# BUILDING TECHNOLOGY

## How can police stations help solving housing crisis in the Netherlands?

Adapting 20th Century Heritage

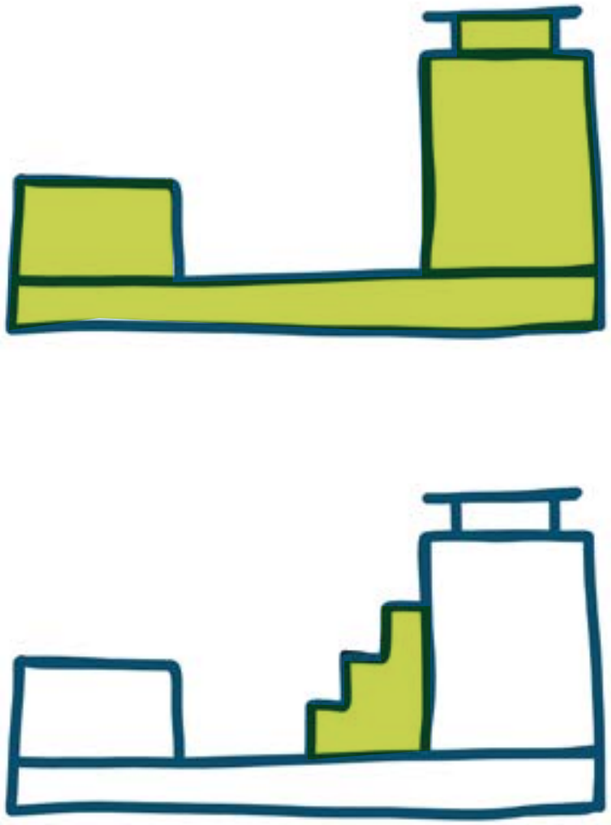
Vacant Police Real Estate

**Aiste Rakauskaite, 5347912**

Delft University of Technology

2022, June

# DESIGN STRATEGY

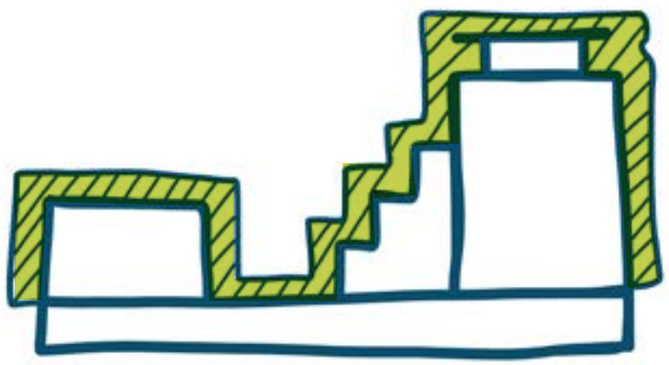


Keep as much as possible

+

Design for disassembly

+



Reuse as much as possible

# HARVESTING MATERIALS: POLICE STATIONS

**KOUDENHORN HAARLEM**
200 km

**EENHEIDSBUREAU GRONINGEN**

**EENHEIDSBUREAU DEN HAAG**
240 km

**HUIS ‘t VELDE WARNSVELD**
150 km

**WITTE DE WITHSTRAAT ROTTERDAM**
250 km

**HAVENPOLITIE ROTTERDAM**
250 km

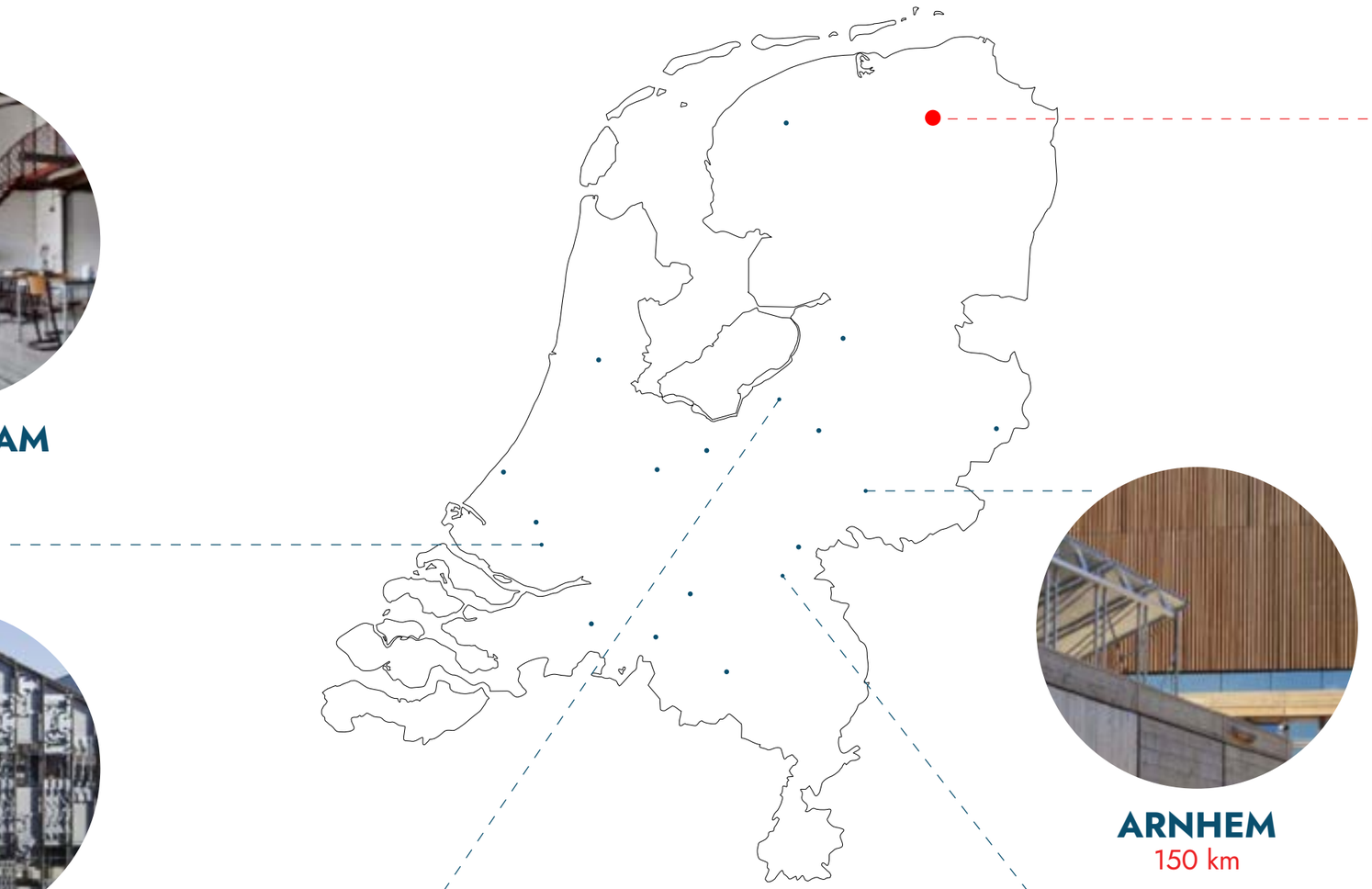
**POLITIEBUREAU ROTTERDAM**
250 km

**EENHEIDSBUREAU EINDHOVEN**
250 km

# HARVESTING MATERIALS: OOGSTKAART

**ROTTERDAM**
250 km

**EENHEIDSBUREAU GRONINGEN**





**ARNHEM**
150 km

**ROTTERDAM**
250 km

**NUNSPEET**
120 km

**WIJCHEN**
185 km

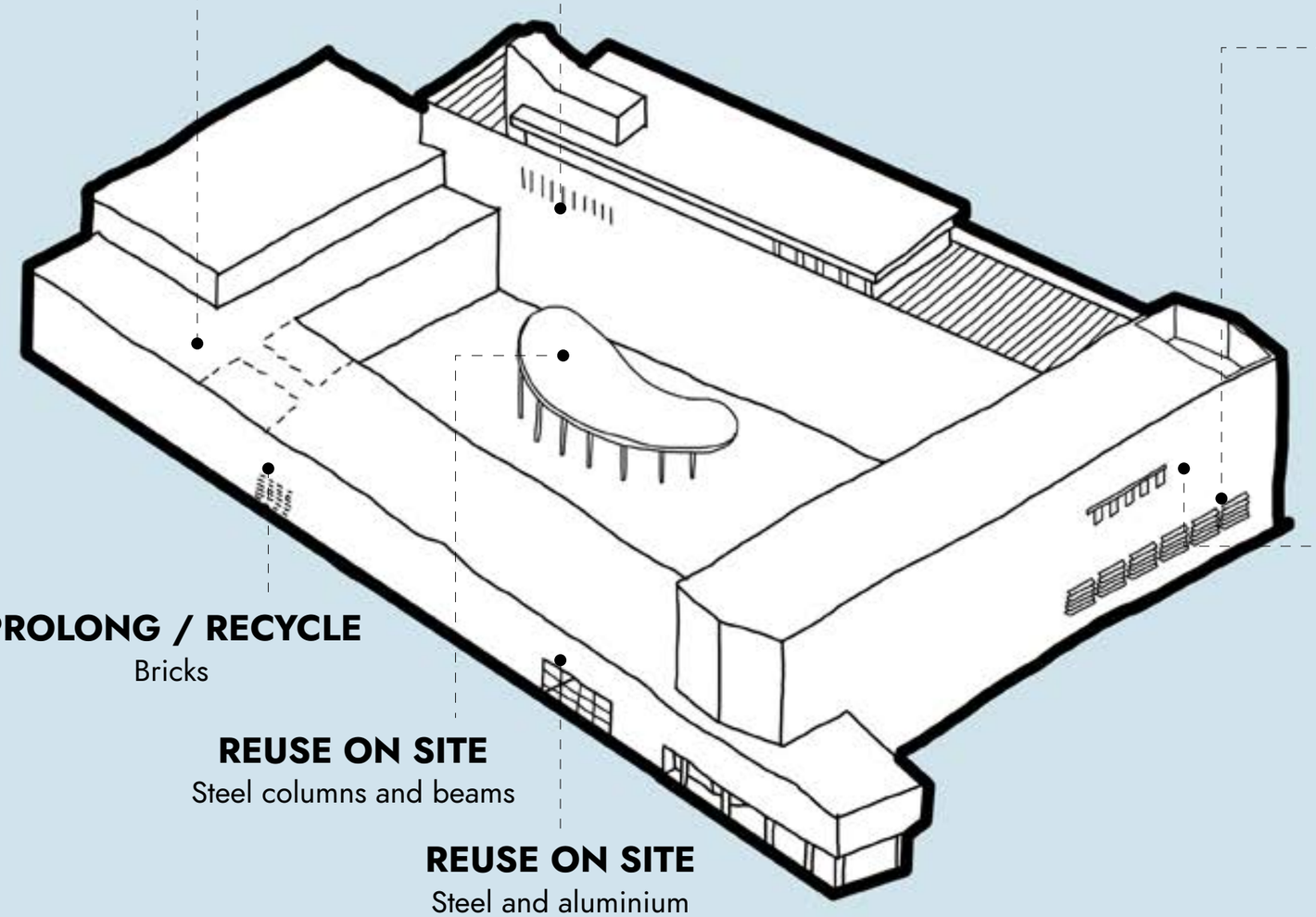
**ARNHEM**
150 km

# EXISTING BUILDING

**REFURBISH AND REUSE ON SITE**
Wooden planks
70 x 1.7m x 0 0.1m

**REUSE / RECYCLE**
Bitumen panels 3000 m2

**RECYCLE**
Drywall partitions:
gypsium boards, aluminum frames



**REFURBISH AND REUSE**
Perforated metal panels
50 x 100 m2

**REFURBISH AND REUSE**
Window shadings
Various sizes

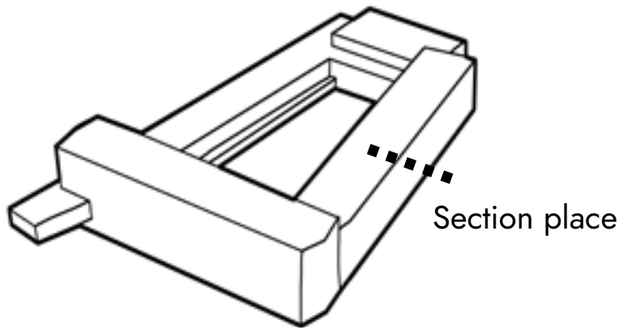
**PROLONG / RECYCLE**
Bricks

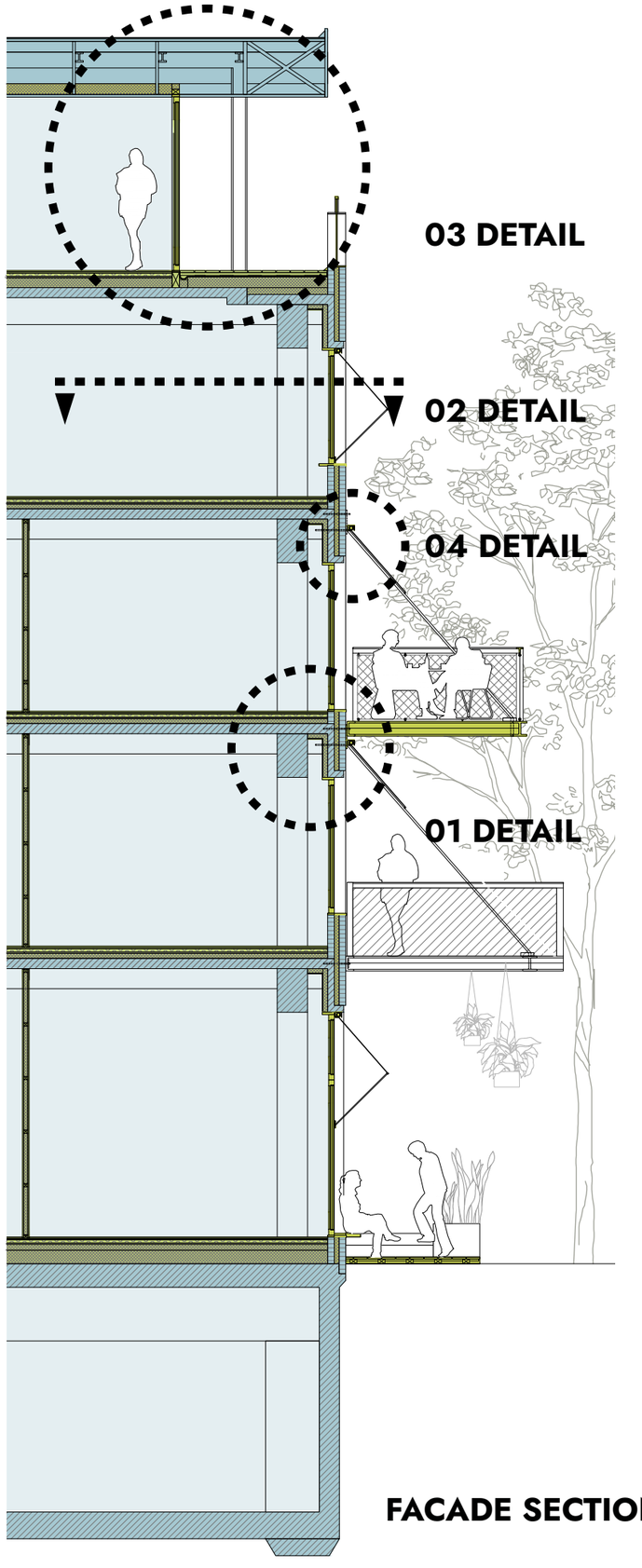
**REUSE ON SITE**
Steel columns and beams

**REUSE ON SITE**
Steel and aluminium

**RECYCLE / 200 m2 REFURBISHED AND REUSED ON SITE**
for office partition walls
Plastic double glazed windows
Various sizes

