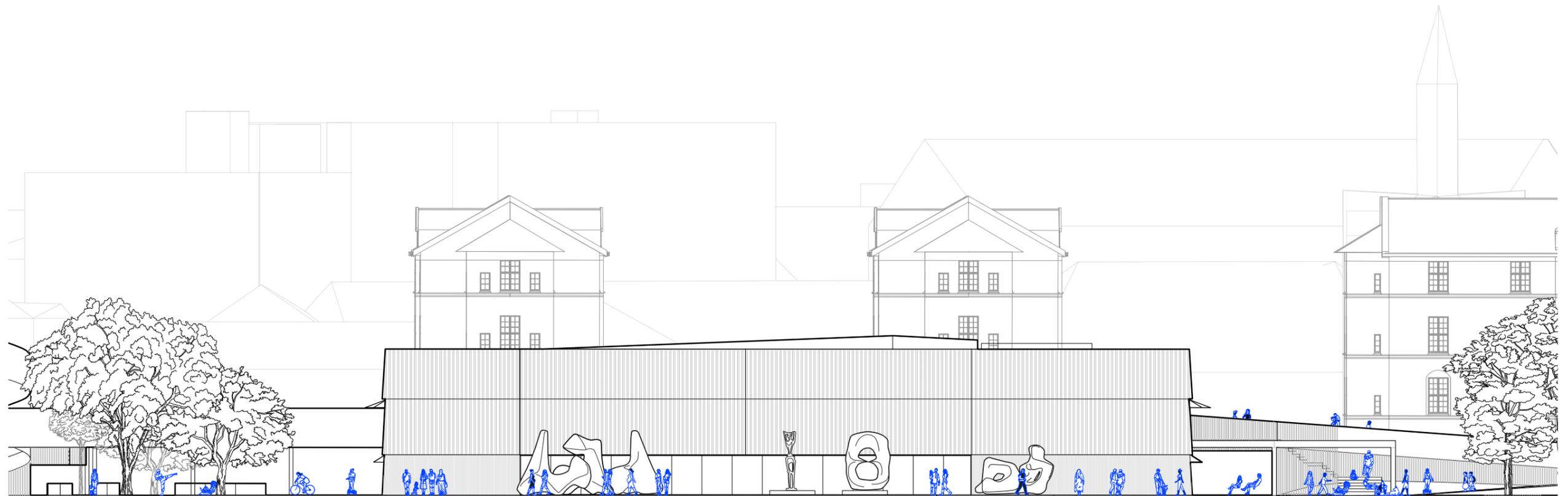


fabrikken_01

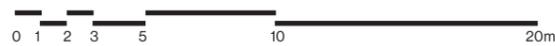




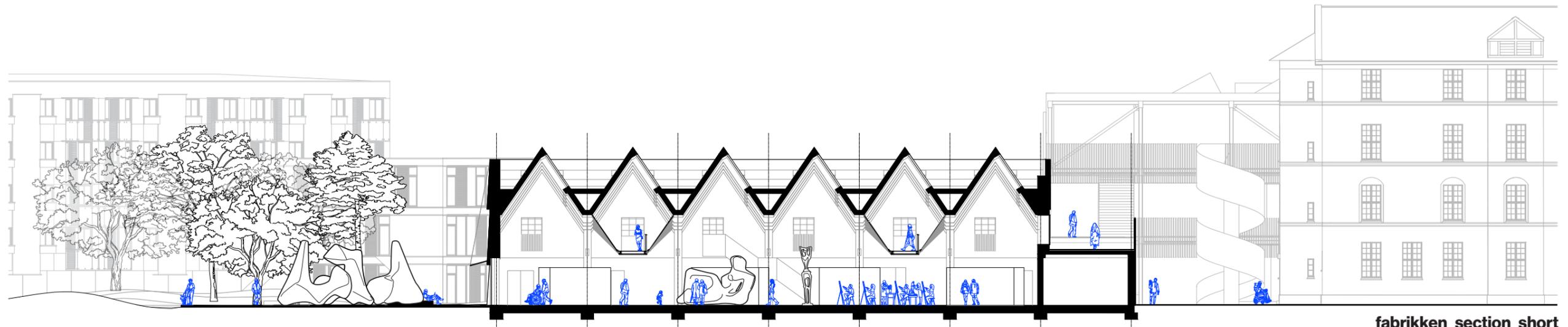
fabrikken_elevation_east



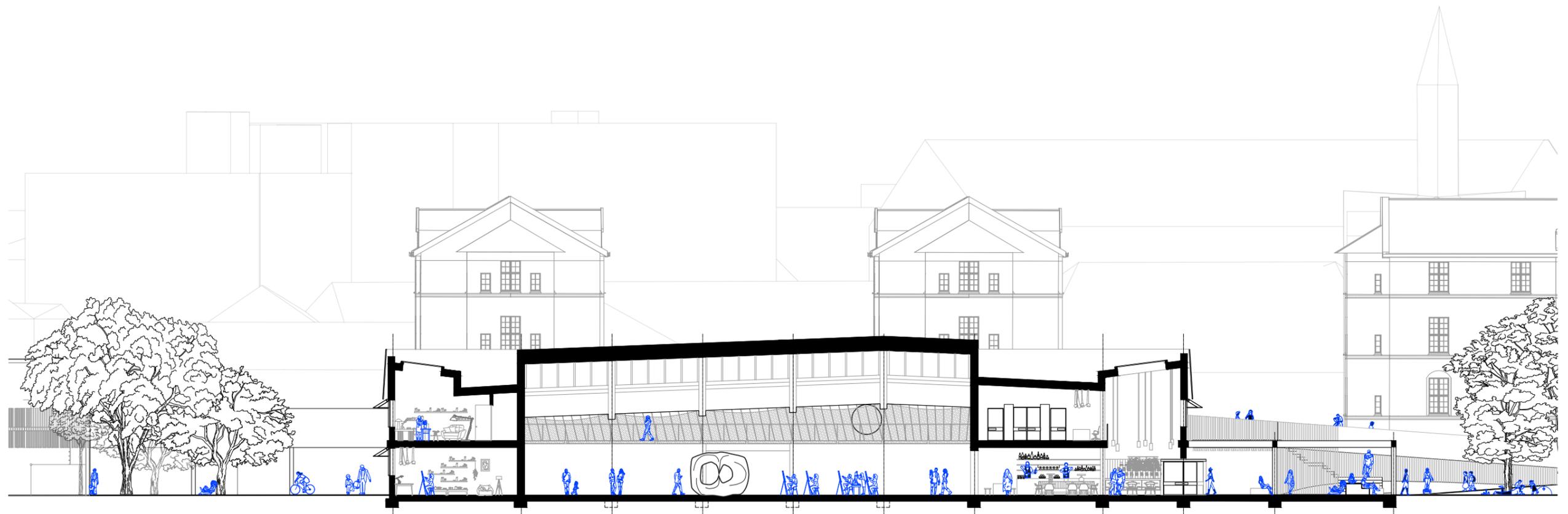
fabrikken_elevation_south





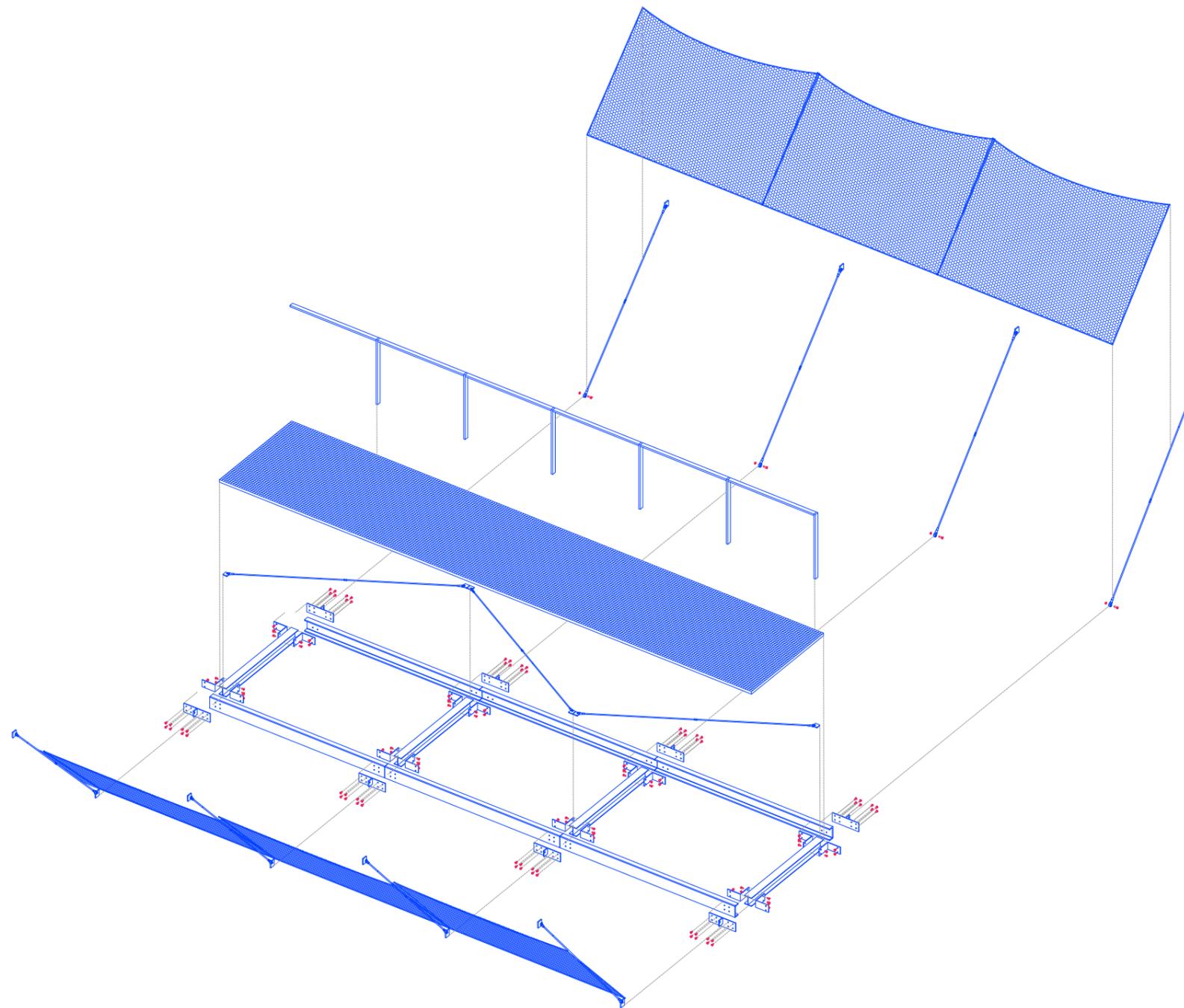


fabrikken_section_short



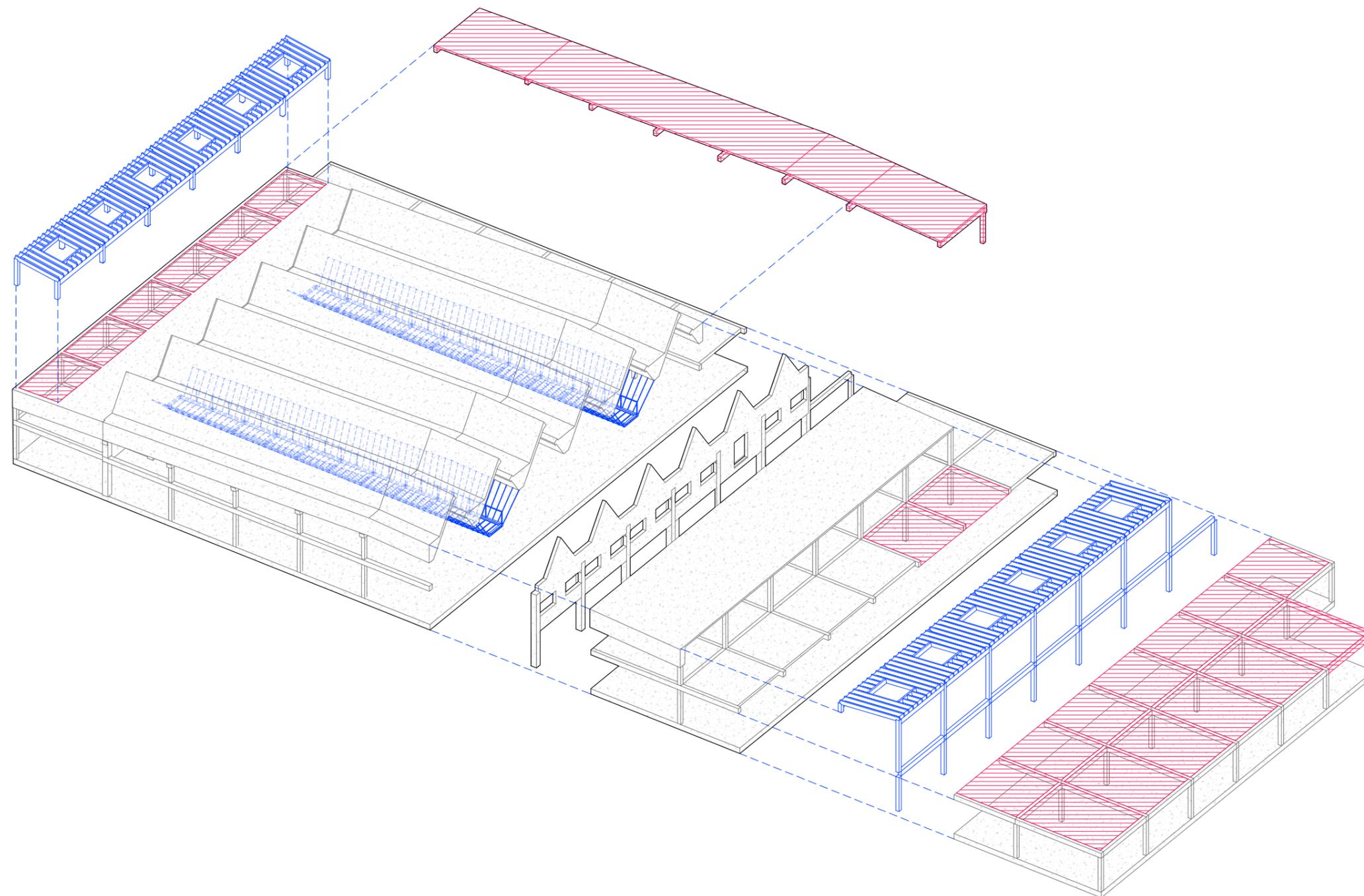
0 1 2 3 5 10 20m

fabrikken_section_long









existing 
demolished 
new 

01_external wall type A

- internal finish
- gypsum board 2x16mm
- existing cavity brick wall 108/50/108mm
- levelling battens
- rigid wood fibre board 150mm
- breather membrane
- OSB board 16mm
- battens 25x40mm
- counter battens 38x52mm
- sheathing layer
- mesh reinforced mortar layers
- ceramic facade tiles 20mm

02_external wall type B

- existing concrete beam 300mm
- rigid wood fibre insulation 150mm
- breather membrane
- OSB board 16mm
- XPS insulation 120mm
- cement panel 45mm

