

Synergies of Trade & Waste

The Engine & the Hive: Reimagining the bazaar in the heart of Tbilisi

Shruti Bangari

P5 Presentation | Borders and Territories Graduation Studio

[Research]

Trade as a narrative of change

Trade spaces are territorial

Trade spaces are disjointed

Trade space as found in Tbilisi

Research question

[Design Proposal]

The Site

Flows & movements

The Programme

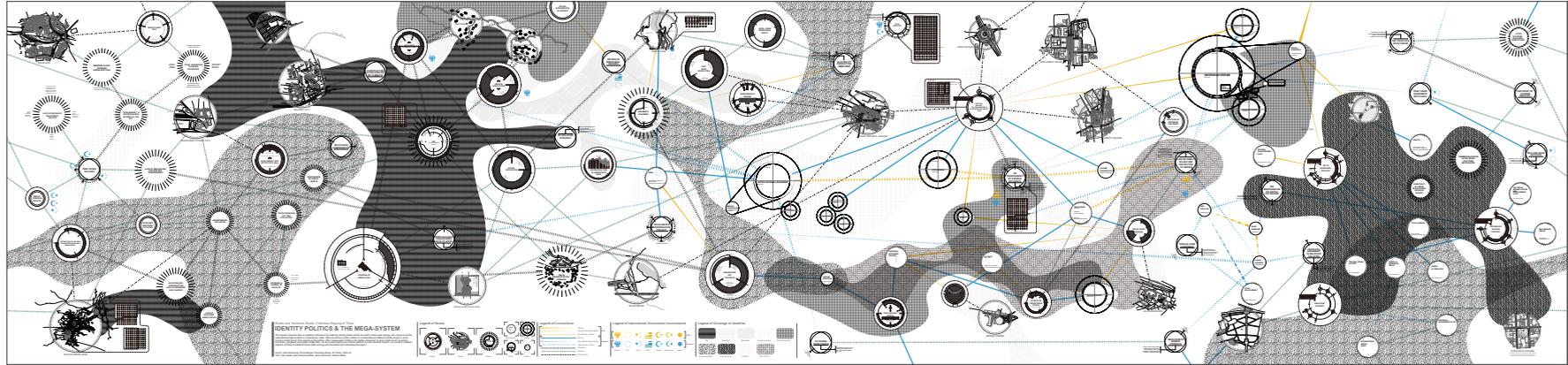
Translating into forms

[The Design]