# FACADE PROPOSAL

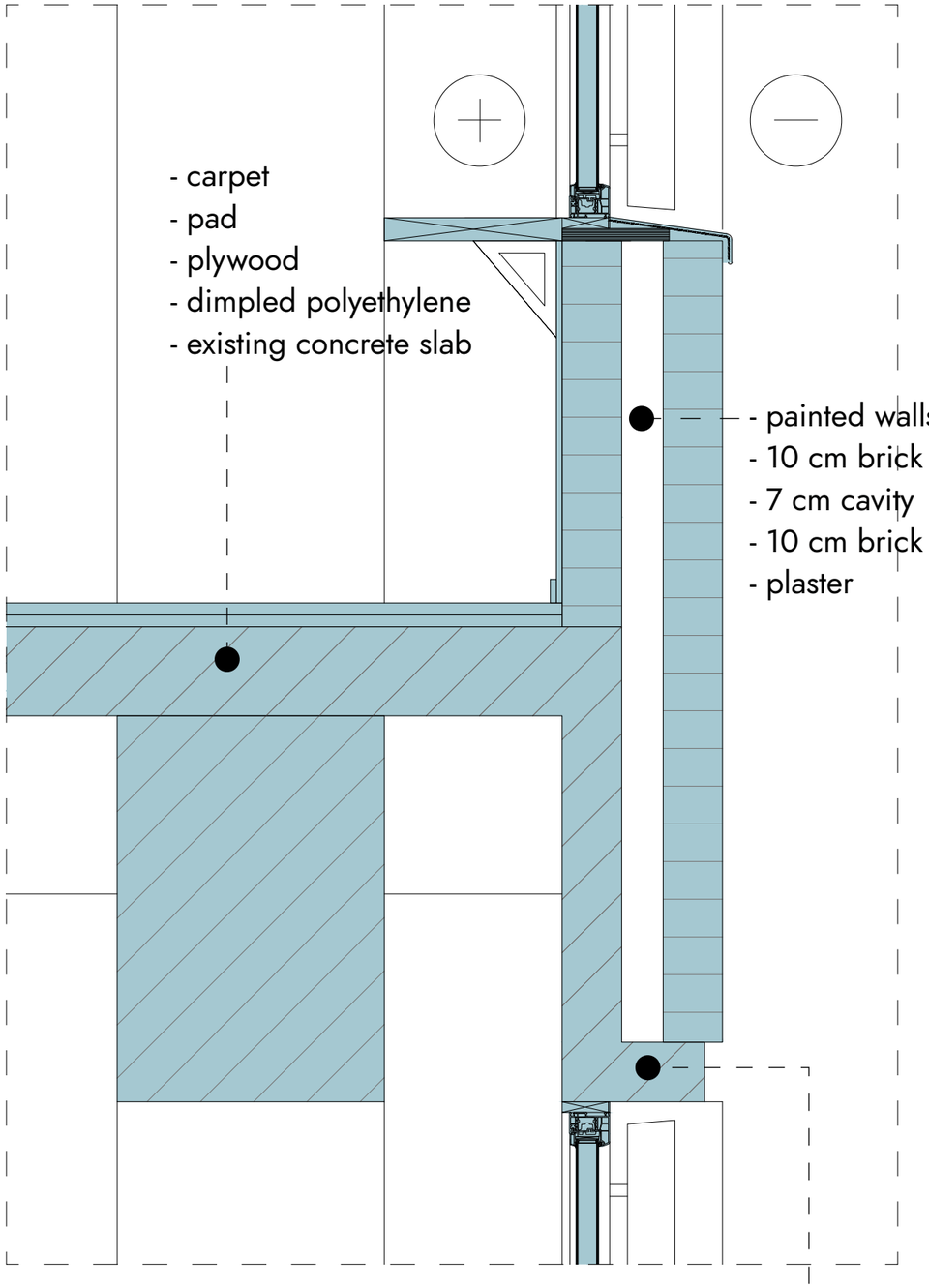



**FACADE SECTION PROPOSAL 1:60**

existing
new

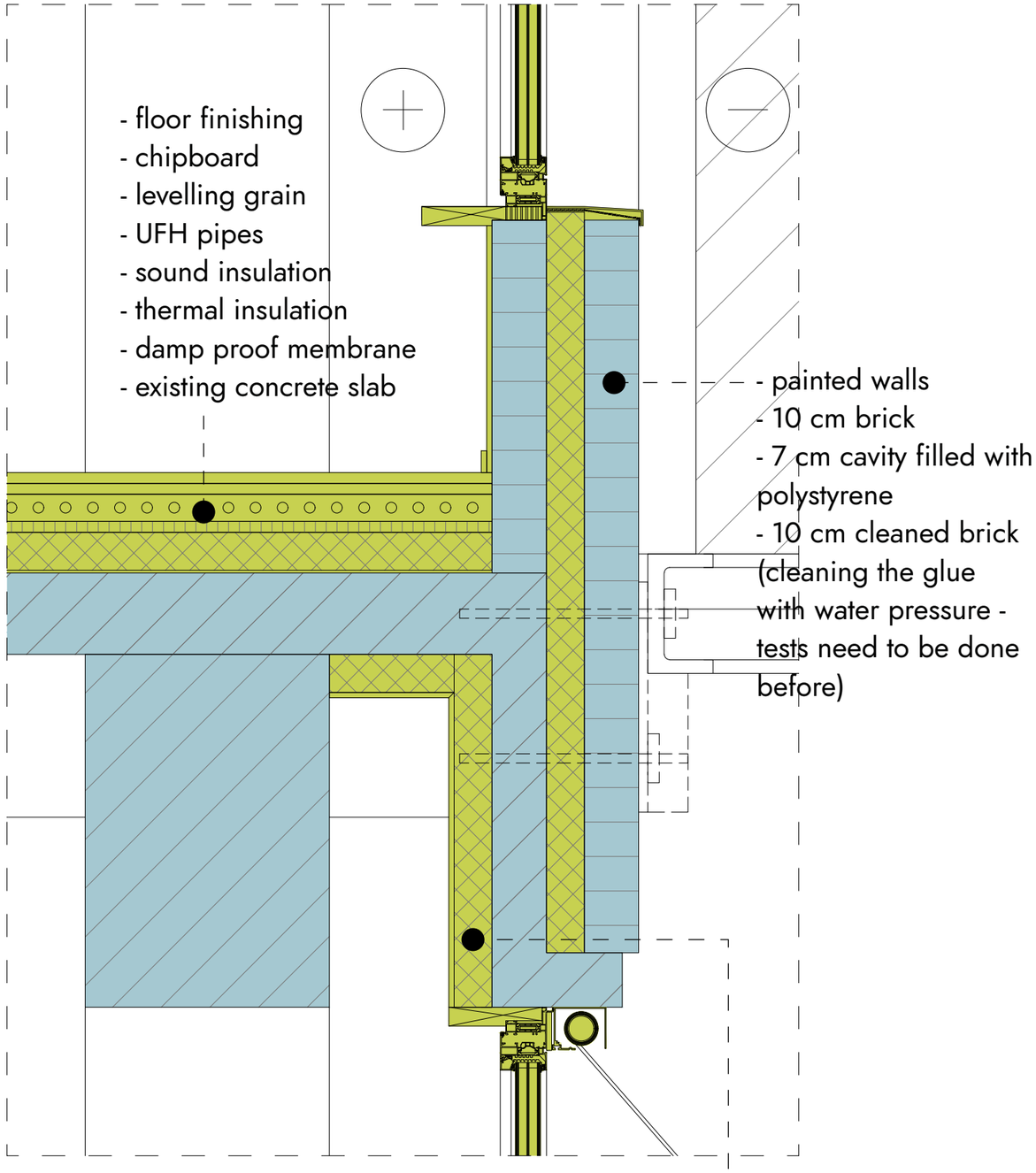
# 01 DETAIL. FLOORS AND EXTERIOR WALLS




## EXISTING FLOOR DETAIL 1:10

Concrete elements supporting bricks above

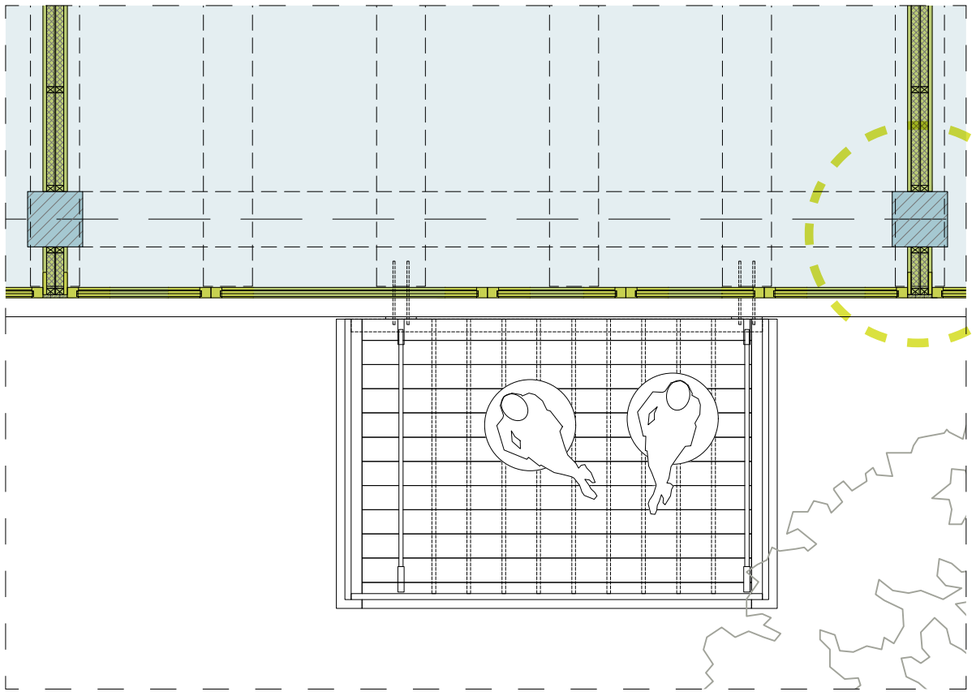
MIN Height in the apartments: 2.8 m
CRITICAL Height floor to beam 2.2 m



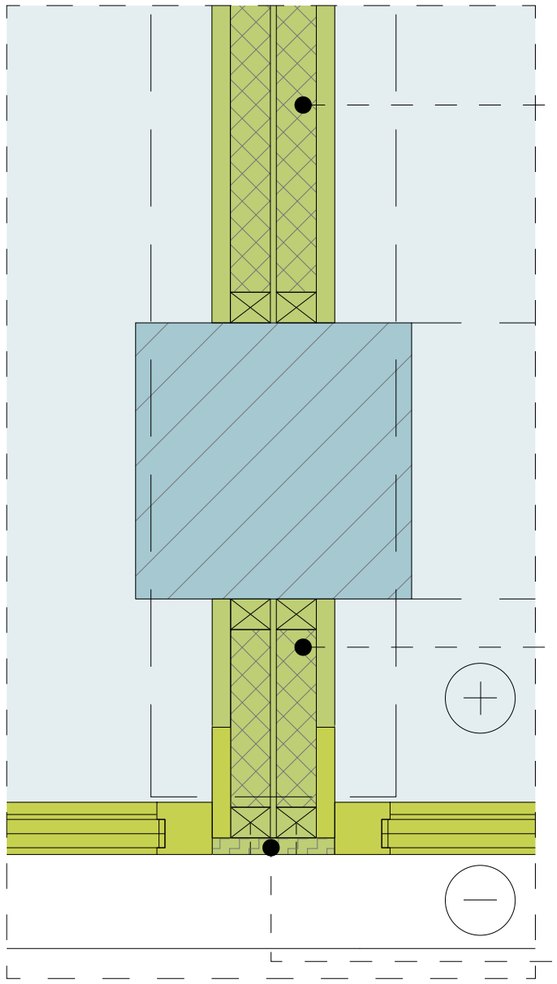

## PROPOSAL FLOOR DETAIL 1:10

Additional thermal insulation on inside.
Prefabricated elements. Mounted on site.

# 02 DETAIL. INNER WALLS



**PROPOSAL BALCONY 1:50**



**“Circuwall” frame**
(Velux windows dimensions)

- Recycled “Velux” frames
- Recycled mattresses (sound insulation)
- Pressure treated fire retardant plywood

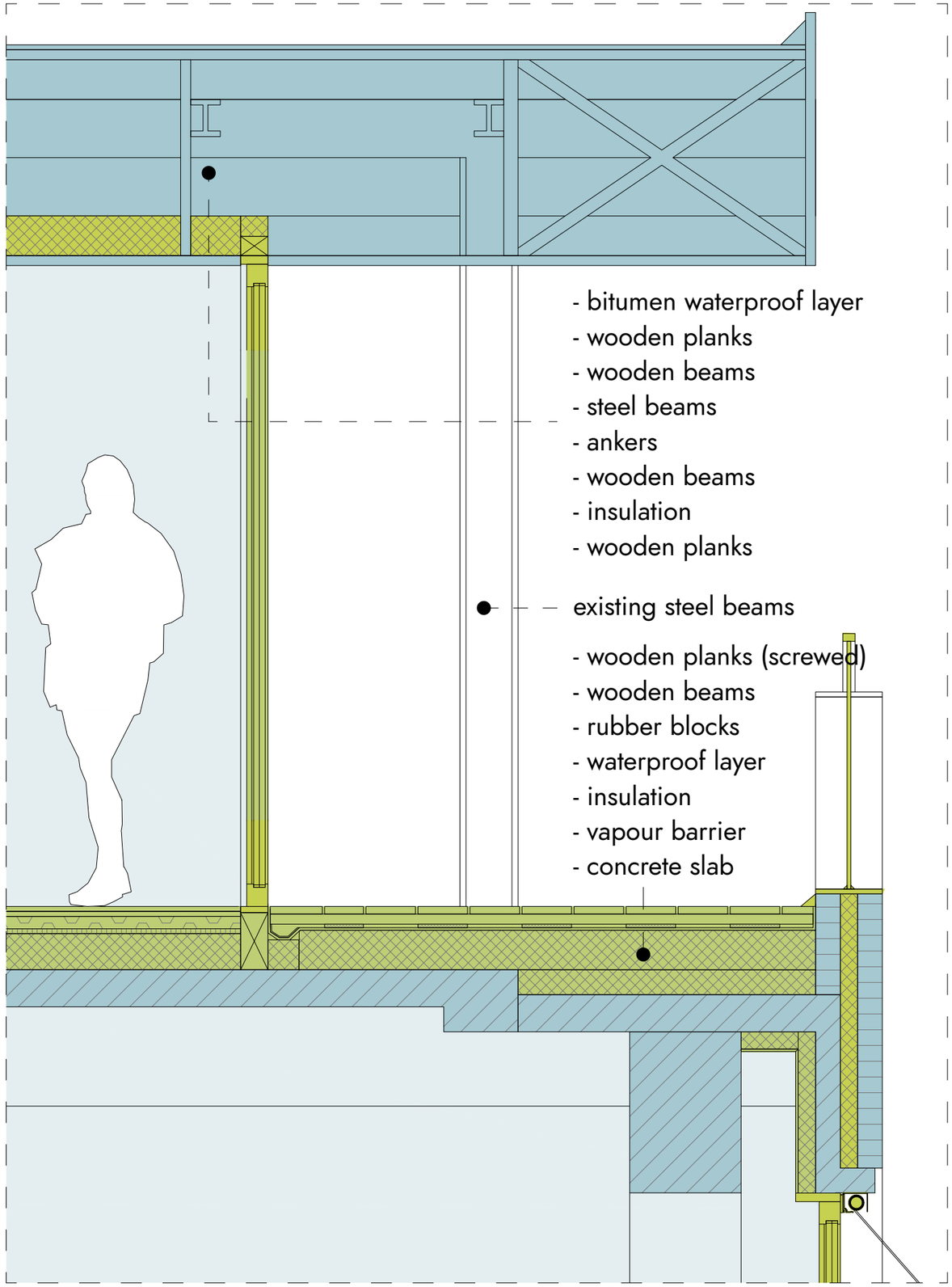
**Wooden frame and recycled mattress insulation**