03_addition

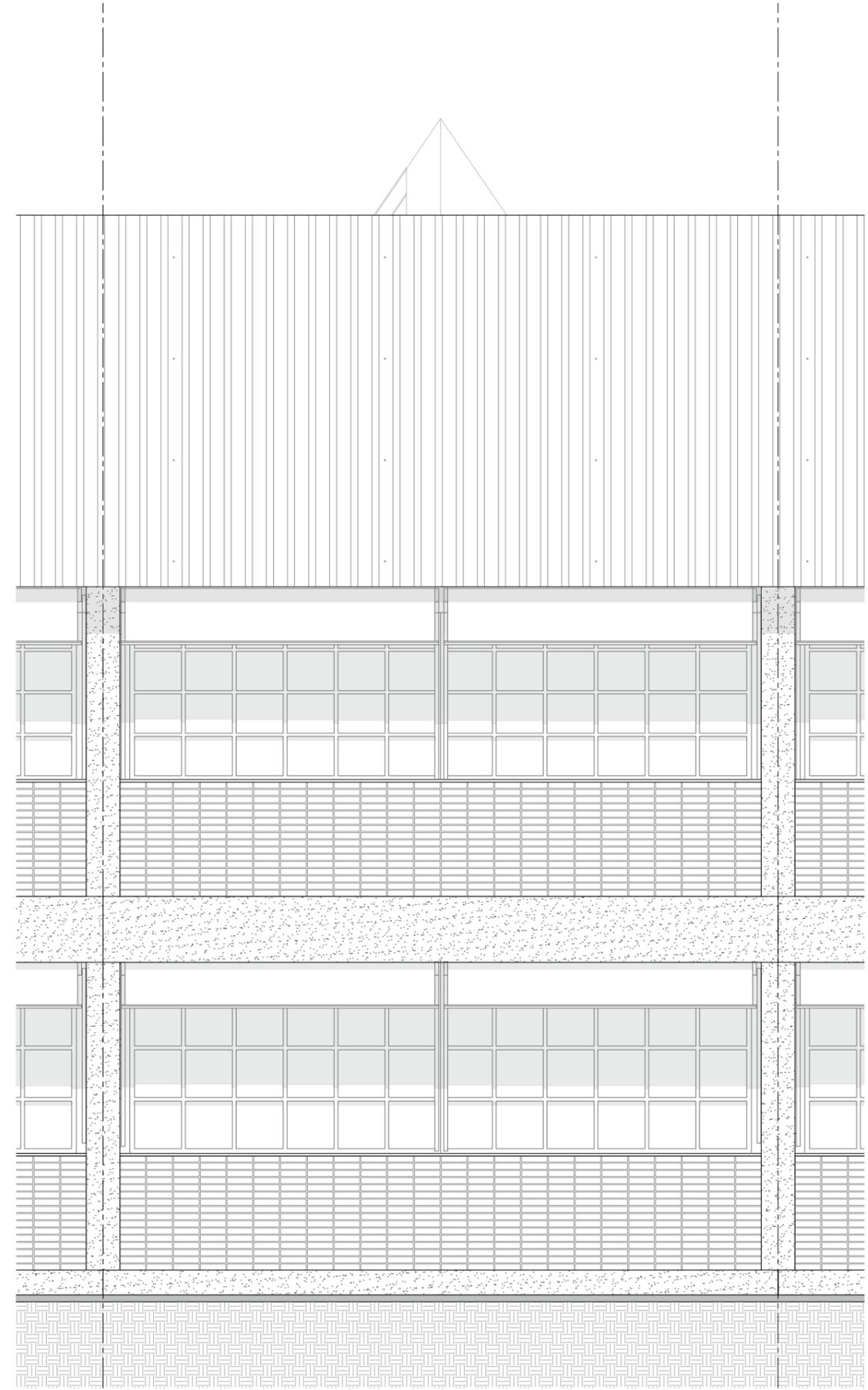
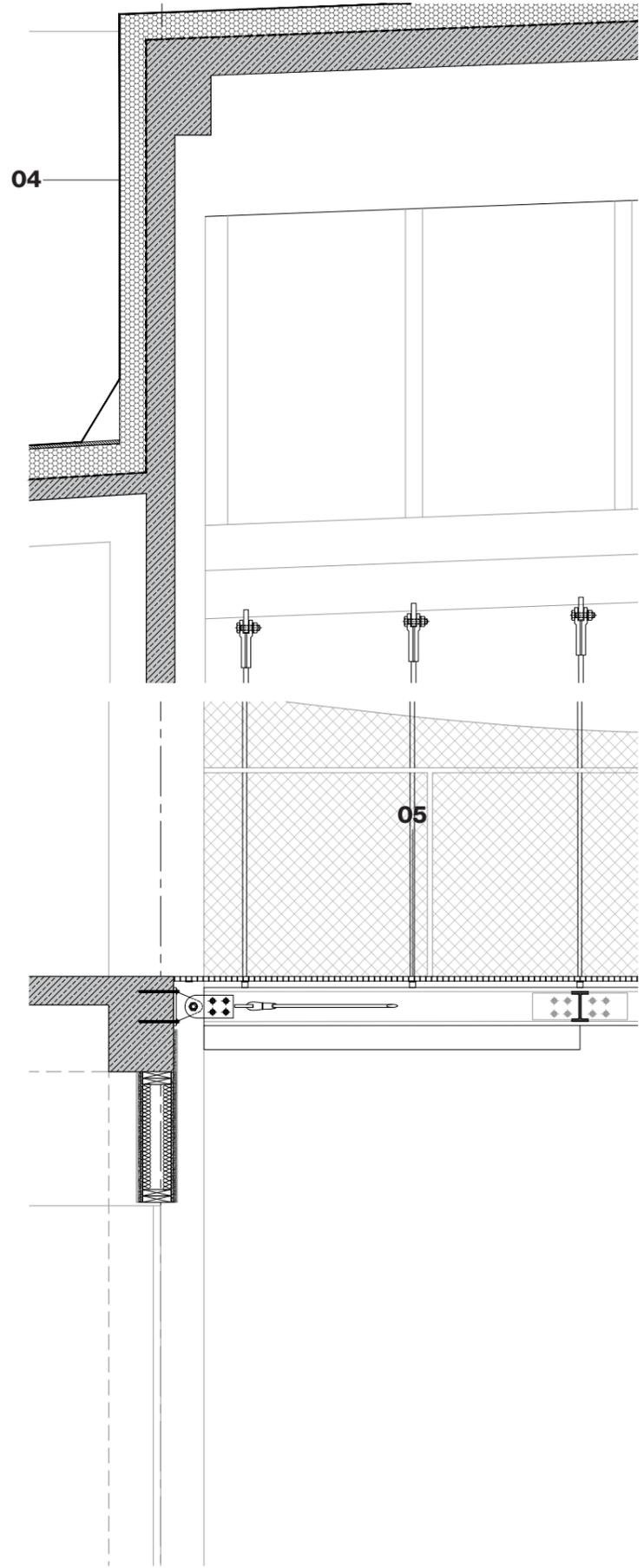
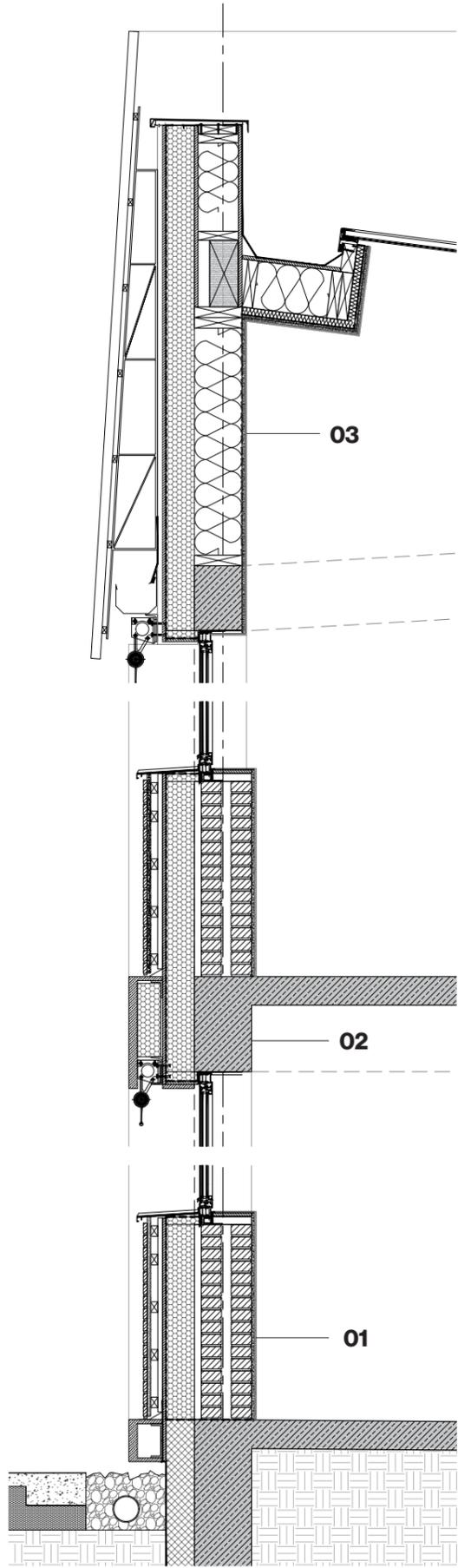
- internal wall finish
- gypsum board 2x16mm
- vapor control membrane
- hemp insulation 250mm
- wood fibre insulation 150mm
- breather membrane
- OSB board 16mm
- external render 25mm
- metal substructure profile 100-320mm
- counter battens 38x56mm
- corrugated metal sheet 50mm

04_roof

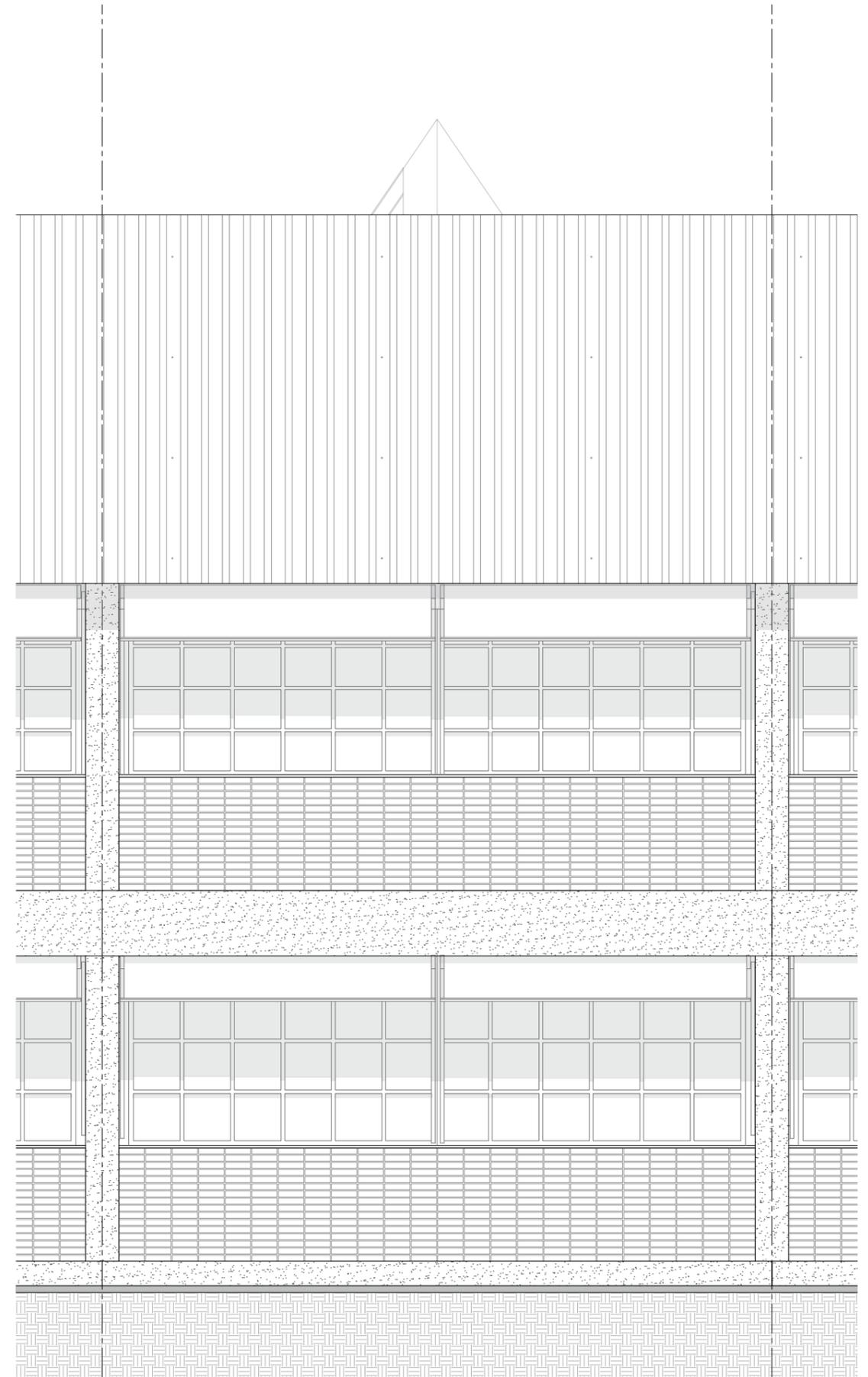
- EPDM membrane
- XPS insulation 140mm
- vapor control membrane
- existing concrete 150mm