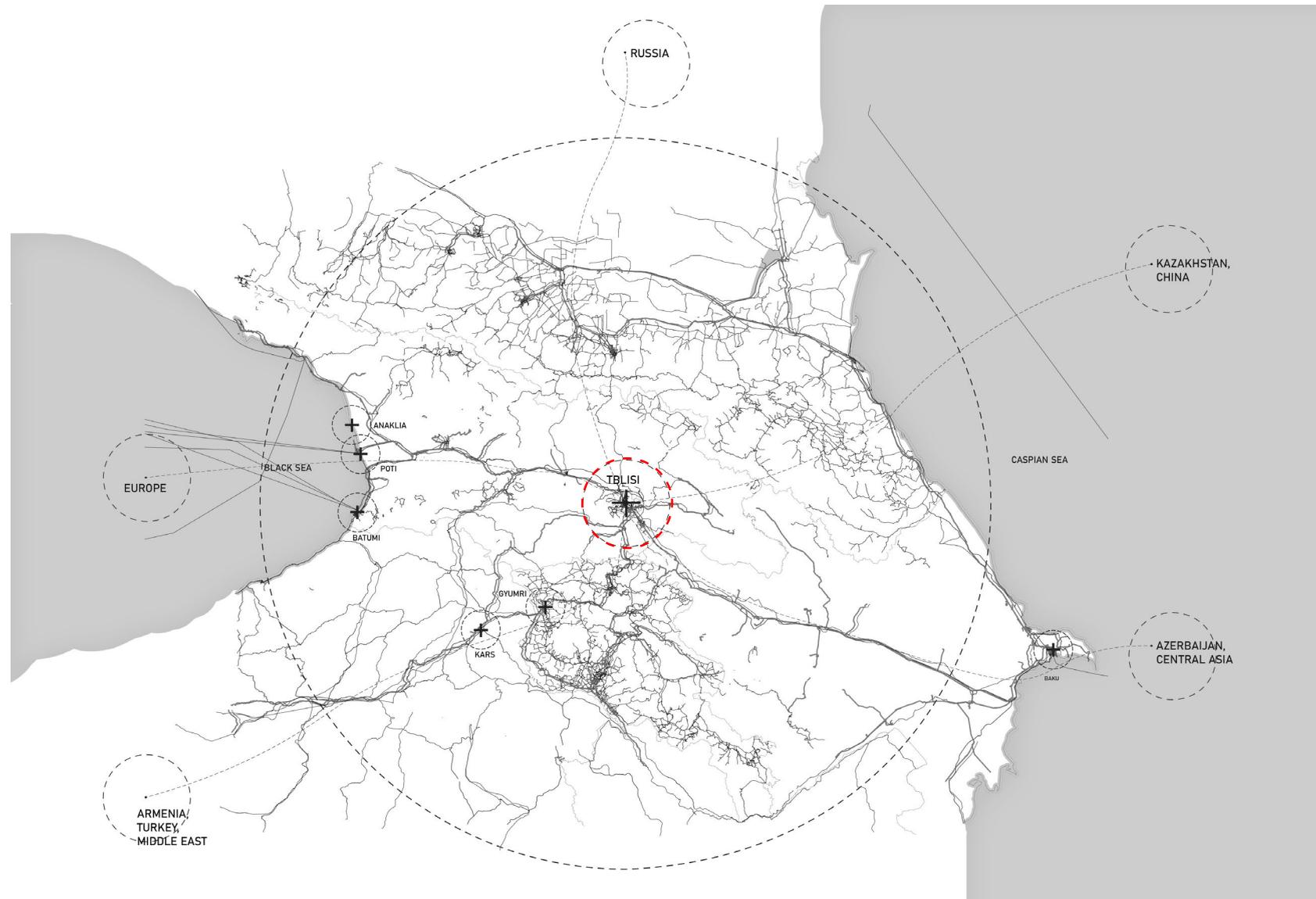
Site Plan

The Engine

The Hive



TBILISI
An intermediary within an intermediary



Trade as a narrative of change

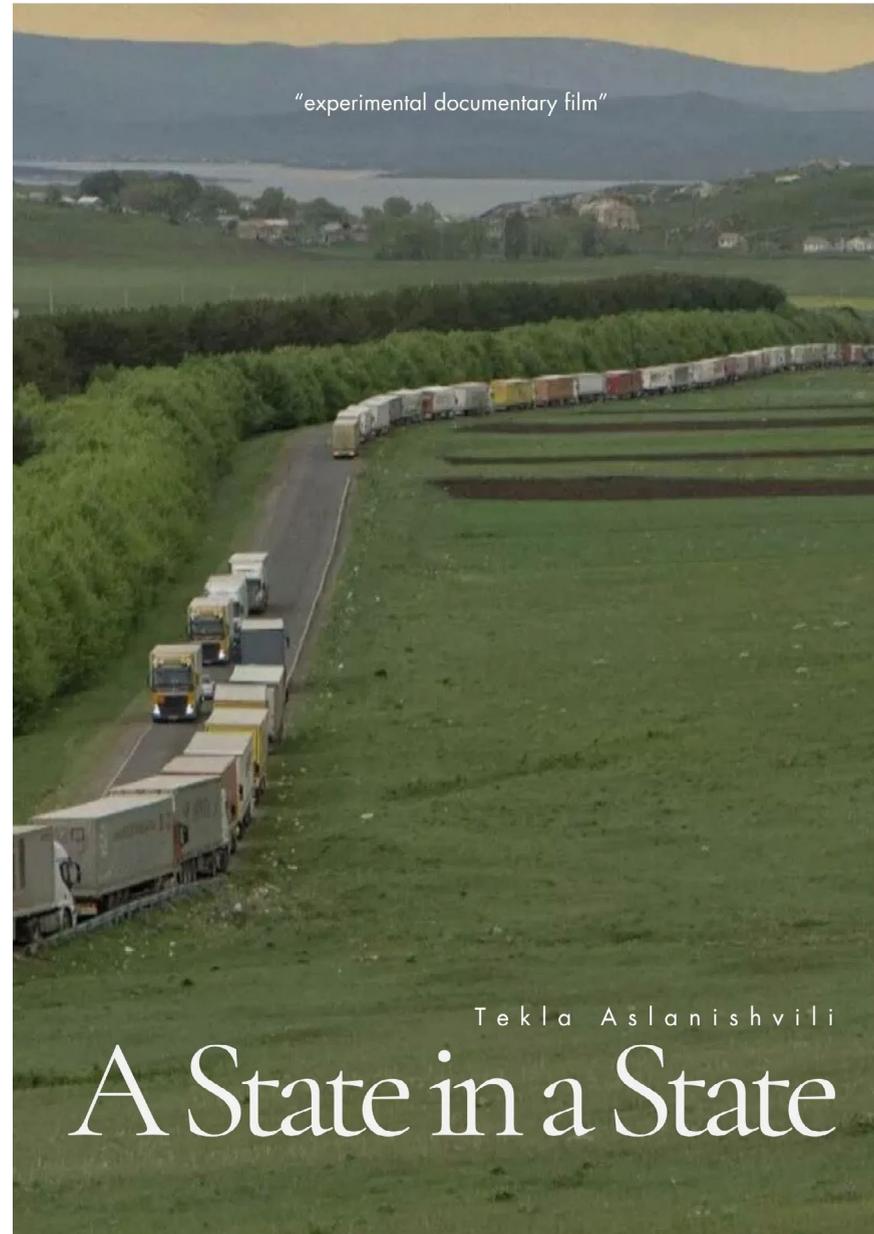


*View of skyscrapers from the Tbilisi Open Air Museum of Ethnography
narratives of change*



*View of Tbilisi's first glass skyscraper in the city's historical district (Millennium Hotels)
narratives of change*