**Exterior wall cover:**
- Aluminium plate

**PROPOSAL INNER WALL DETAIL 1:10**

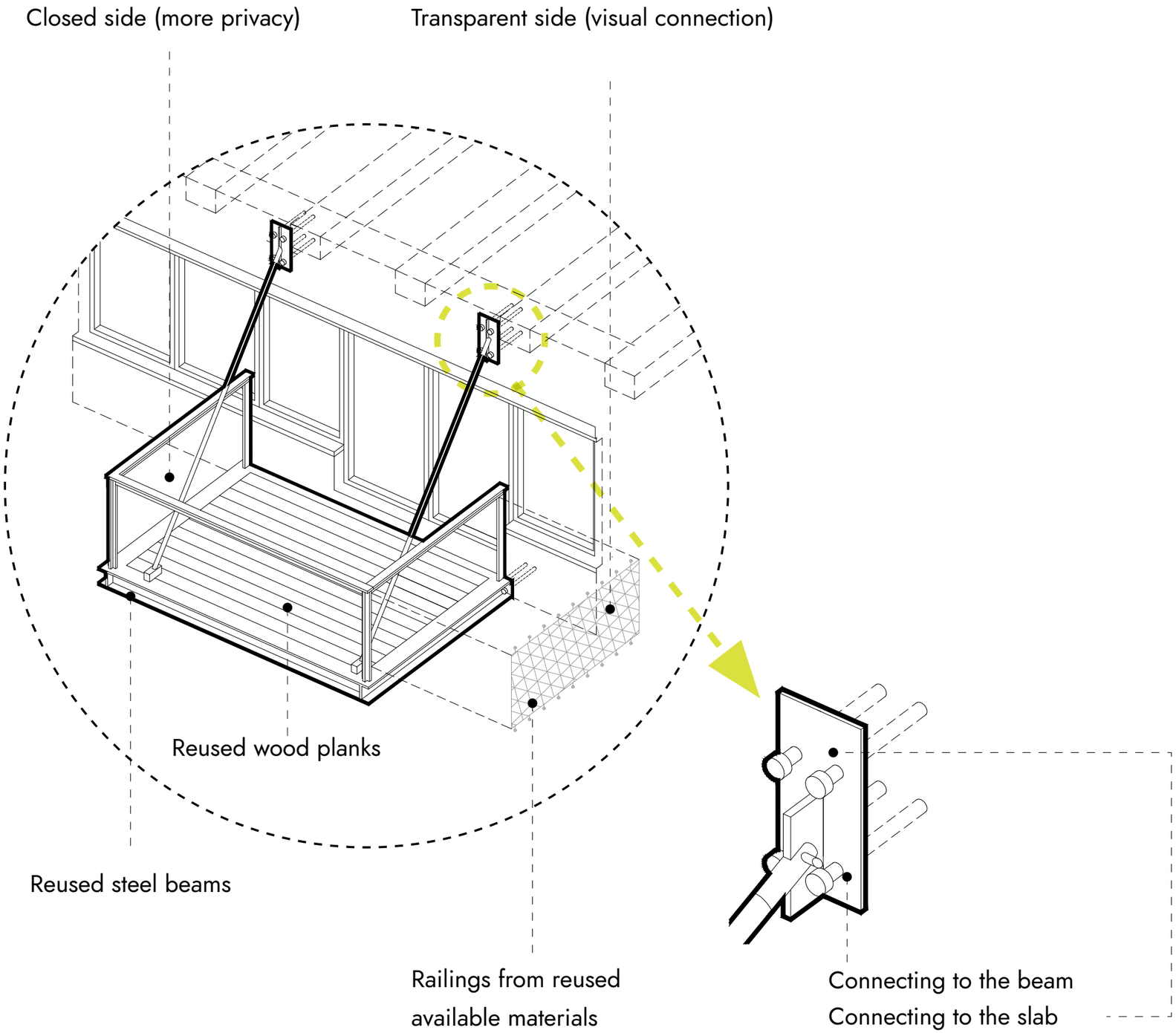
# 03 DETAIL. ROOF

PROPOSAL STREET FACADE 1:60

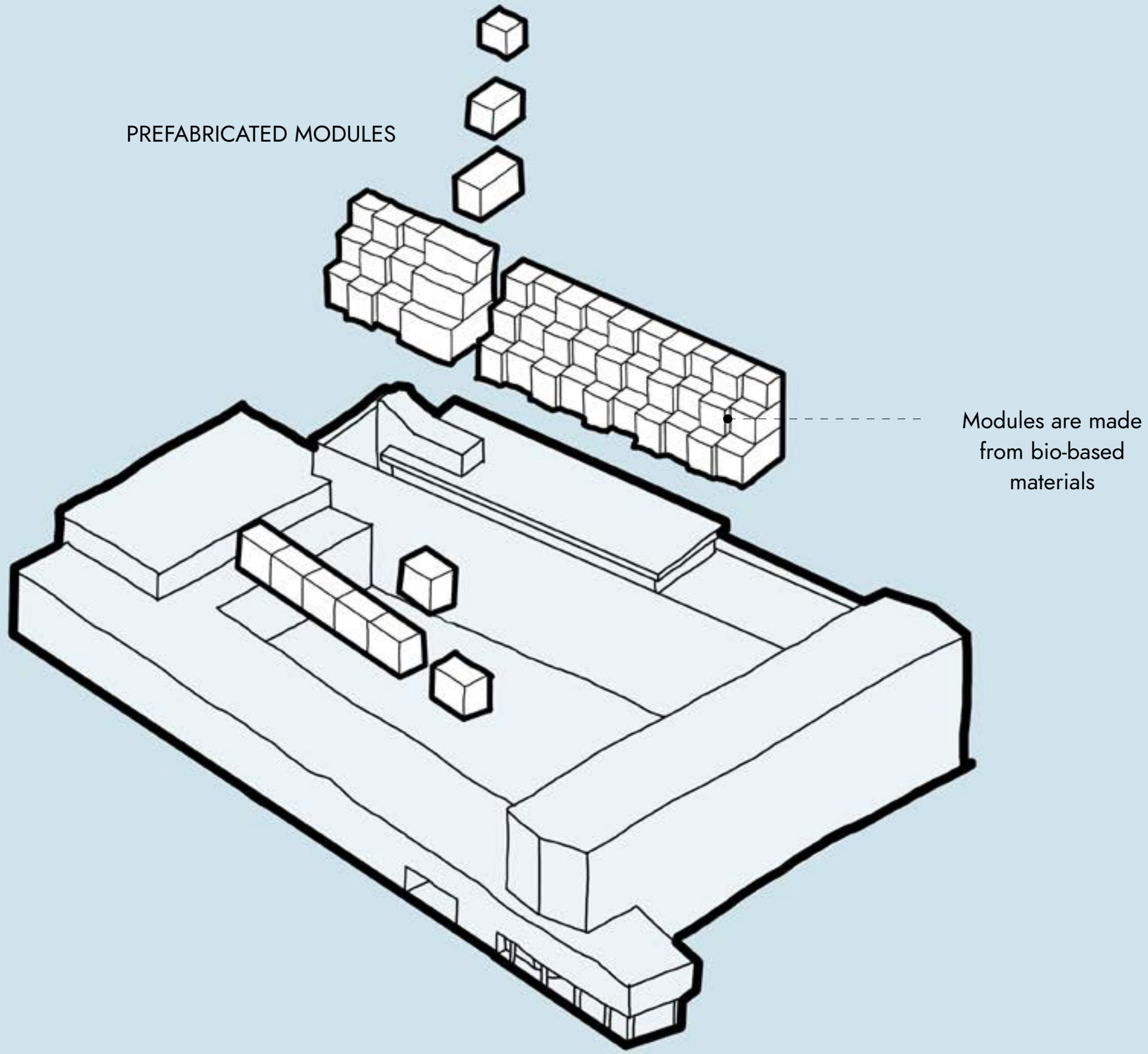



PROPOSAL TOP FLOOR 1:20

# 04 DETAIL. BALCONY



# BIO-BASED ADDITIONS



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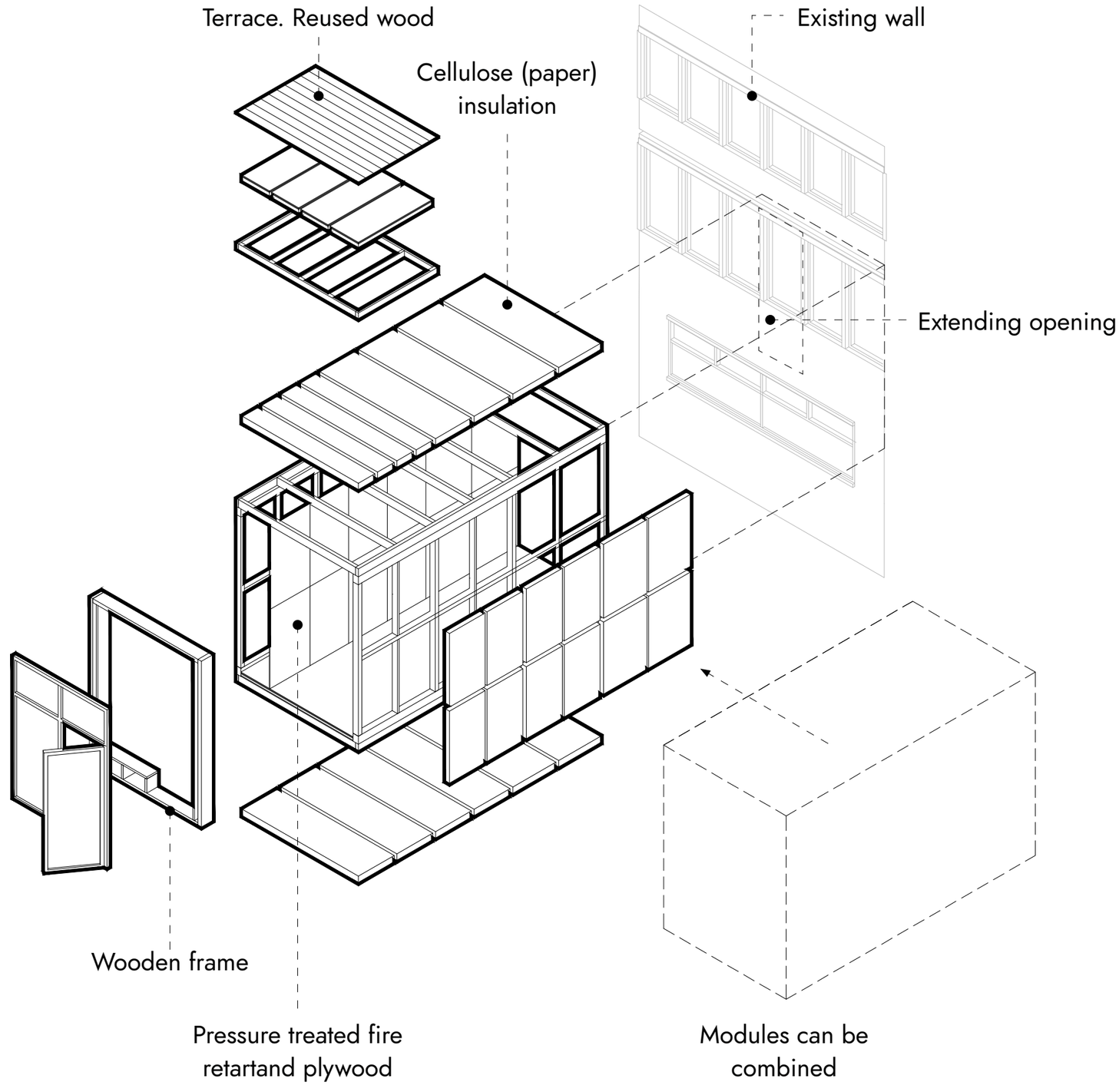

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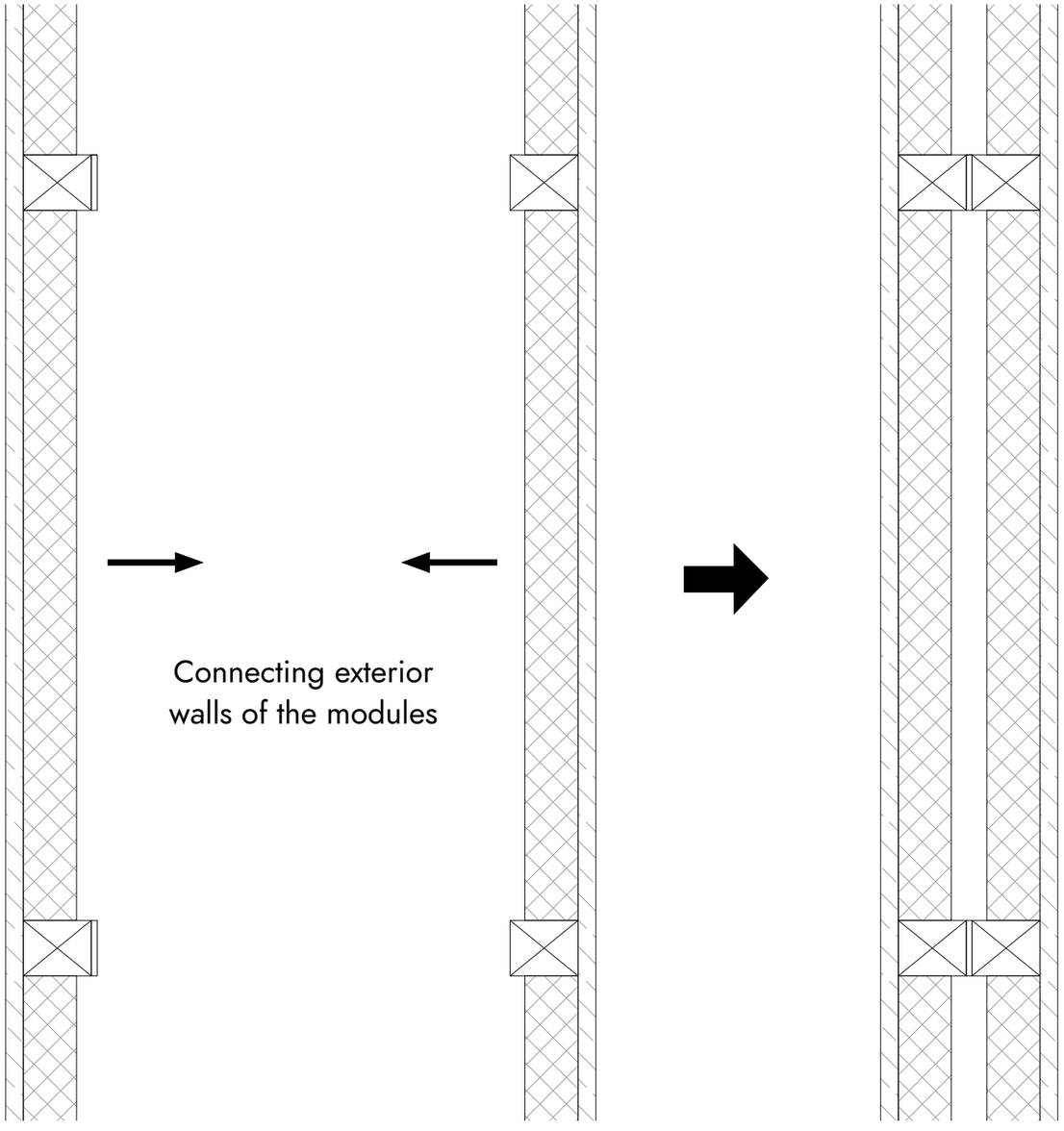
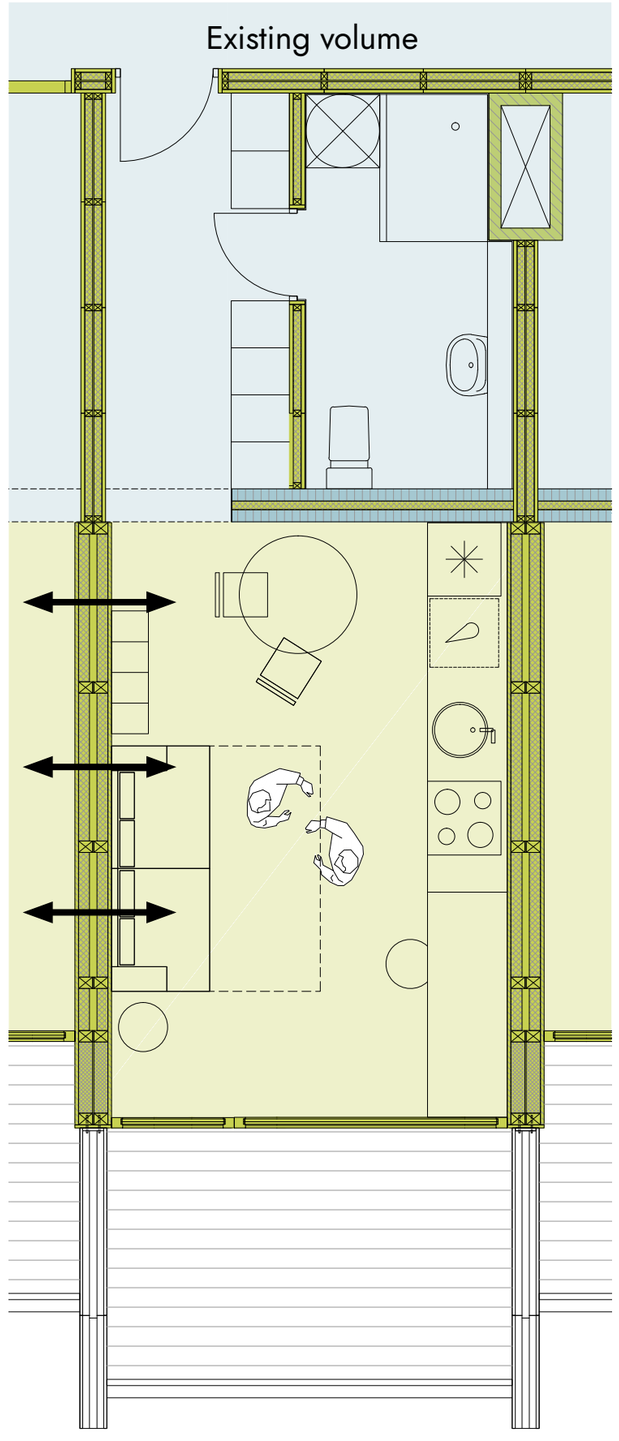