05_bridge

- steel grid flooring 30mm
- sound rubber seal 5mm
- metal substructure 28x28mm at 900mm centres
- C-beams 200mm / I-beams 150mm
- braced



fabrikken_fragment_1:20-30 on A2



fabrikken_fragment_1:20-30 on A2

solar shade
west oriented solar shade
minimises overheating

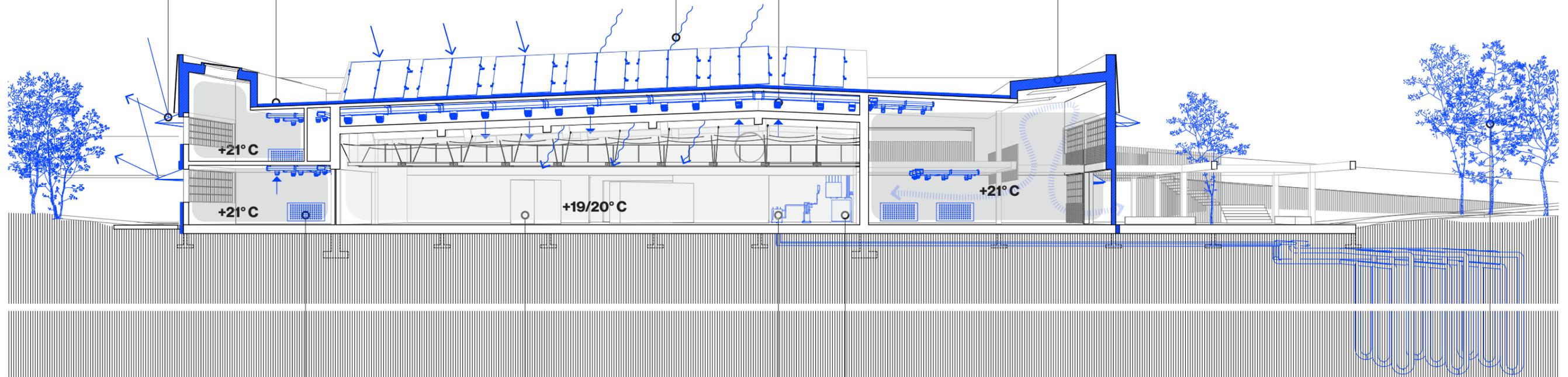
insulation
new external insulation
to minimise heat loss

skylights
north oriented skylights for
even access to daylight in the
exhibition space

air ducts
fresh air distribution /
collection of stale air

+partlyvvv integrated within the
truss structure

extensions
providing extra space
and skylights for even
daylight access



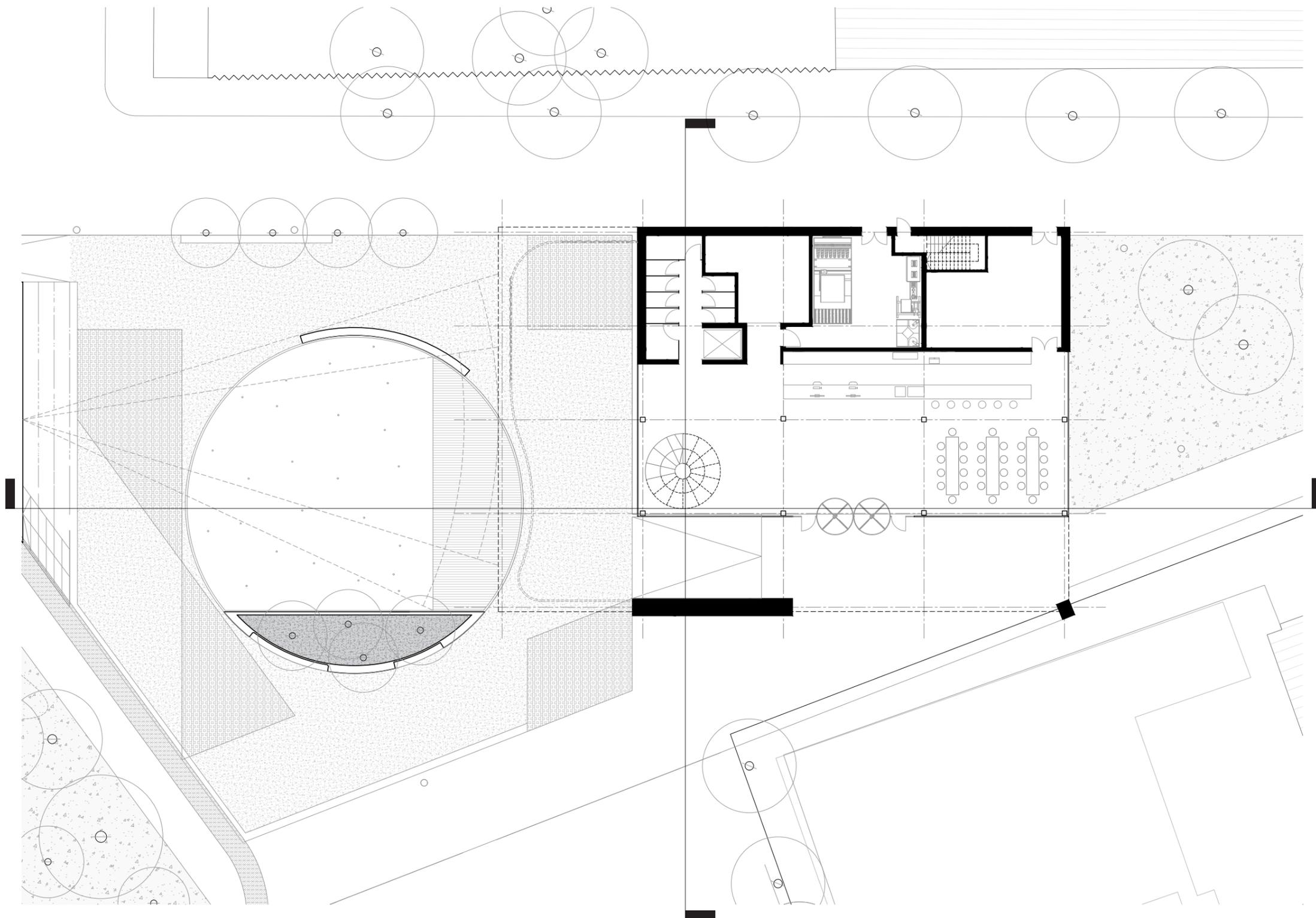
radiators
wall mounted radiators for heating during
winter