Trade spaces are territorial



Cover of Tekla Aslanishvili's documentary following the construction, disruption and fragmentation of rail roads in the region.

trade space as territories



*Anaklia Port - A microcosm of Georgia's quest to become a key transit hub between Europe & Asia (Anaklia Development Consortium)
trade space as territories*



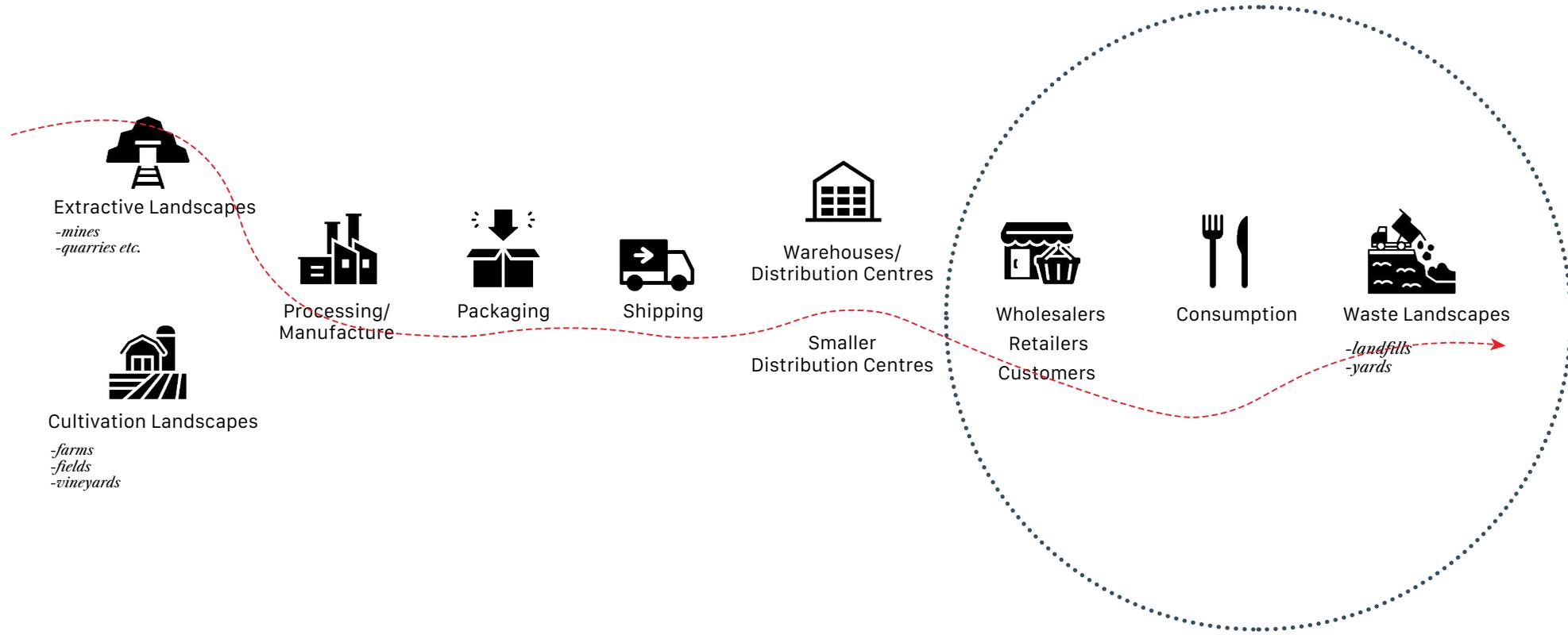
Lazika - A ghost town of ambitions (Architizer)