Connecting exterior
walls of the modules

Connected walls with a
gap in between

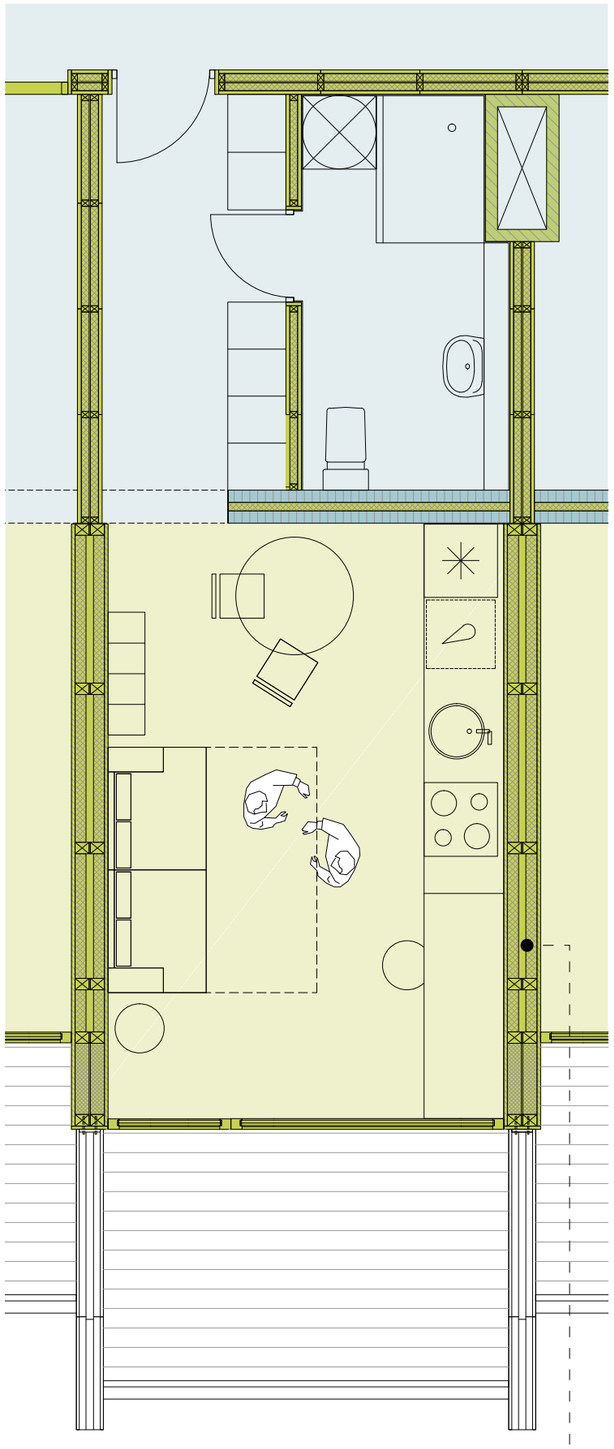
## WALLS OF THE MODULES 1:10




There is a possibility to combine
different units by removing
finishing layers and insulation
panels of the modules

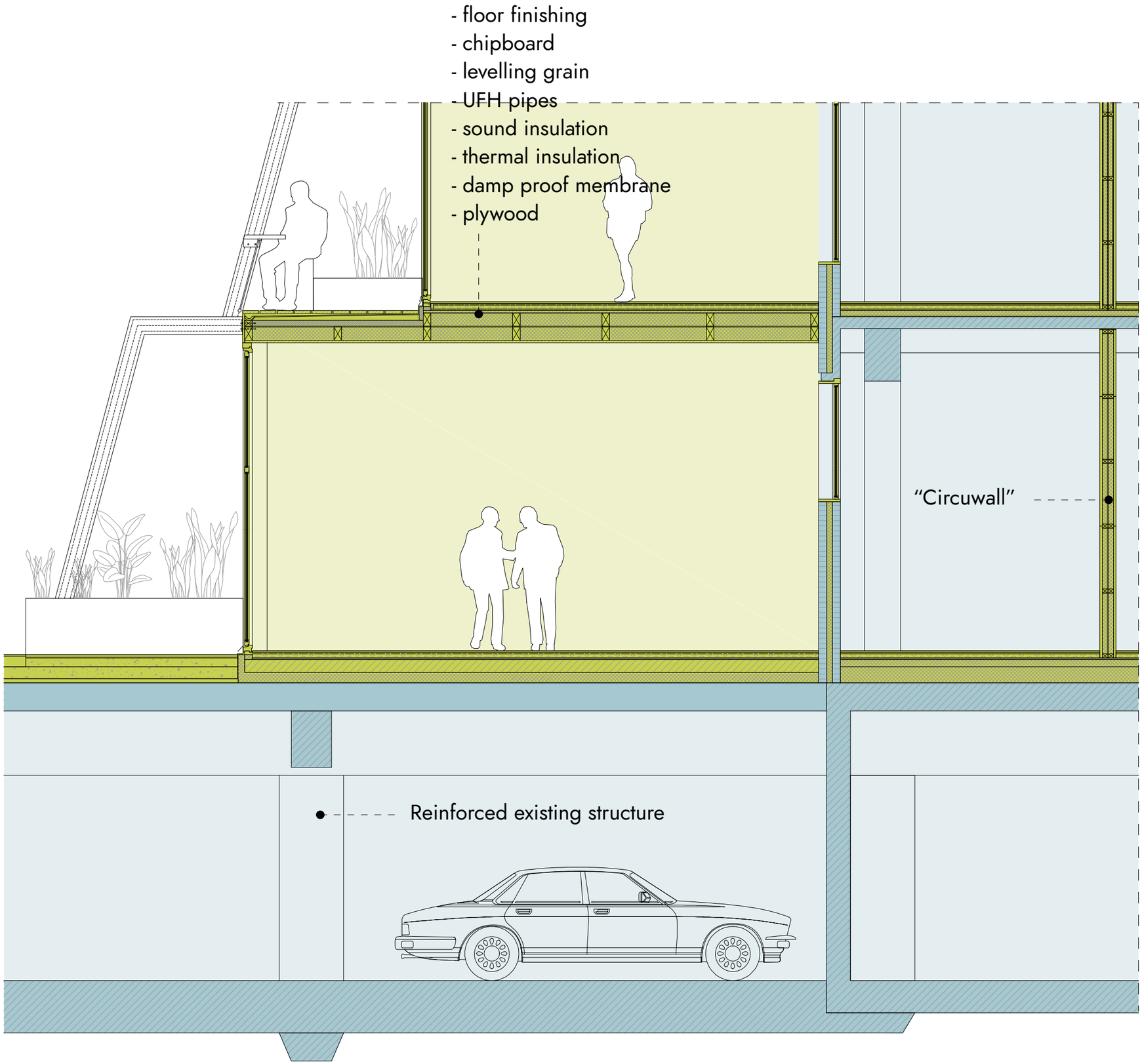
## FLOORPLAN 1:50

# BIO-BASED ADDITIONS



**FLOORPLAN 1:50**

Different modules attached to each other



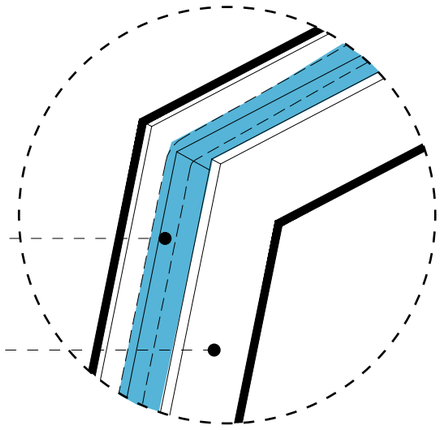

**SECTION 1:50**

# DETAILING OF ADDITIONS

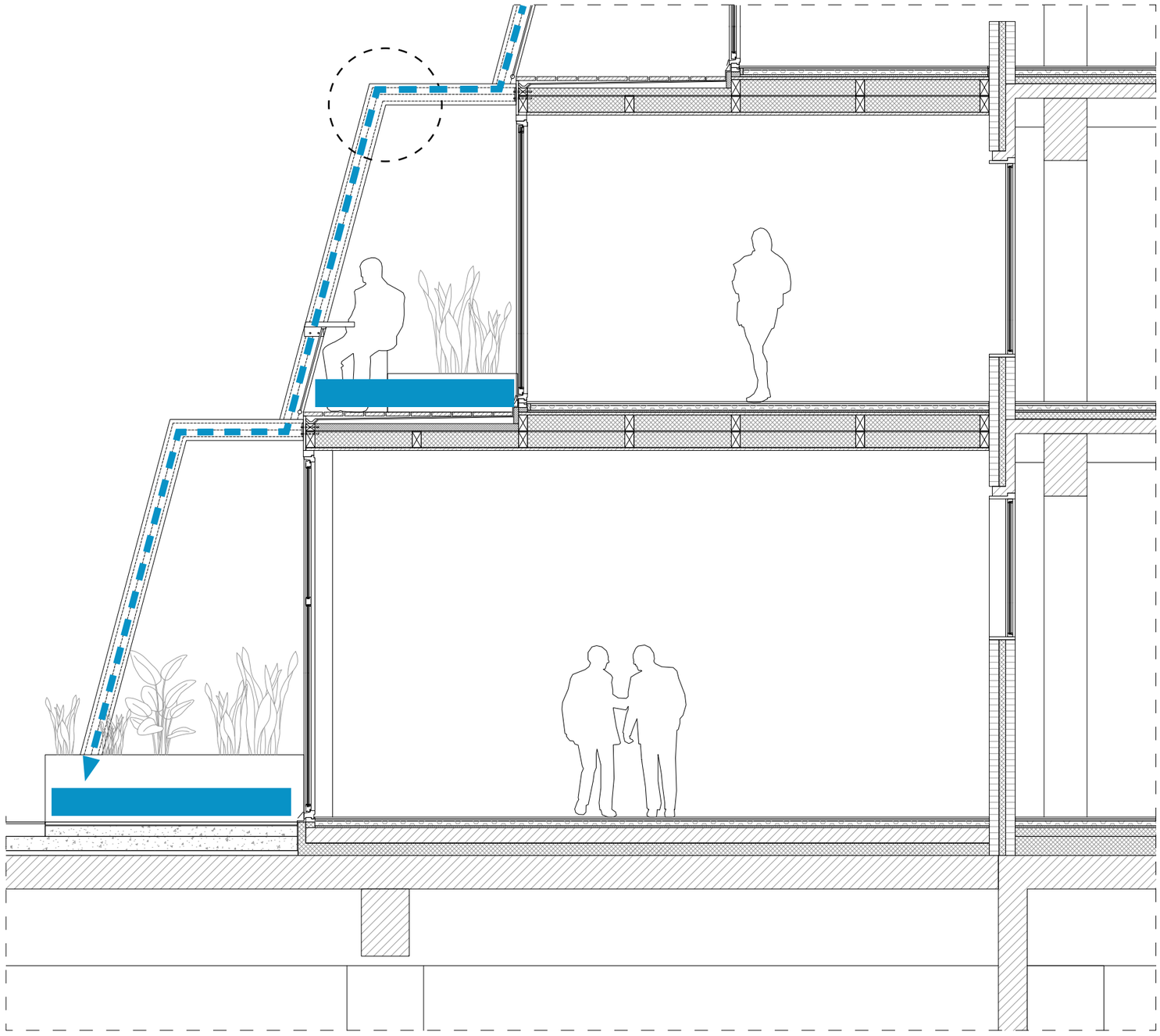
**REUSED**
Steel beams
(from Den Haag Police station)