PV panels
sustainable source of
energy

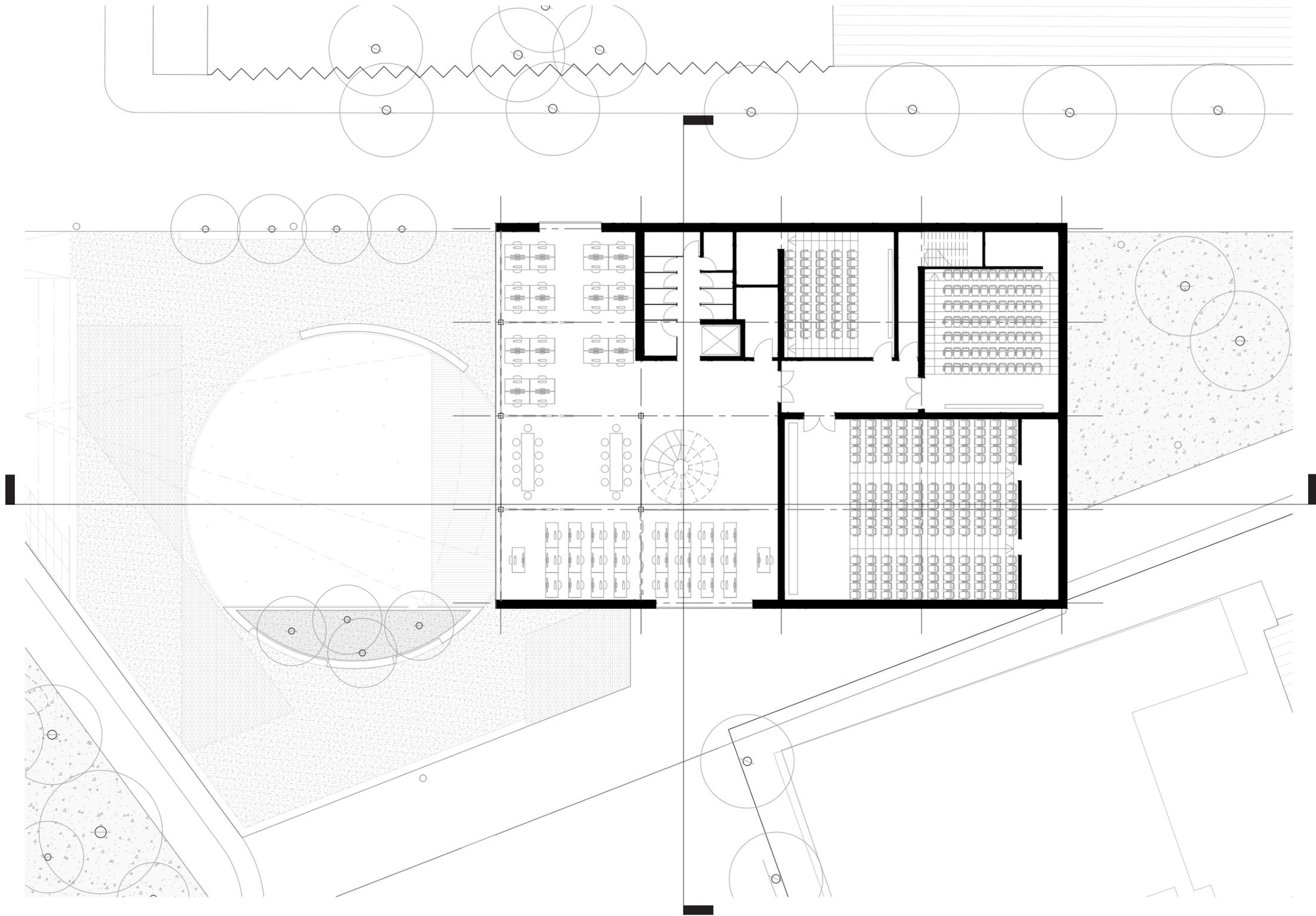
GSHP
sustainable source of energy /
50-200m accessible boreholes

MVHR
+ pollutant free filtered air from the outside
+recuperation of already heated air -
minimises heat loss

biodiversity
wild gardens with a variety of plants to
improve the overall biodiversity and air
quality of the area