trade space as territories

Trade spaces are disjoint

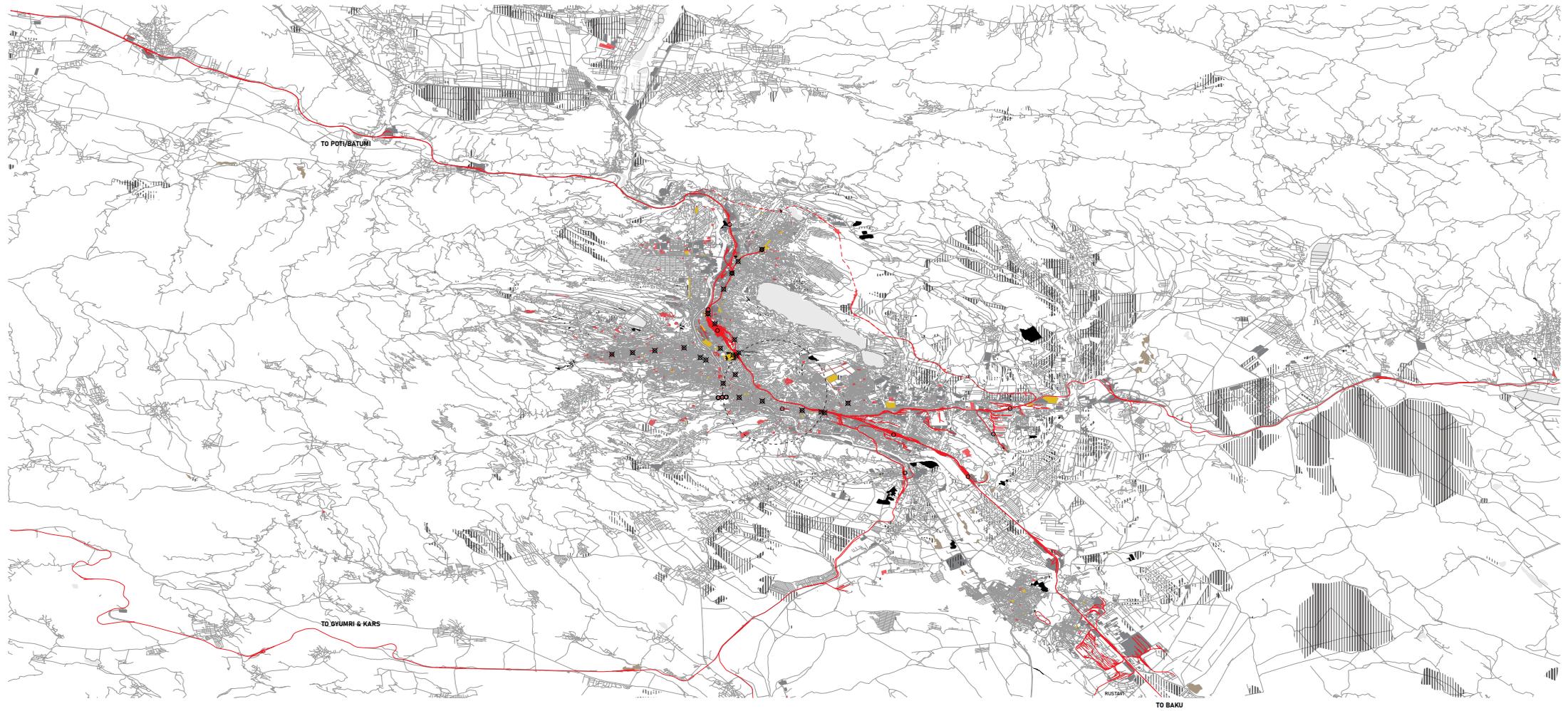


trade space as disjointed



trade space as disjointed

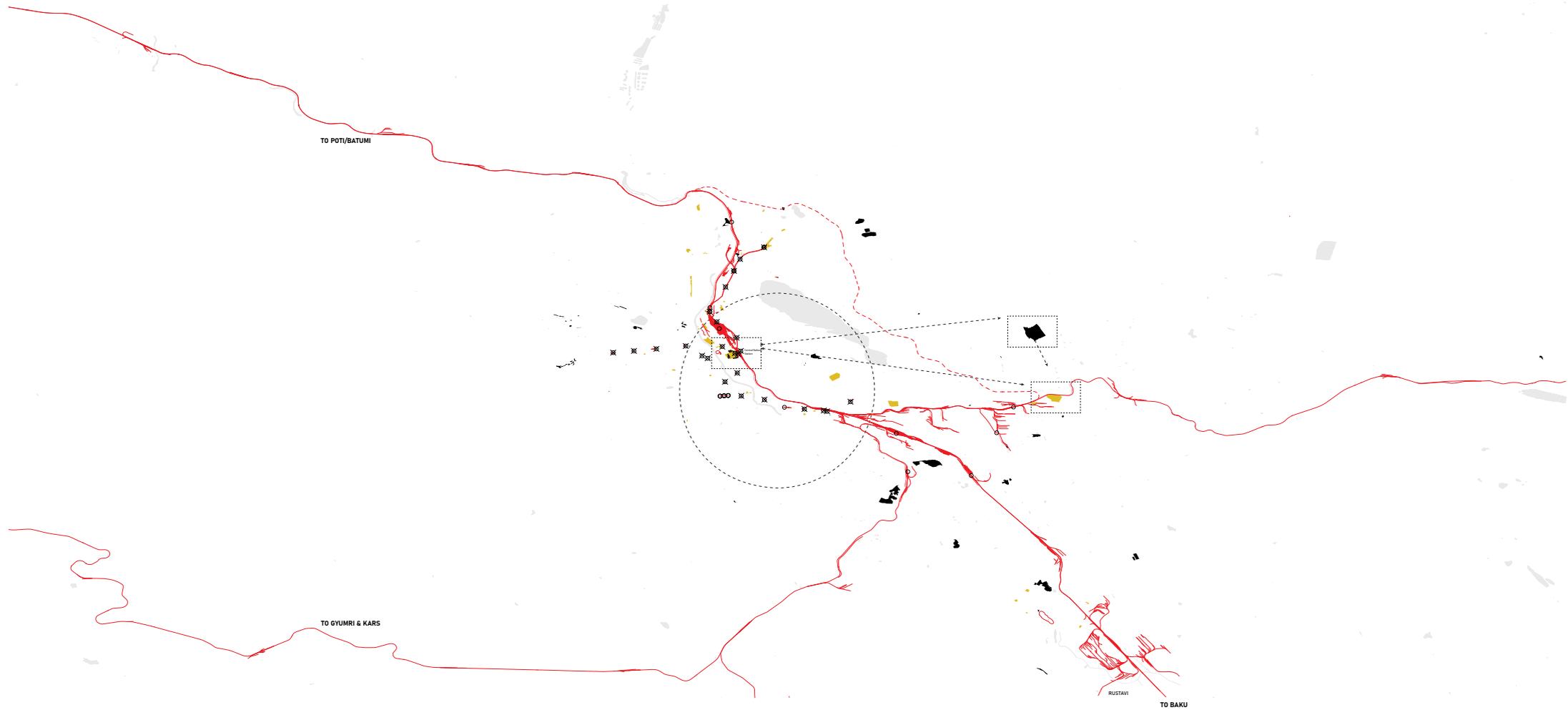
Trade space as found in Tbilisi



- The logistics circulatory system
- Marketplaces/interfaces
- Landfills/Waste landscapes
- Quarries/Extractive landscapes
- Farmlands/Cultivation landscapes
- Factories/Production landscapes
- Metro Stations
- × Railway Stations