Rain gutter

Reused H Profile
steel beam

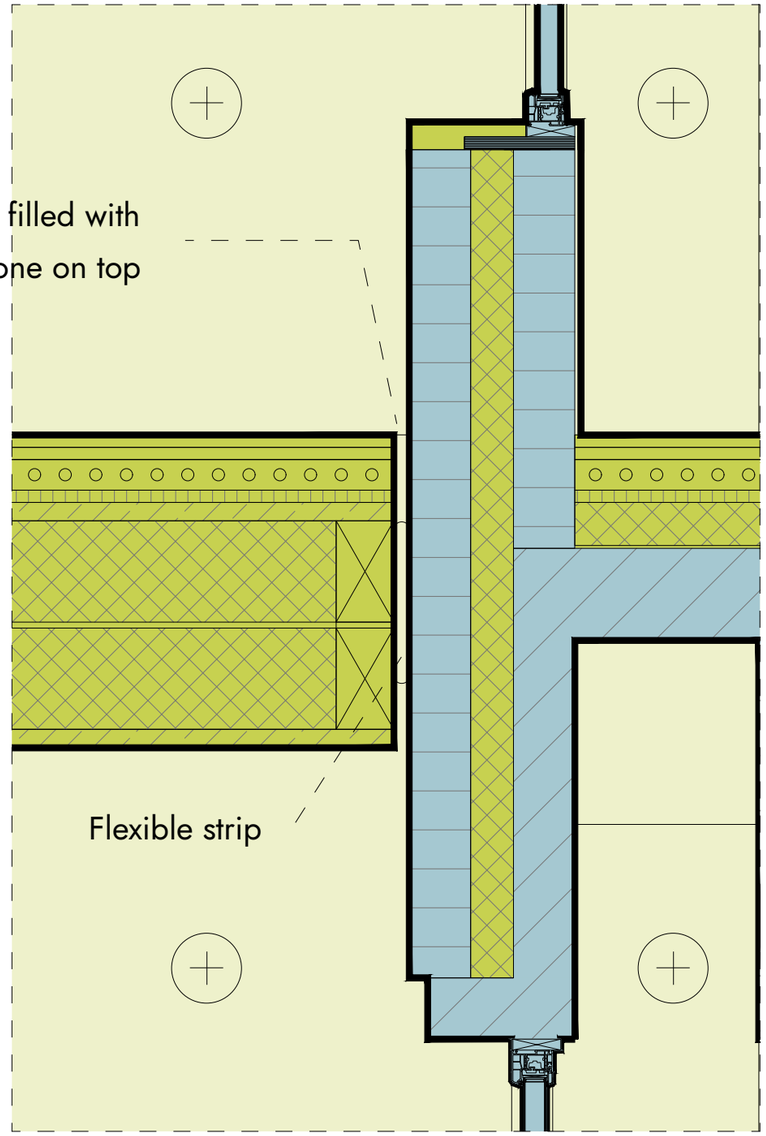


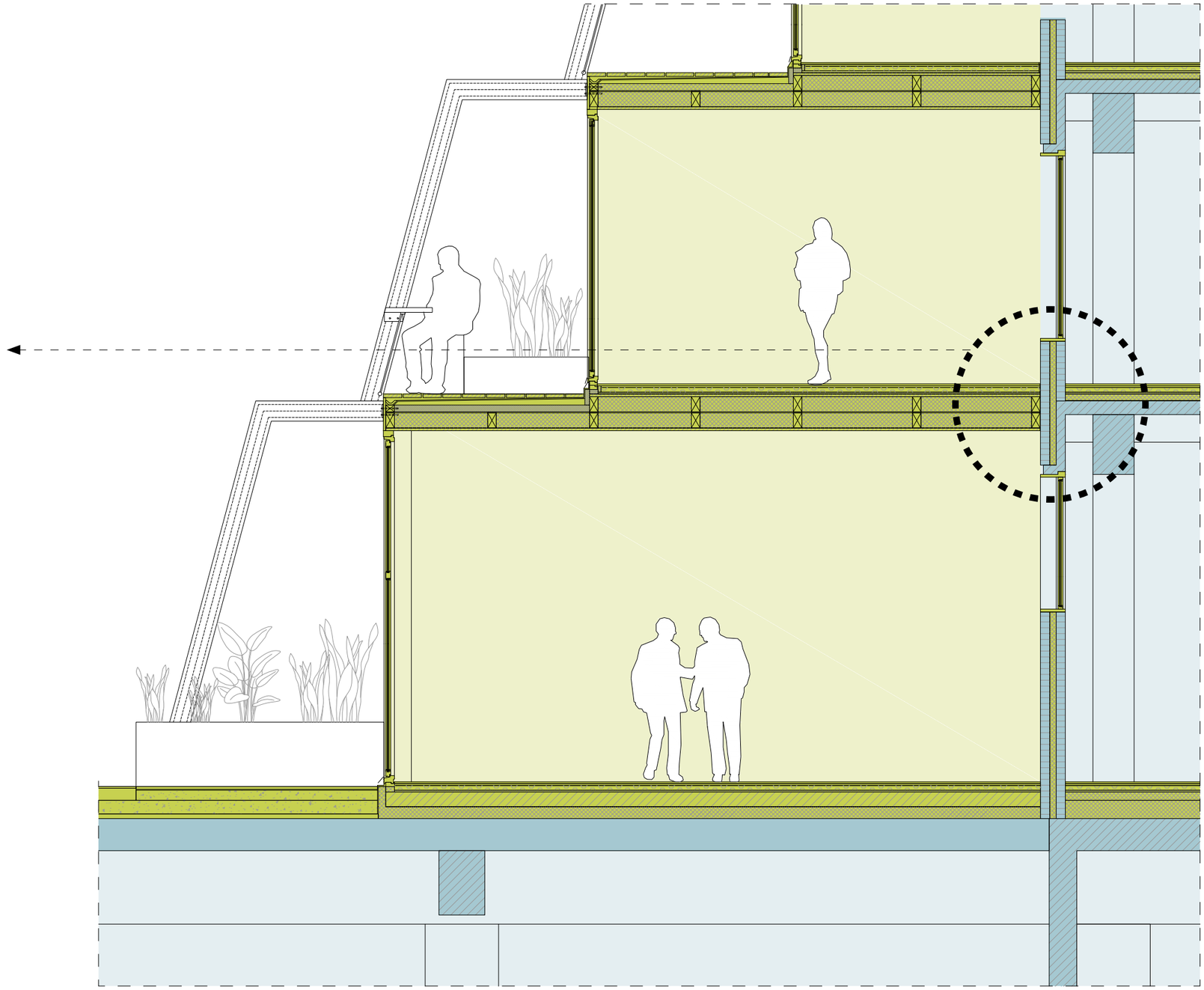
**RAINWATER**



**SECTION 1:50**

# DETAILING OF ADDITIONS

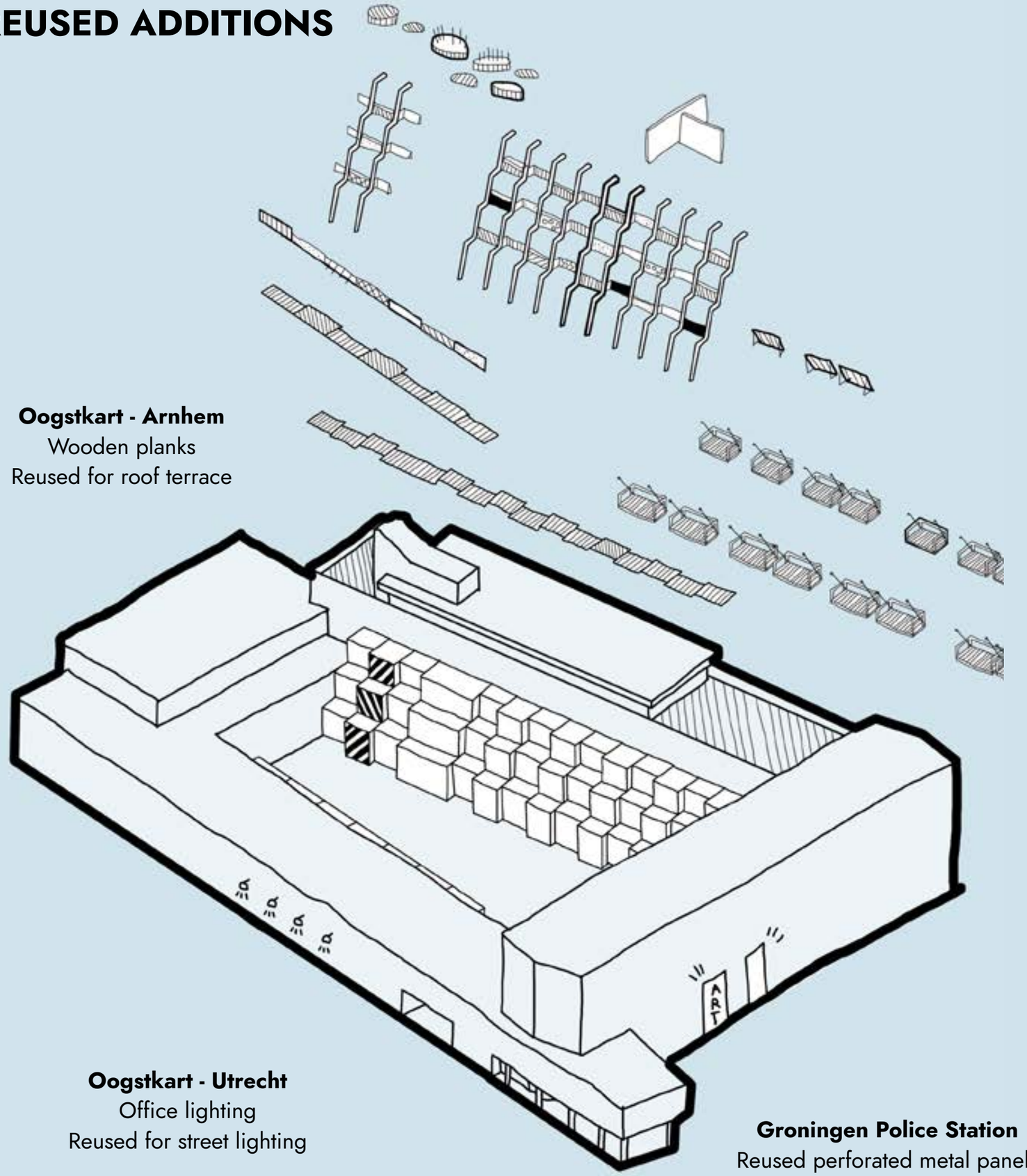


**CONNECTION DETAIL 1:10**

**SECTION 1:50**

# REUSED ADDITIONS



**Oogstkart - Arnhem**
Wooden planks
Reused for roof terrace

**Oogstkart - Utrecht**
Office lighting
Reused for street lighting

**Groningen Police Station**
Reused perforated metal panels

**HUIS ‘t VELDE WARNSVELD**
Wooden planks
Reused for facade cladding

**HUIS ‘t VELDE WARNSVELD**
Wooden planks
Reused for facade cladding

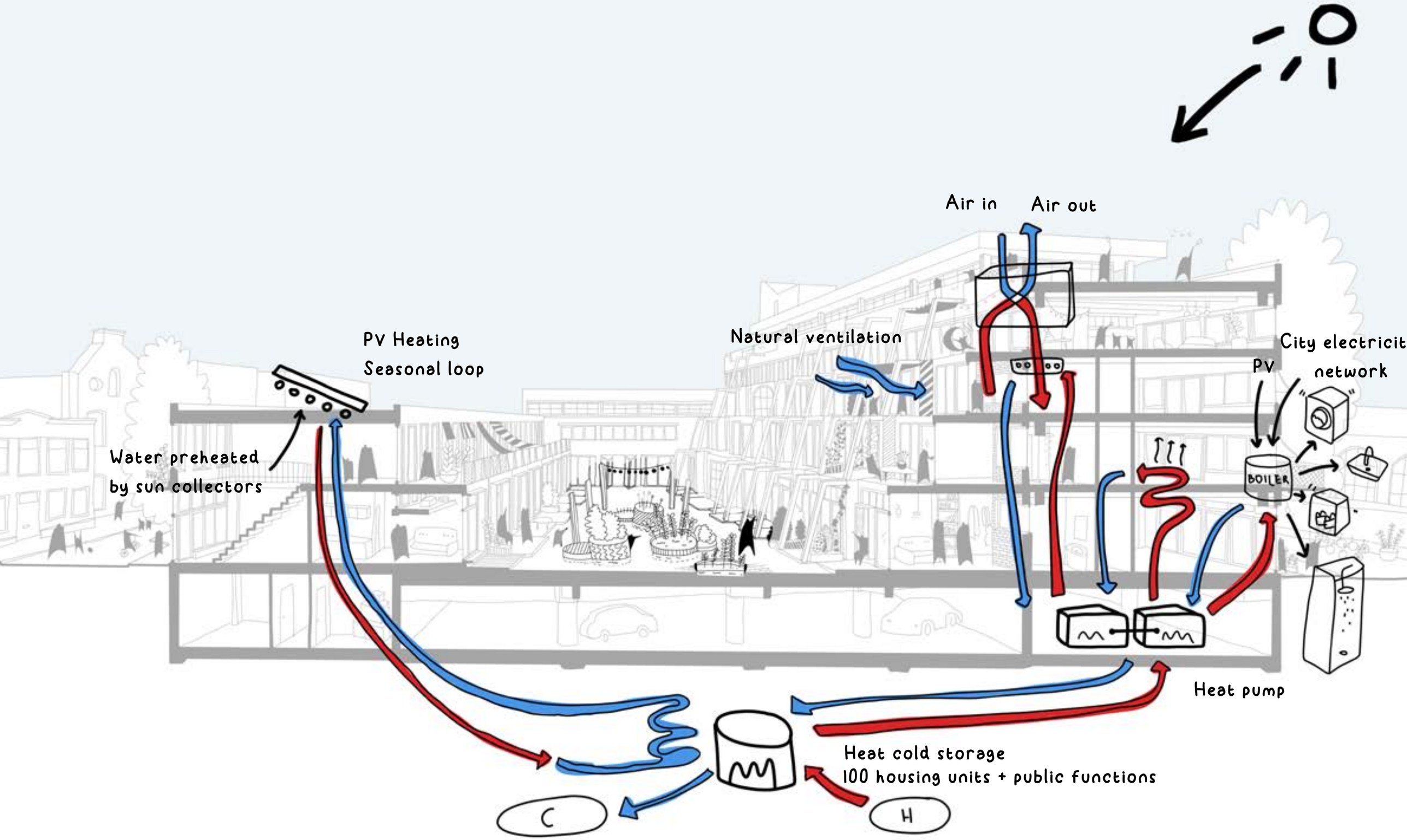
**EINDHOVEN POLICE STATION**
Steel railings
Reused for balconies