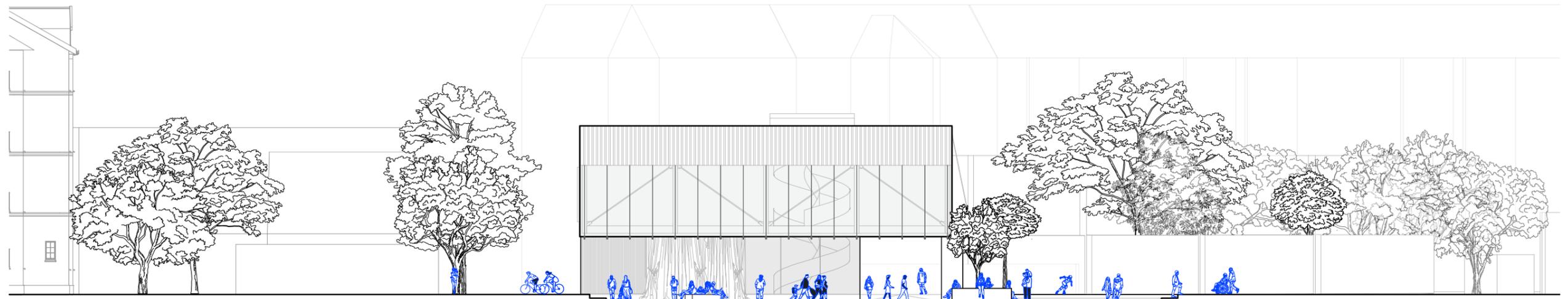


media unit_00



0 1 2 3 5 10 20m

media unit_01

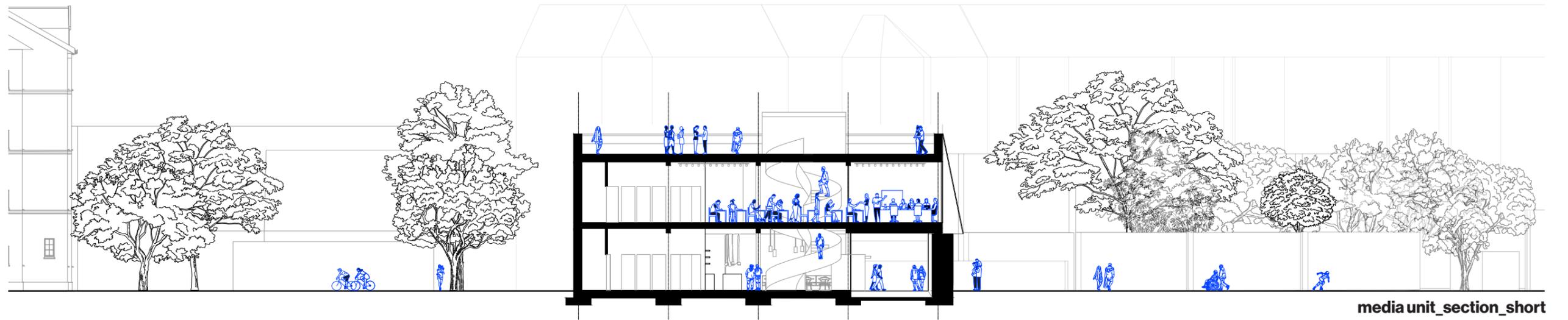


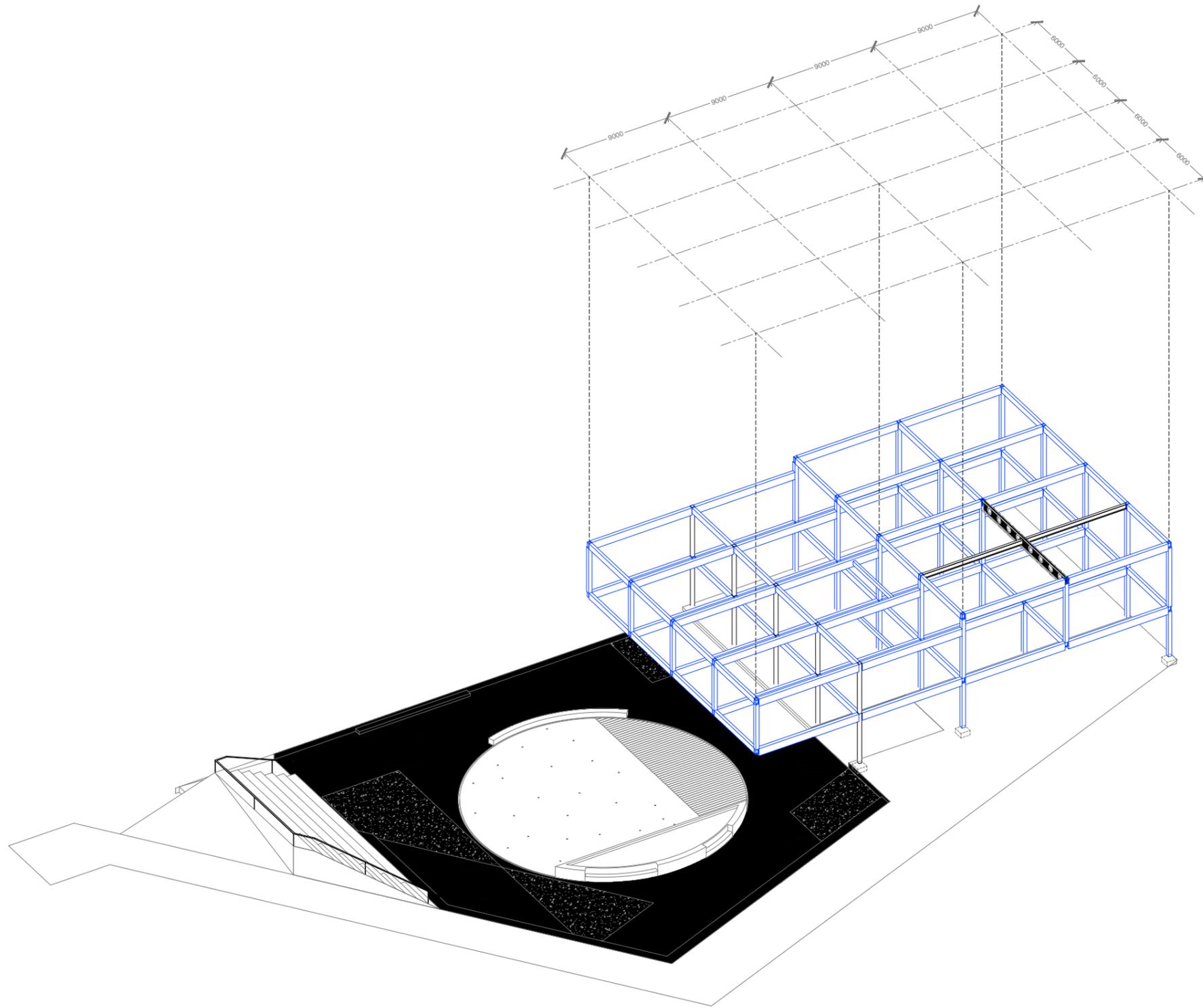
media unit_elevation_west



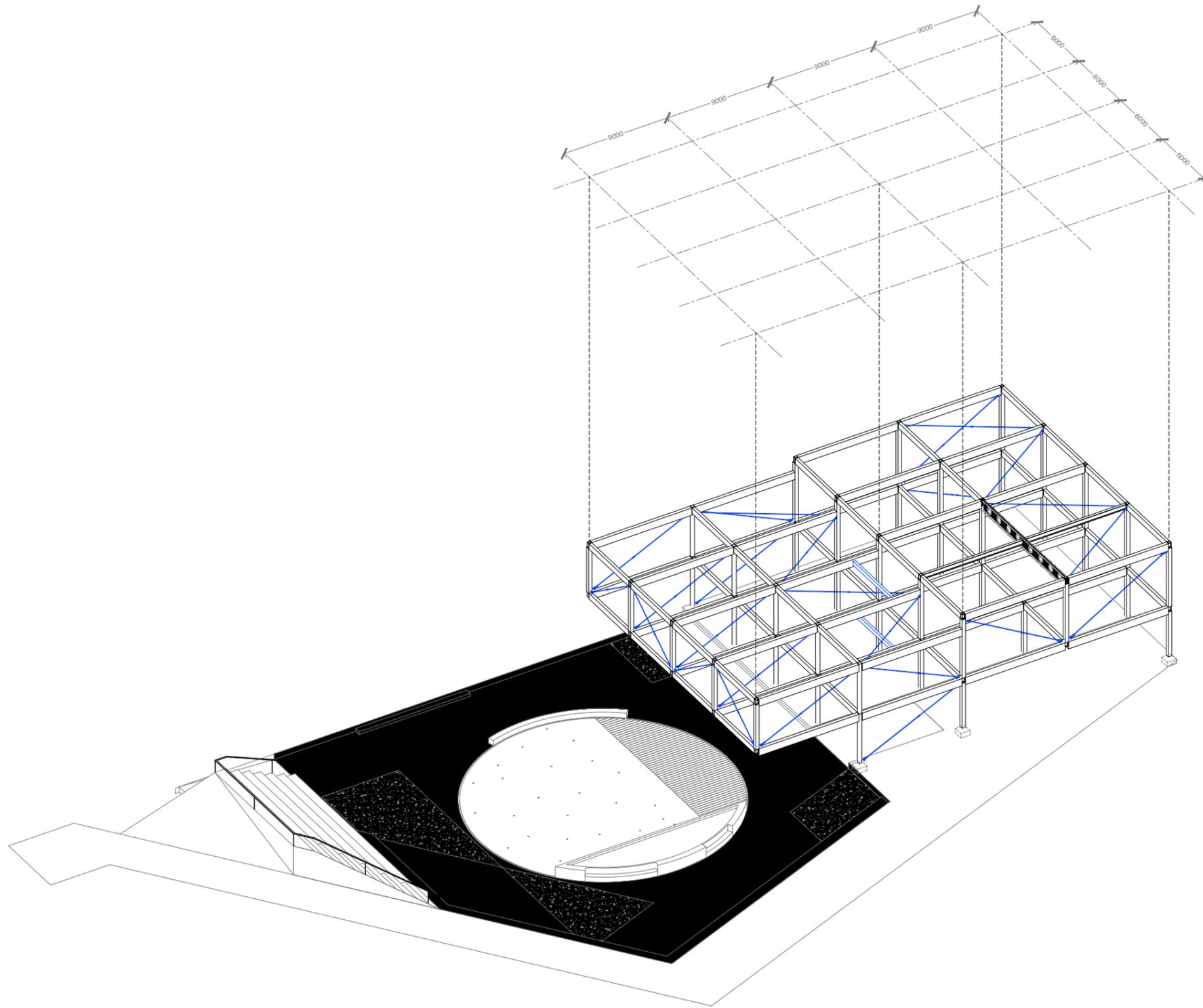
media unit_elevation_south

0 1 2 3 5 10 20m

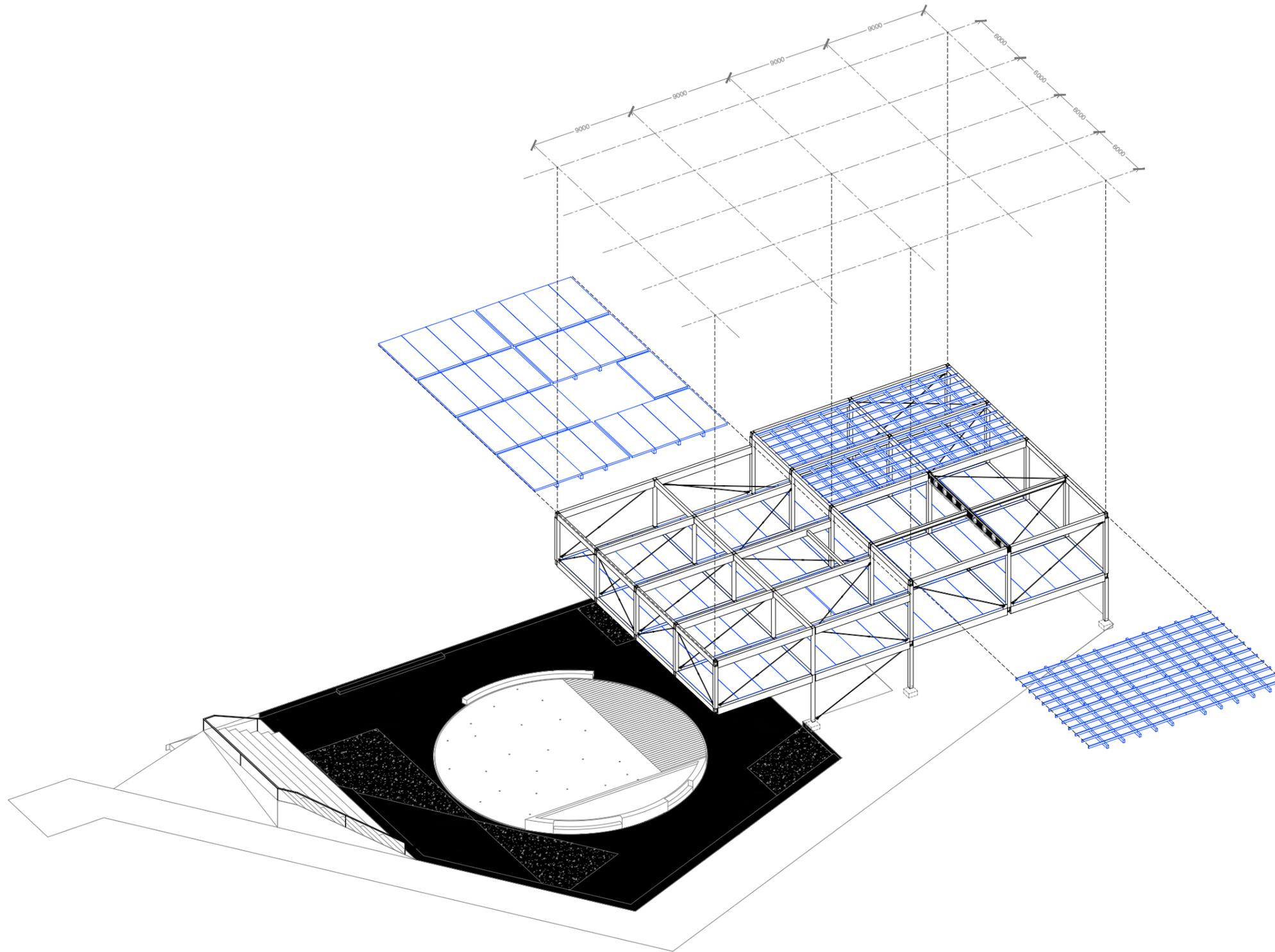




steel ■
timber ■



main structure ■
bracing ■



main structure ■