**HAARLEM POLICE STATION**
Aluminium cladding
Reused for facade cladding

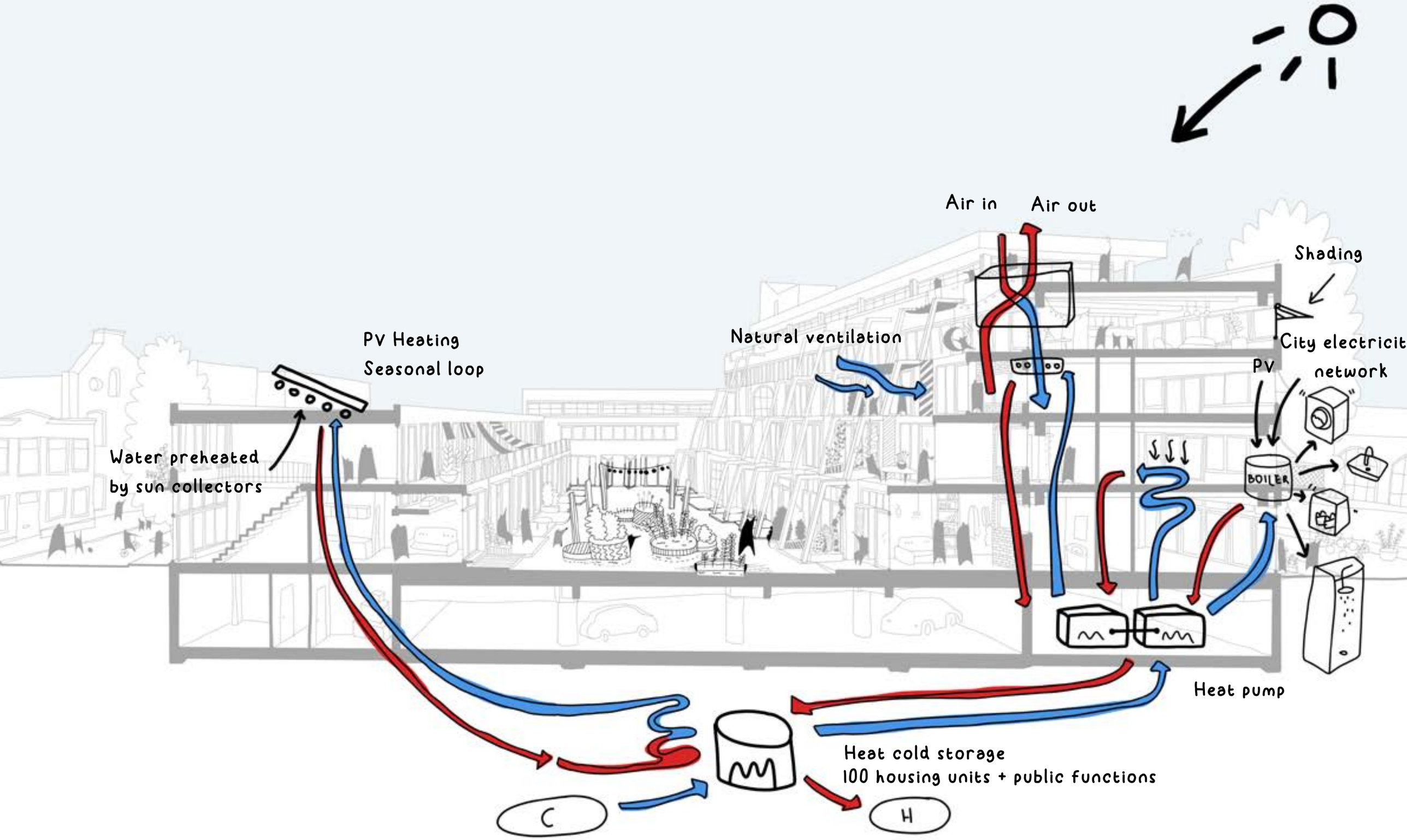
**DEN HAAG POLICE STATION**
Steel beams

# SECTION

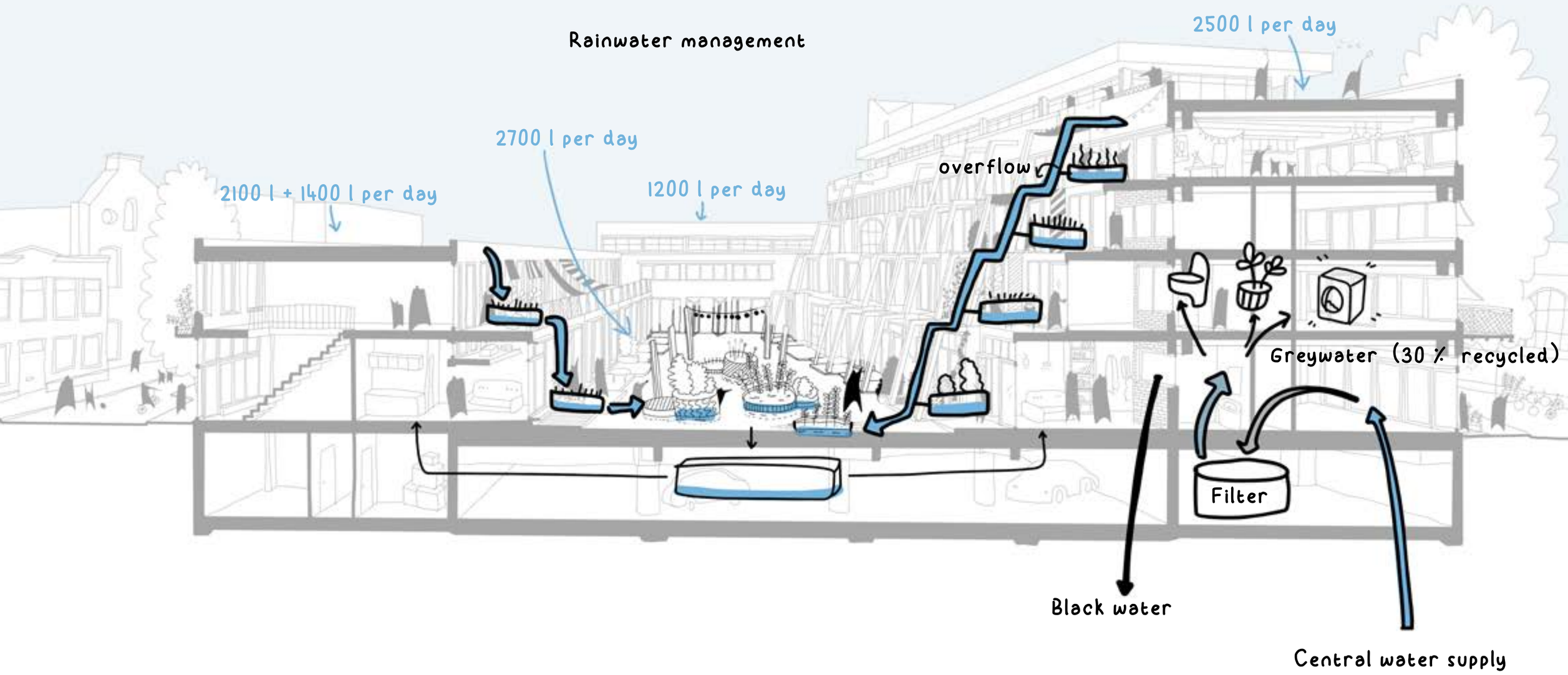
# CLIMATE DESIGN. WINTER



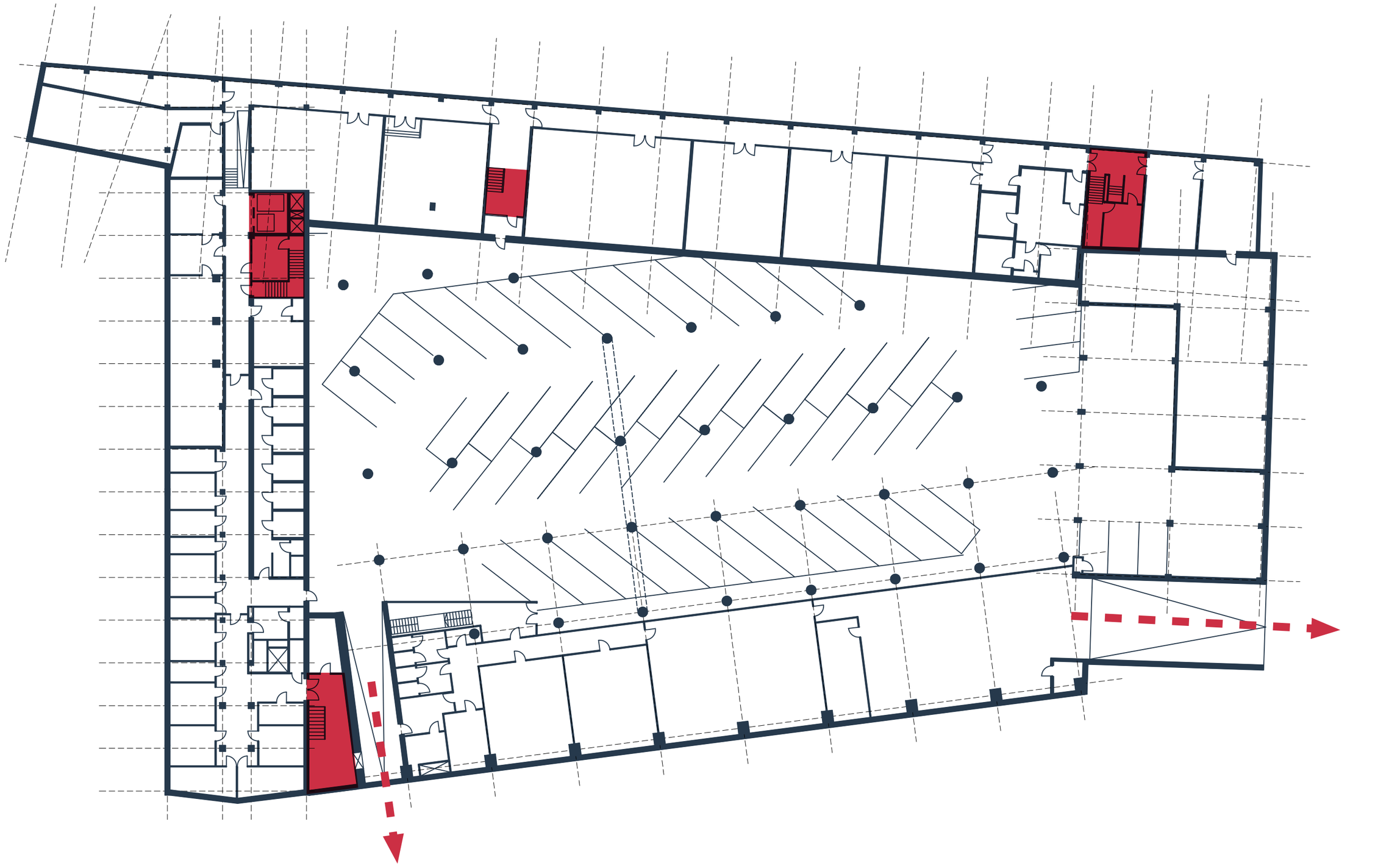
# CLIMATE DESIGN. SUMMER



# RAINWATER AND GREYWATER MANAGEMENT

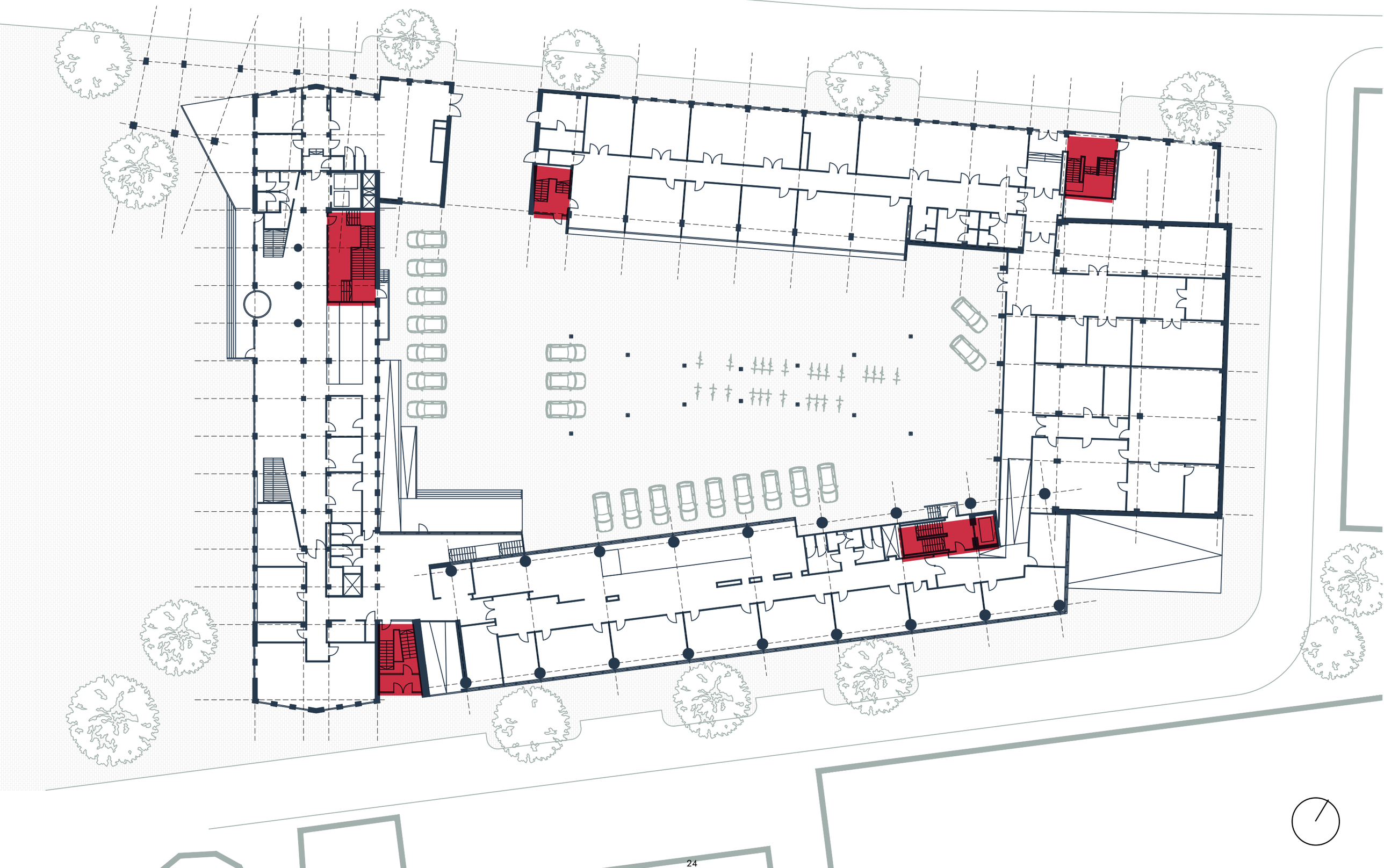


# -01 FLOOR EXISTING

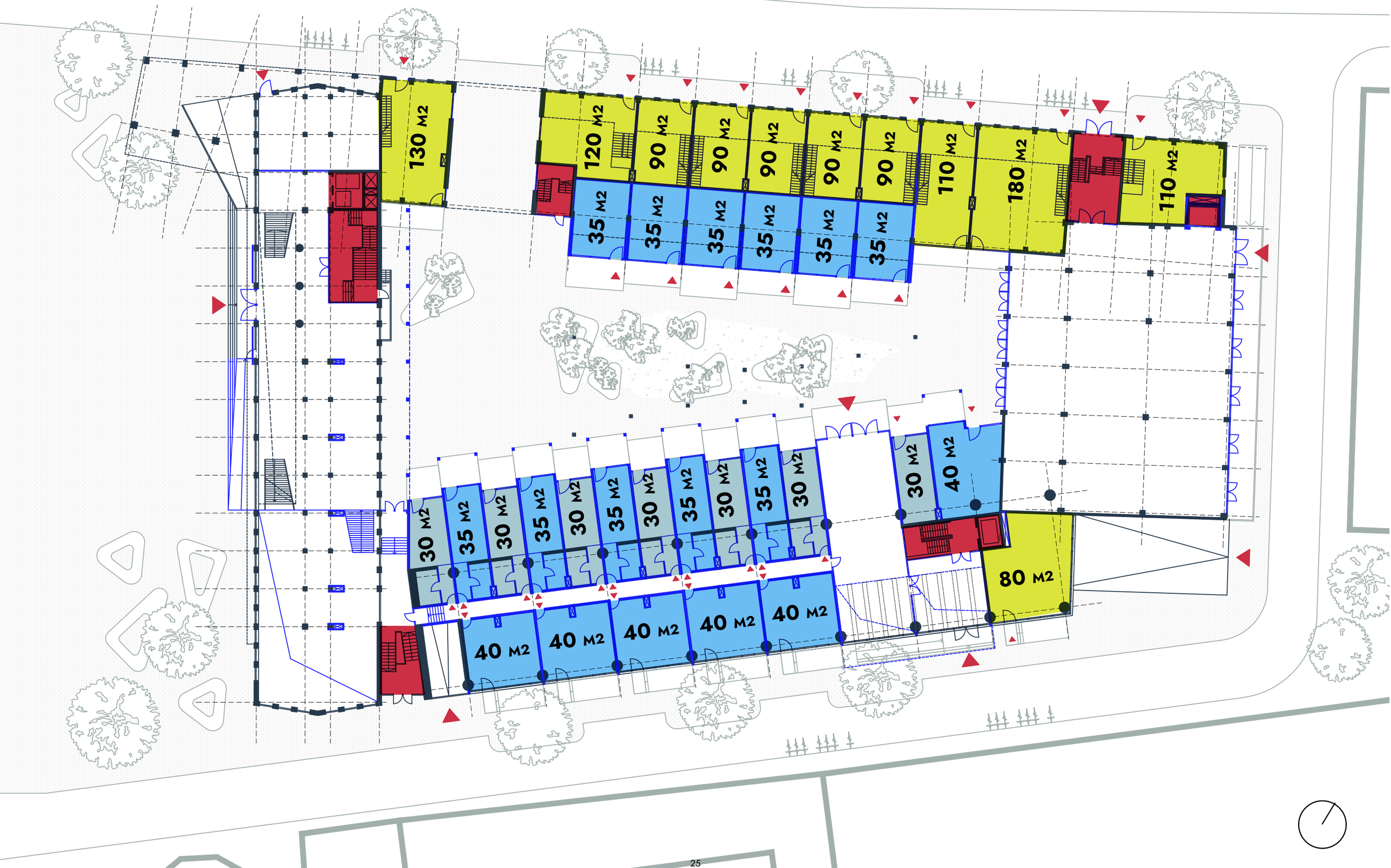


# -01 FLOOR PROPOSAL

# 00 FLOOR EXISTING



# 00 FLOOR PROPOSAL



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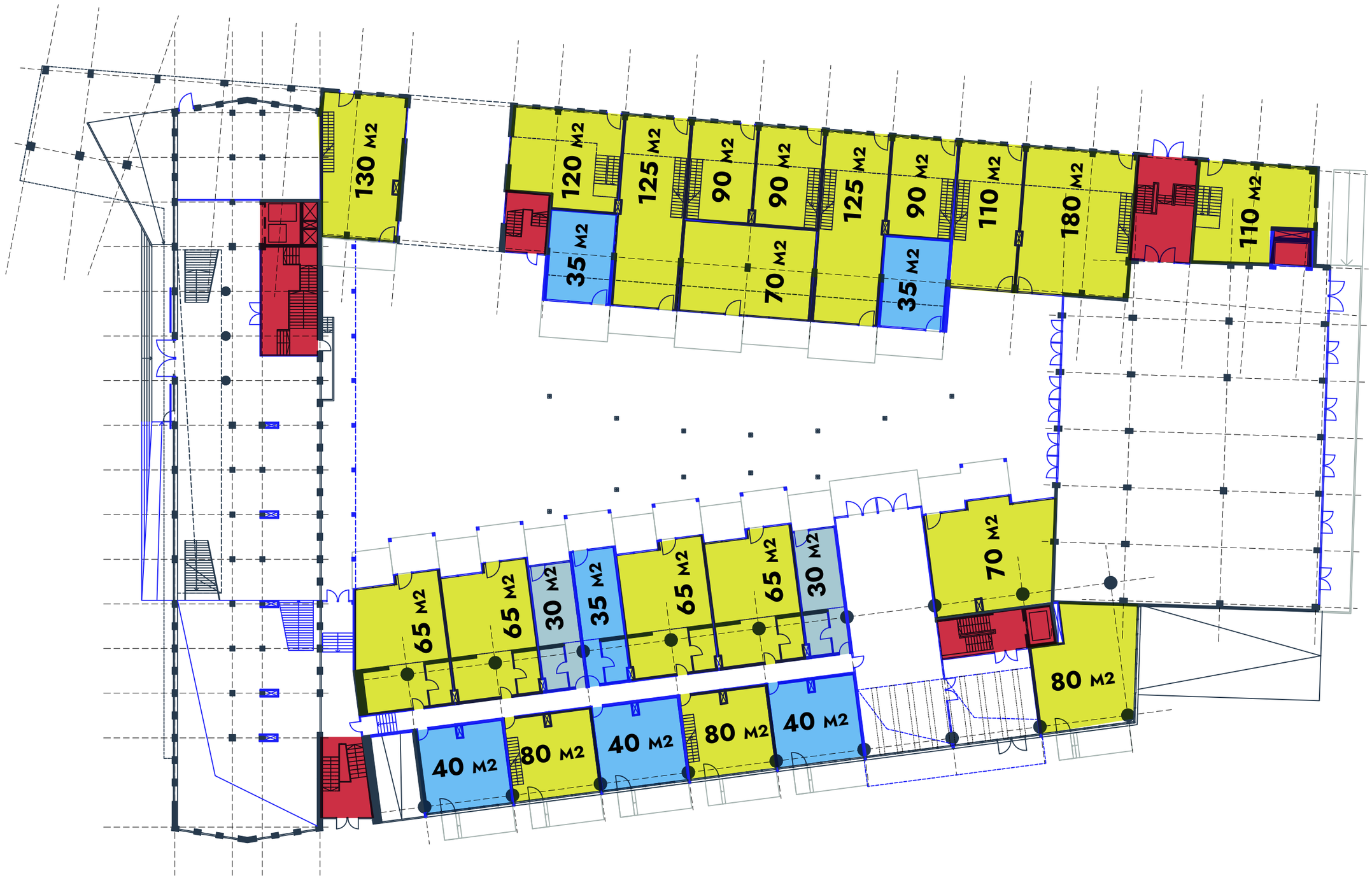
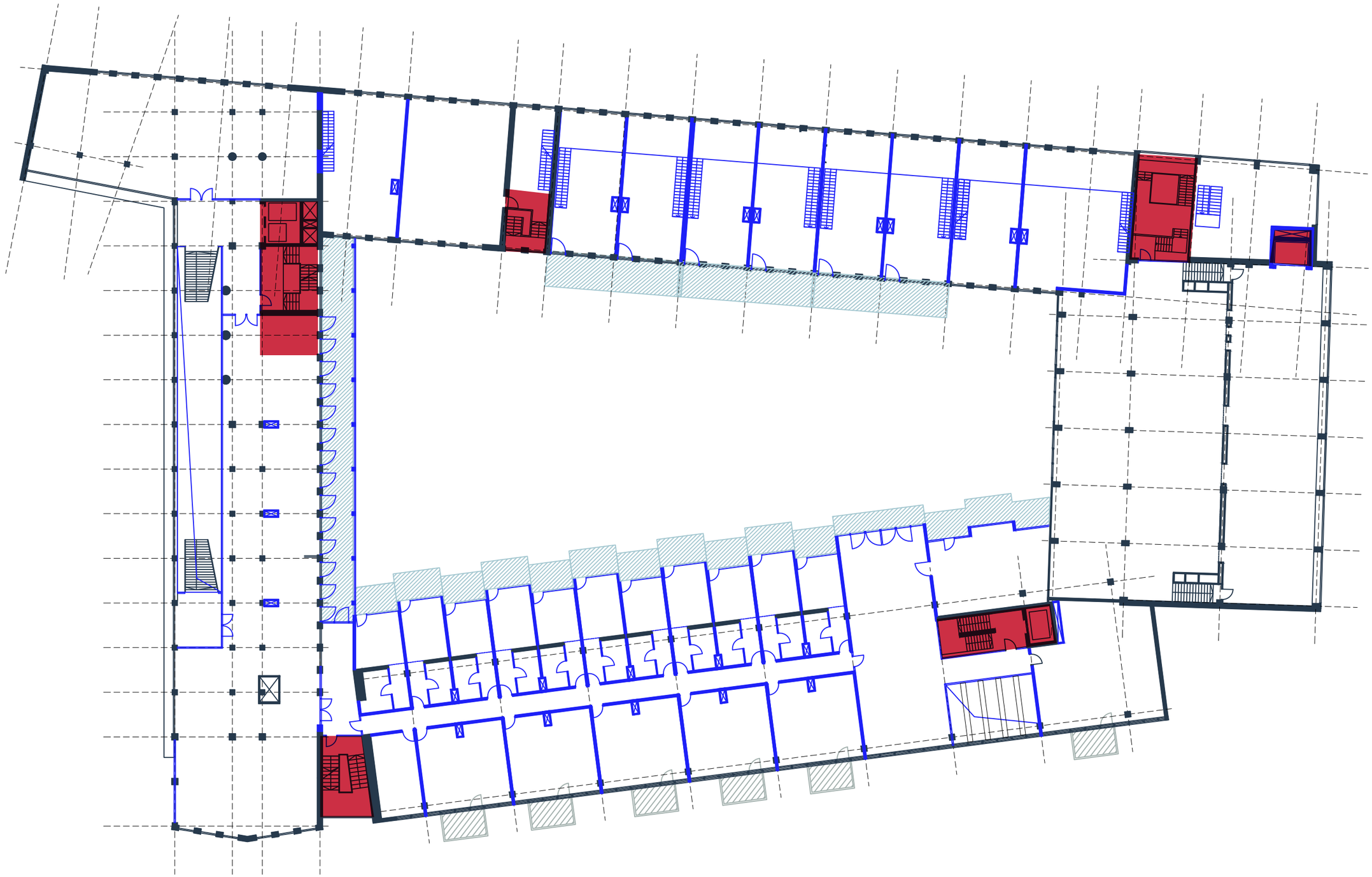


# 01 FLOOR EXISTING

# 01 FLOOR PROPOSAL



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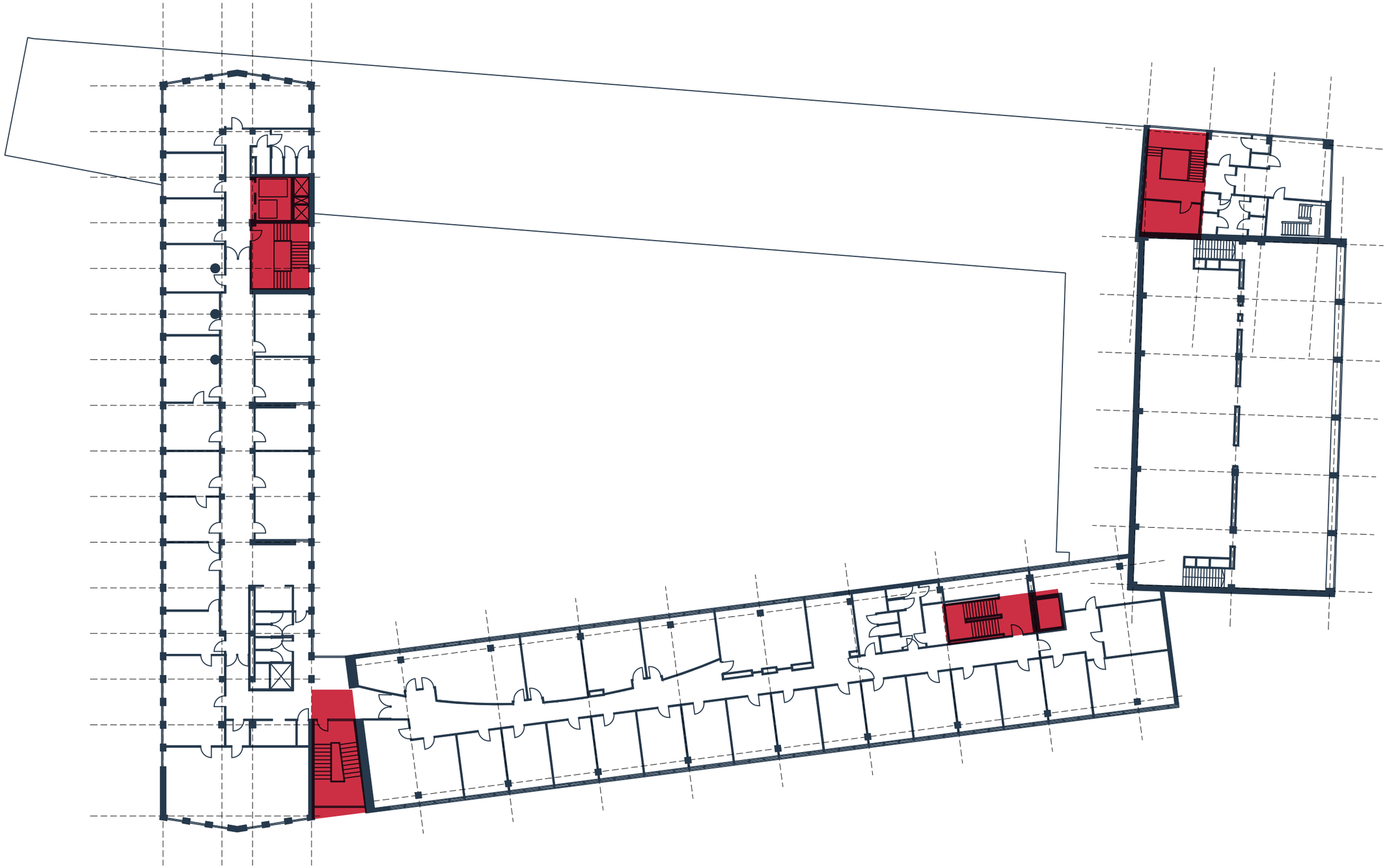

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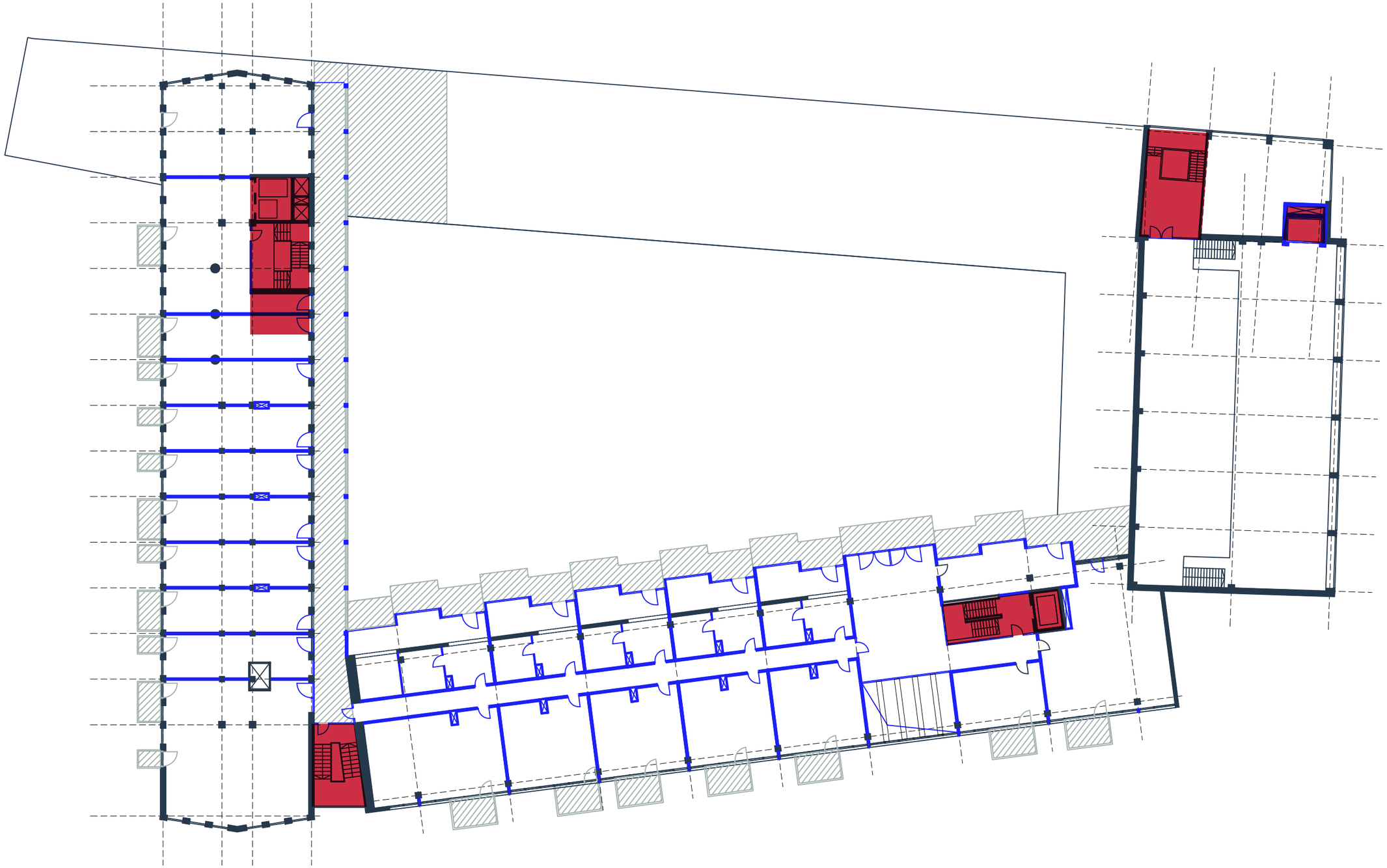
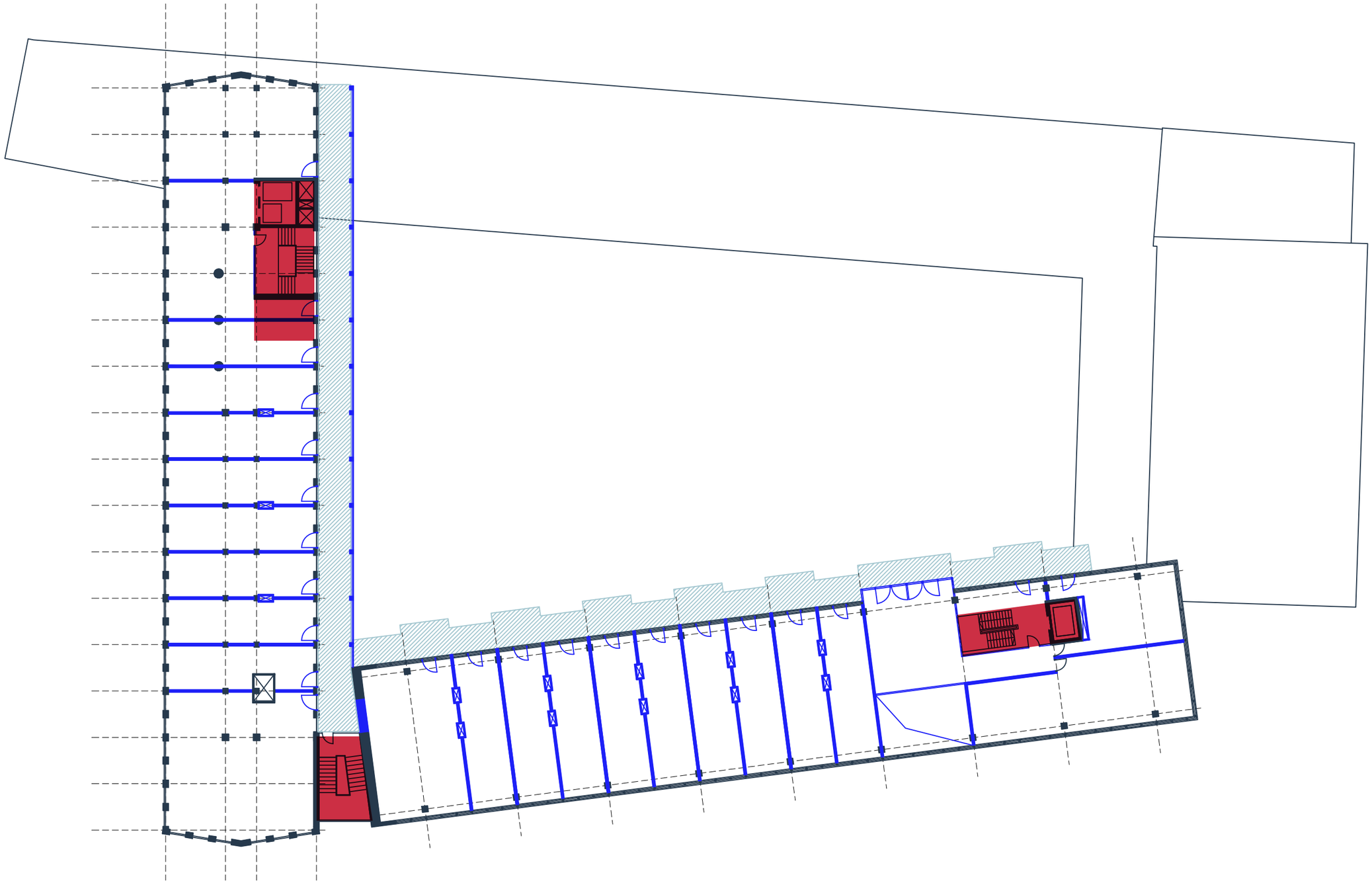


# 03 FLOOR EXISTING

# 03 FLOOR PROPOSAL



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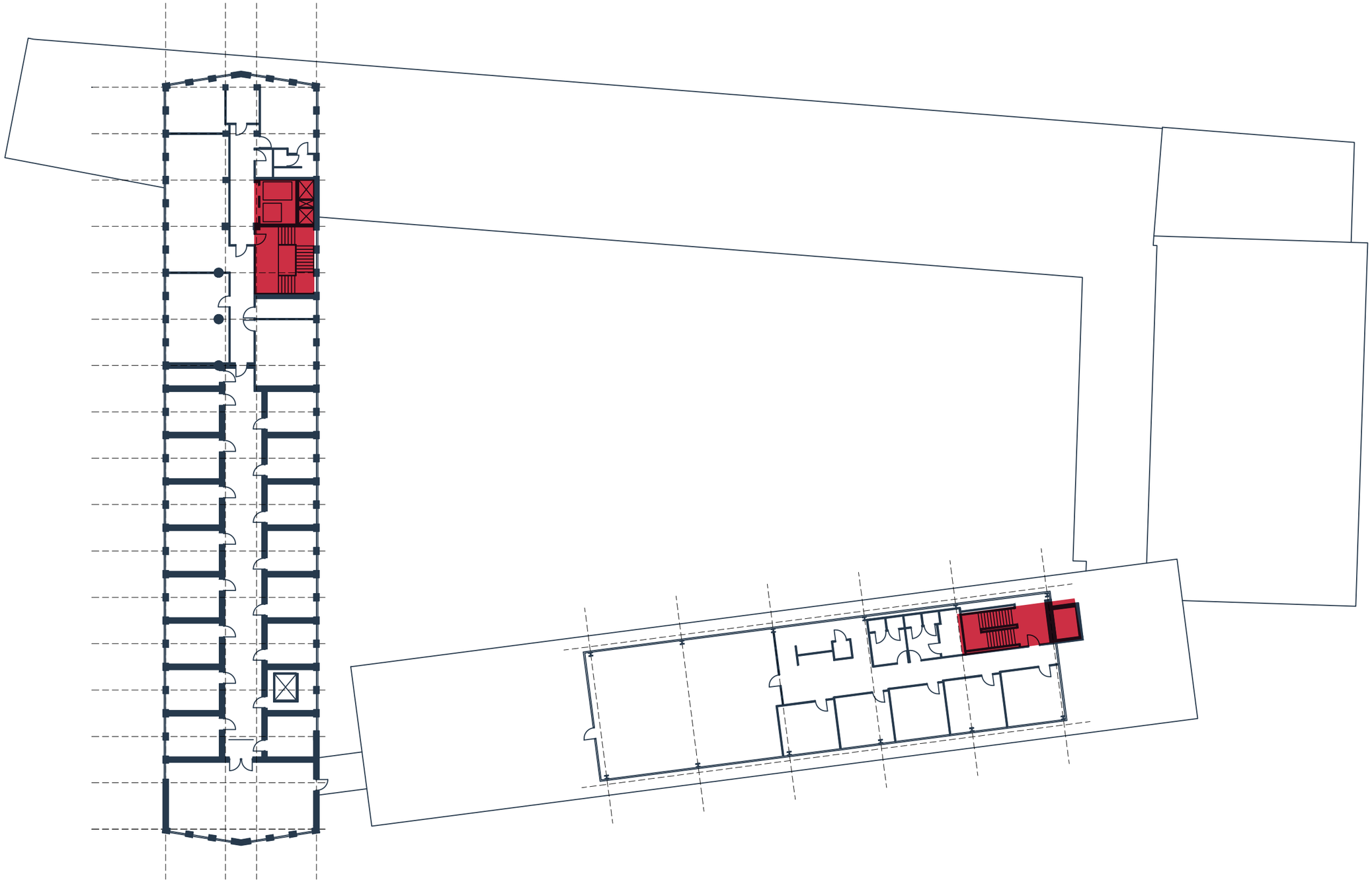
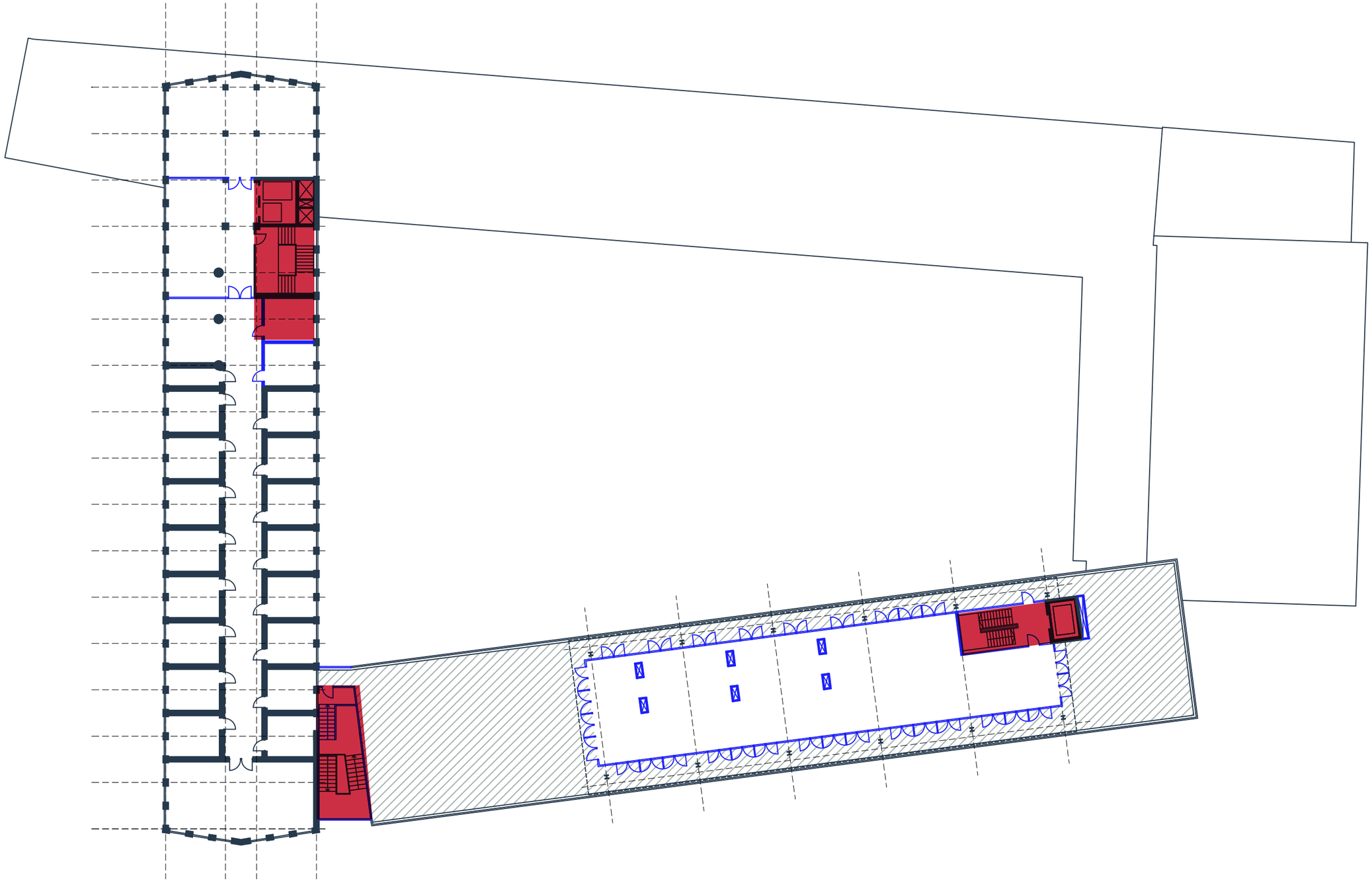
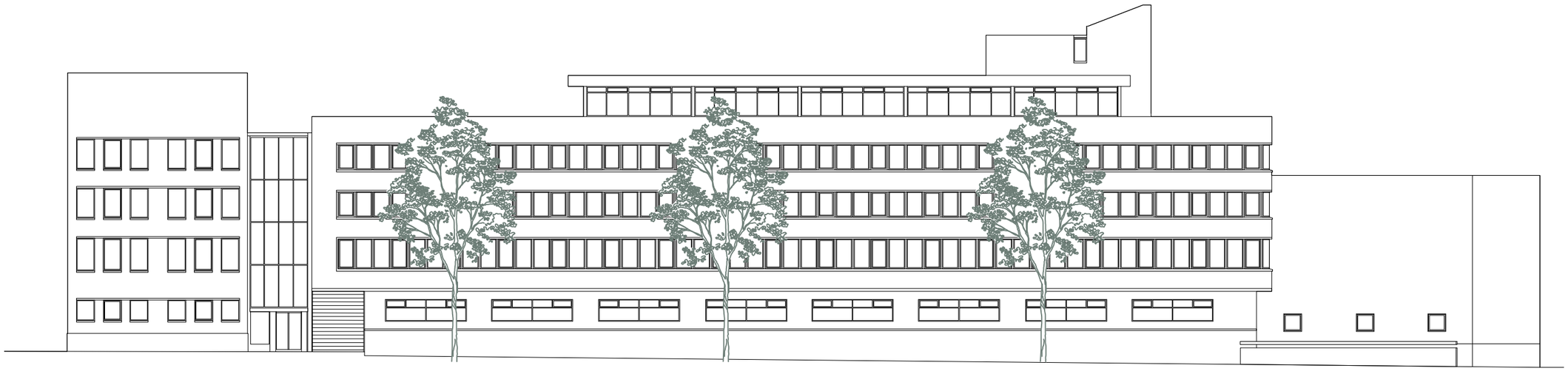