timber /CLT floorplates ■

01_floor

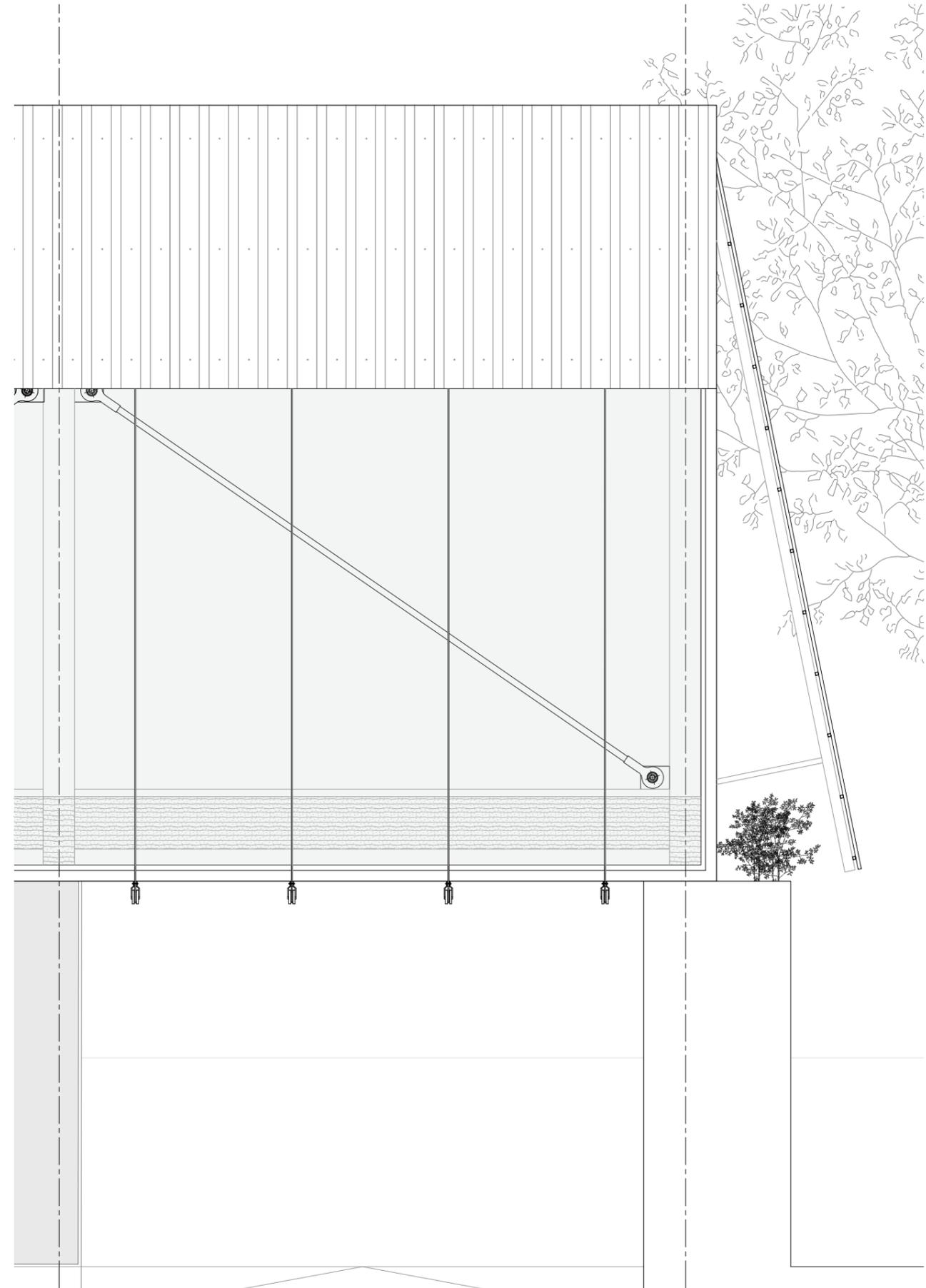
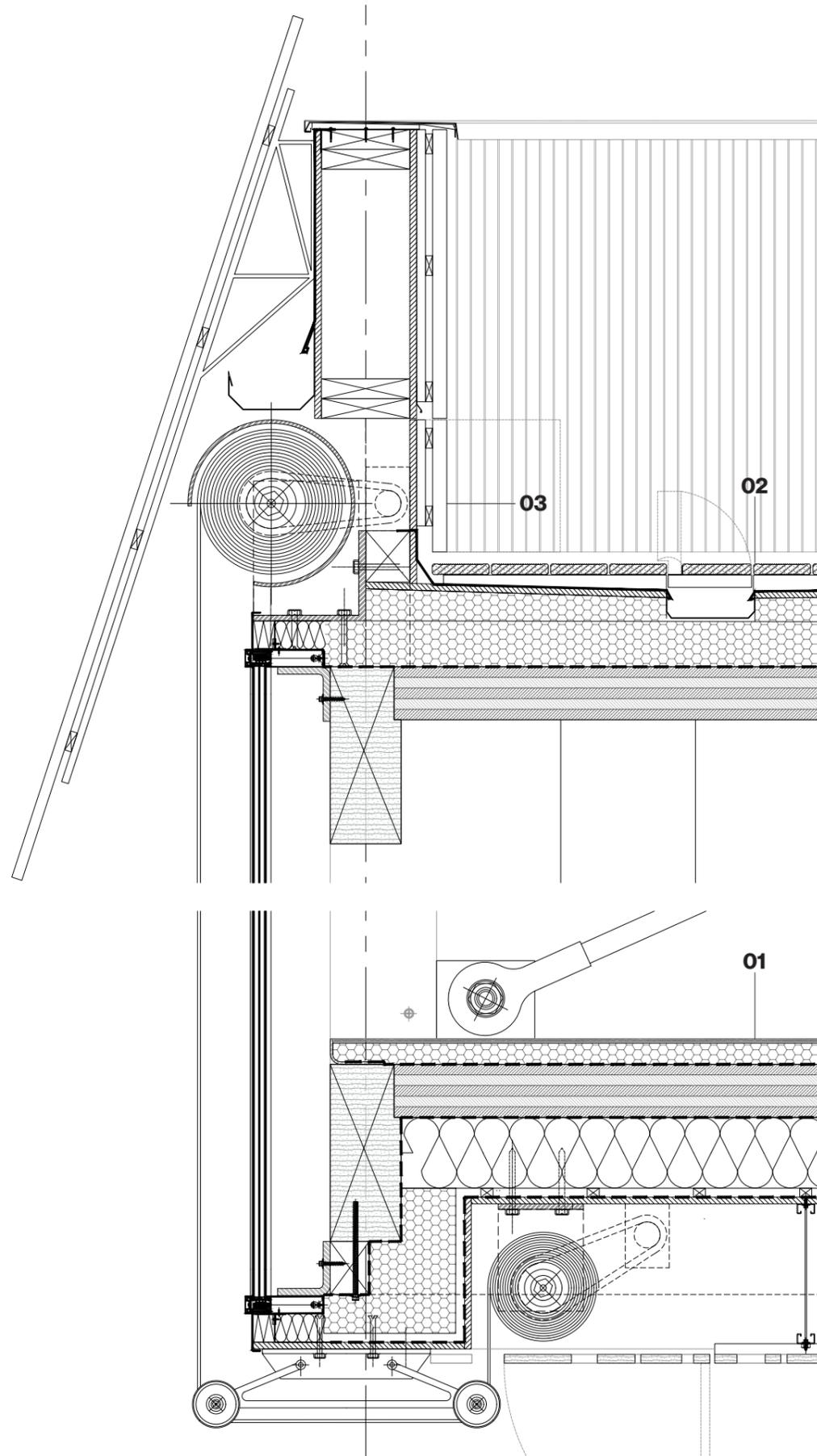
- floor parquet finish 18mm
- adhesive layer
- sound insulation 60mm
- vapor control membrane
- CLT 150mm
- glulam 500 / 650mm
- vapor control membrane
- hemp insulation 200mm
- air gap 30mm
- breather membrane
- OSB board 18mm
- suspended ceiling 420mm
- timber ceiling finish 25mm with lighting fixtures