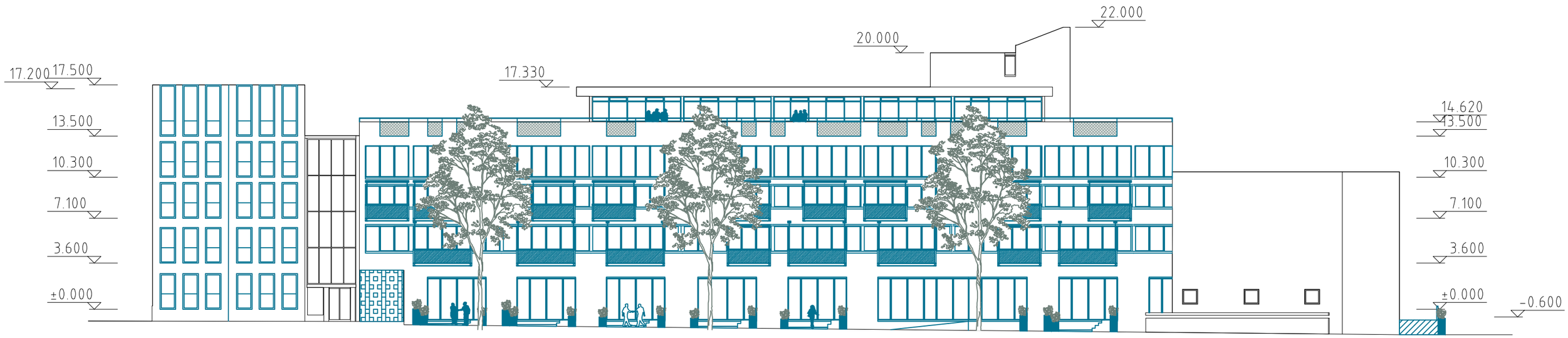
# 04 FLOOR PROPOSAL



# SOUTH FACADE

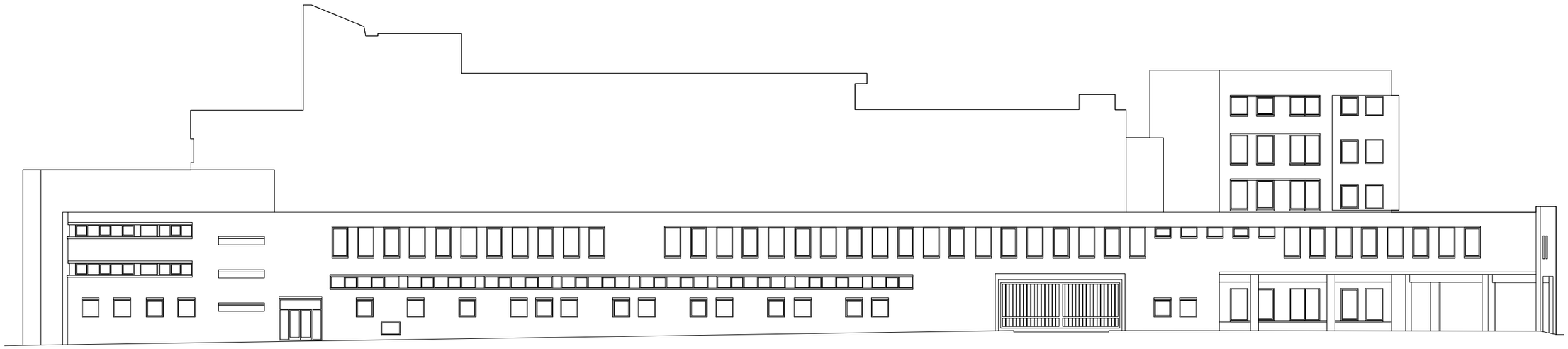


**EXISTING SITUATION 1:300**




**PROPOSAL 1:300**

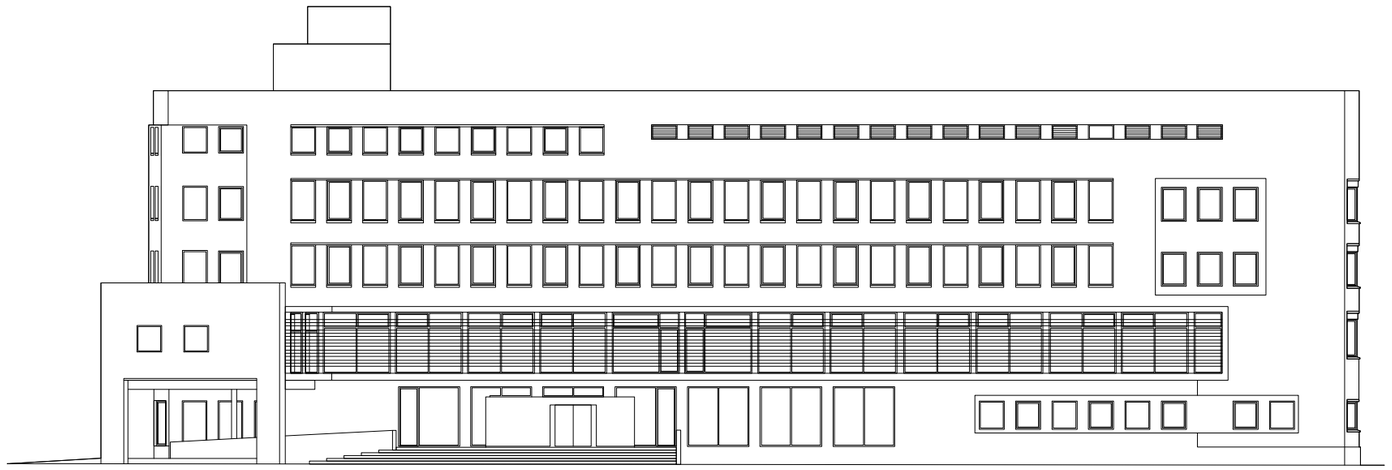
# NORTH FACADE



**EXISTING SITUATION 1:300**


**PROPOSAL 1:300**

# WEST FACADE



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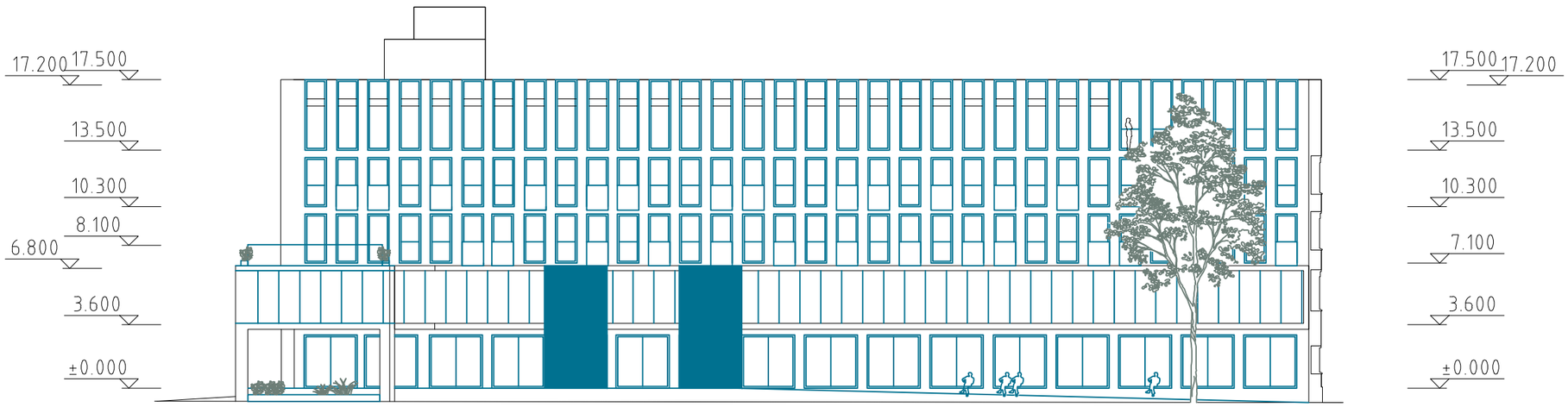
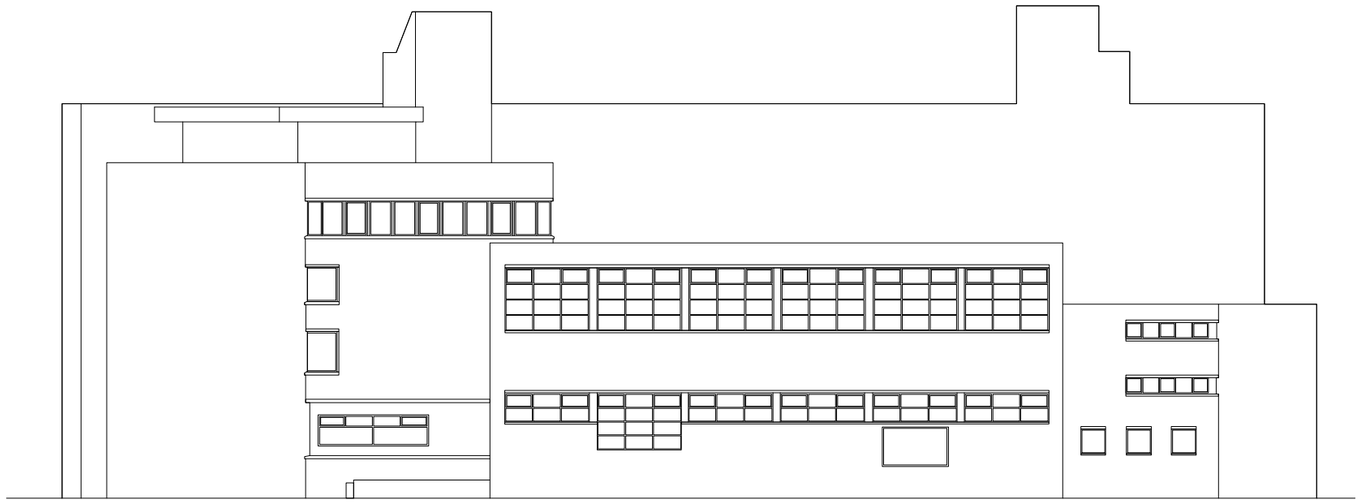



**PROPOSAL 1:300**

# EAST FACADE



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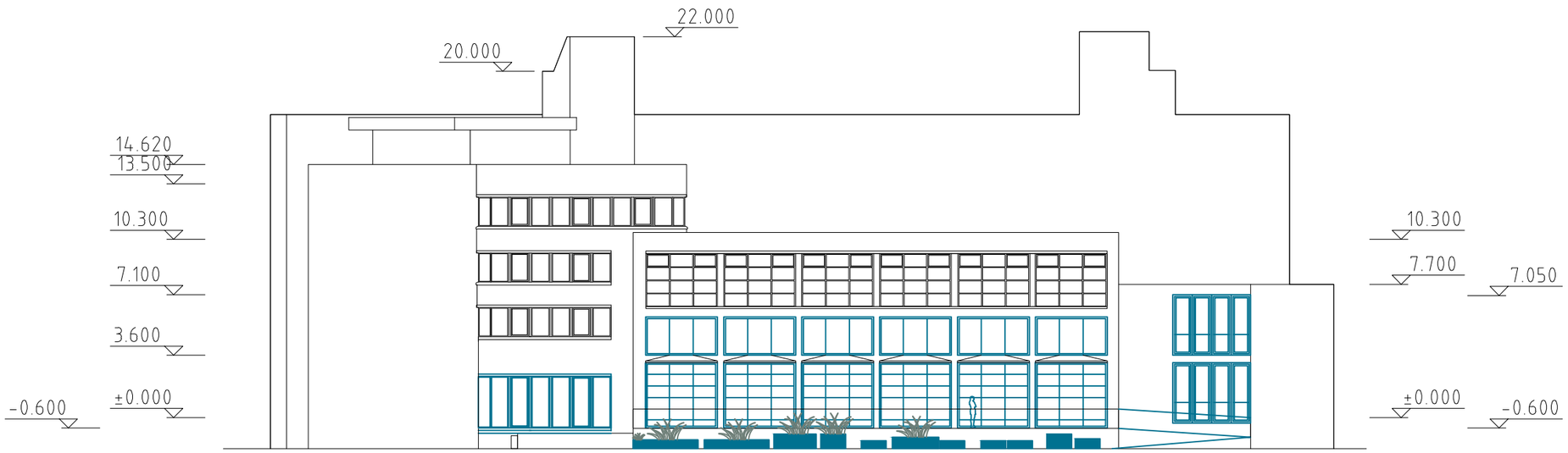


**PROPOSAL 1:300**