02_roof

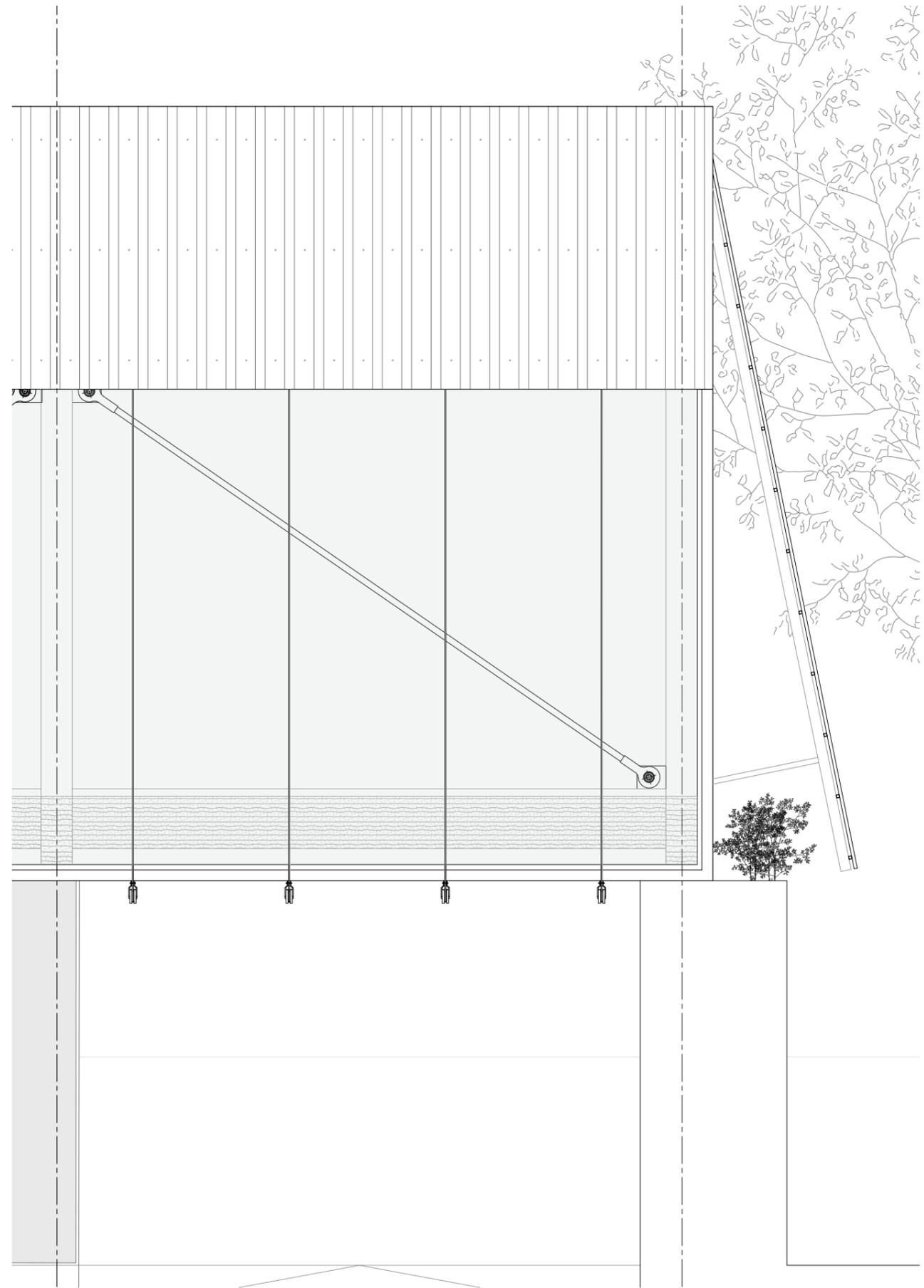
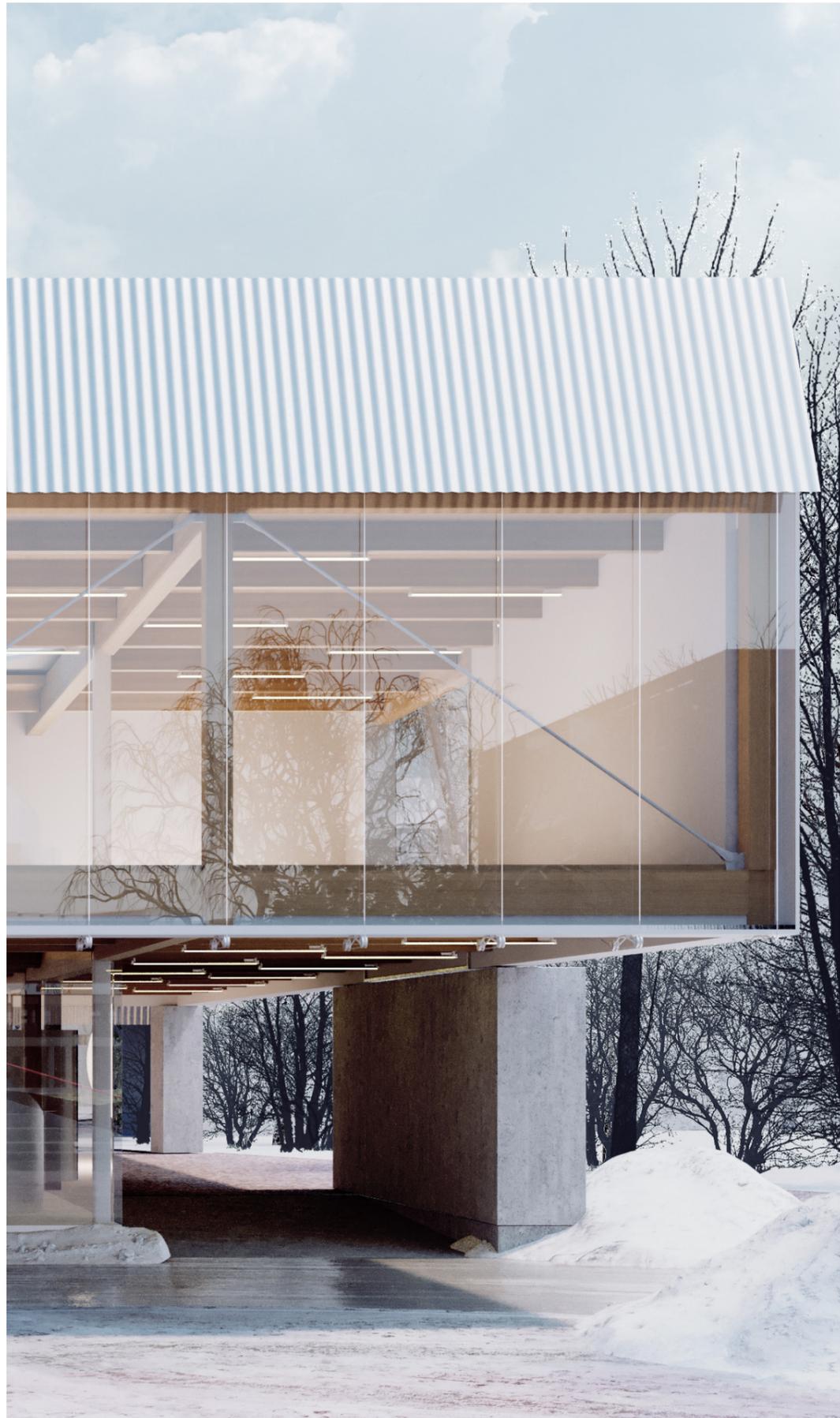
- composite timber deck 25mm
- levelling battens 25-45mm
- roofing membrane
- OSB board 18mm
- sloped rigid wood fibre insulation 60-90mm
- rigid wood fibre insulation 130mm
- vapor control membrane
- CLT 150mm
- glulam 500 / 650mm
- suspended services and lighting fixtures 800mm

03_attica wall

- Timber battens cladding 40x60mm
- counter battens 20x56mm
- battens 25x56mm
- EPDM membrane
- OSB board 18mm
- wooden construction
- engine
- rolling drum Ø 450mm
- metal profile support structure
- battens 20x56mm
- corrugated metal sheet 50mm



media unit_fragment_1:10-30 on A2



media unit_fragment_1:10-30 on A2

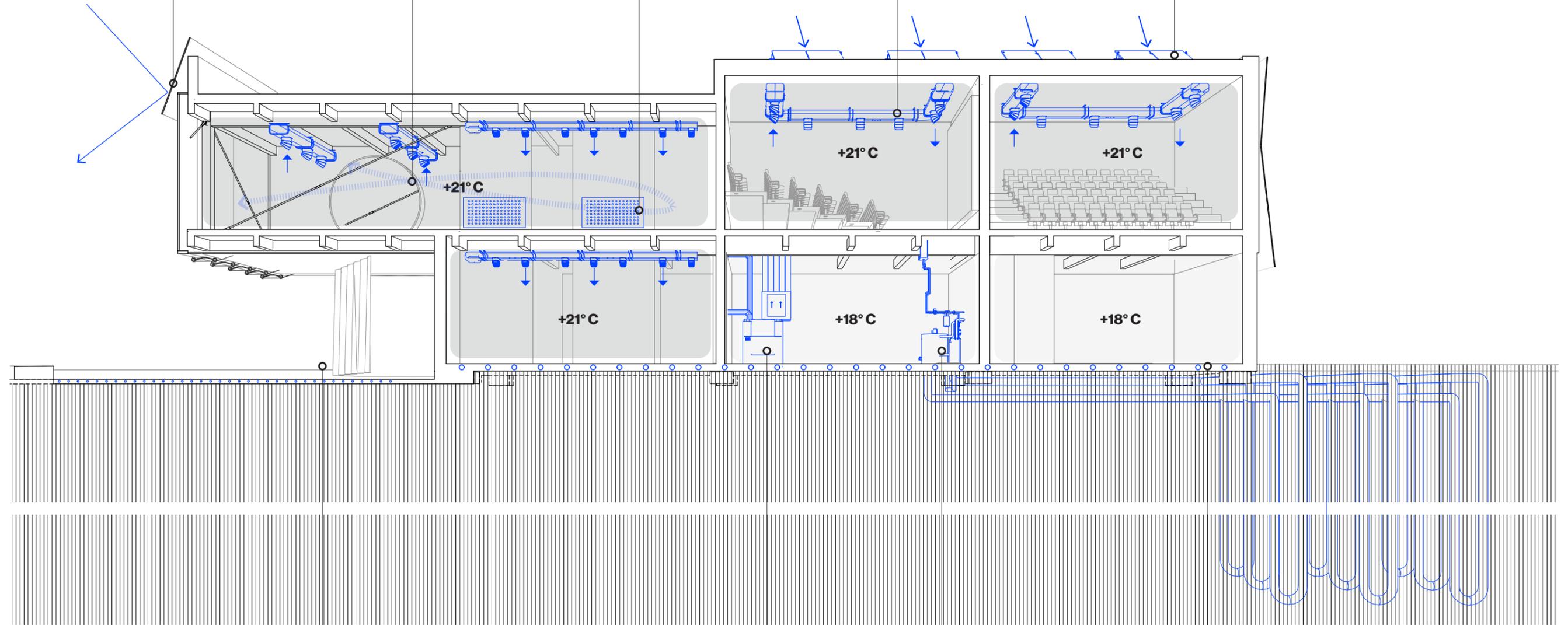
solar shade
west oriented solar shade
minimises overheating

natural ventilation
during sommer days, cross
ventilation through partly
openable glazing

radiators
wall integrated radiators
for heating during winter

air ducts
fresh air distribution /
collection of stale air

PV panels
sustainable source of
energy



external floor cooling
external slab cooled during winter to
prevent the ice from melting on the ice rink

MVHR
+ pollutant free filtered air from the outside
+recuperation of already heated air -
minimises heat loss

GSHP
sustainable source of energy /
50-200m accessible boreholes

floor heating
floor heating within the ground level slab,
acting as a thermal mass