0 | 7.5km | N |

trade space as found



- The logistics circulatory system
- Marketplaces/interfaces
- Landfills/Waste landscapes

- Metro Stations
- × Railway Stations

0 | 7.5km | N |

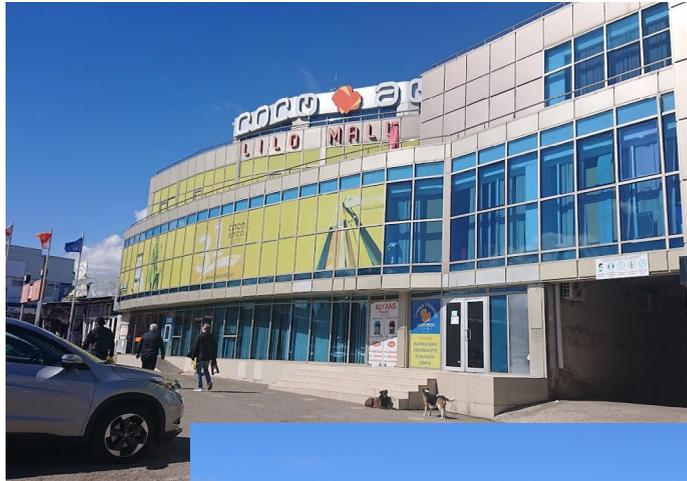
trade space as found



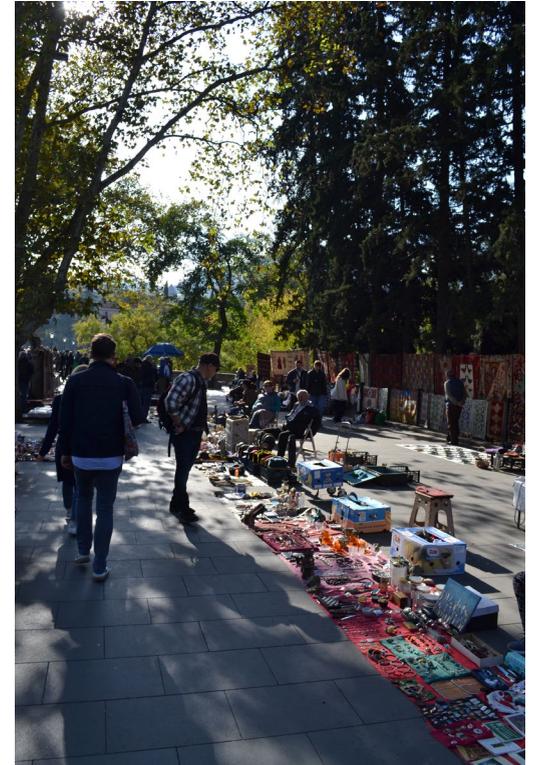
*Lilo Wholesale Bazaar, bird's eye view (Photographer: Zhi Zheng)
trade space as found*



*Bazaar culture in Tbilisi, photographed in 1980 (Archive of Sakartvelo)
trade space as found*



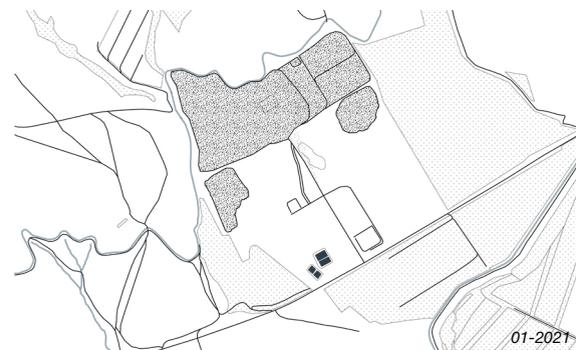
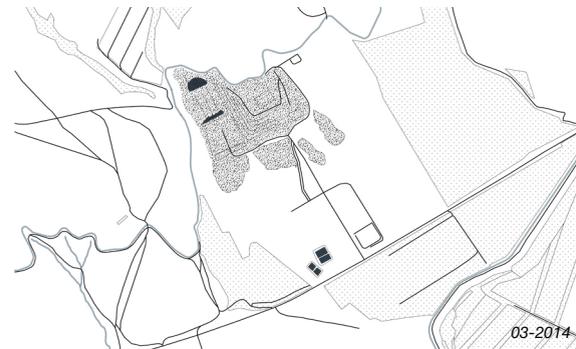
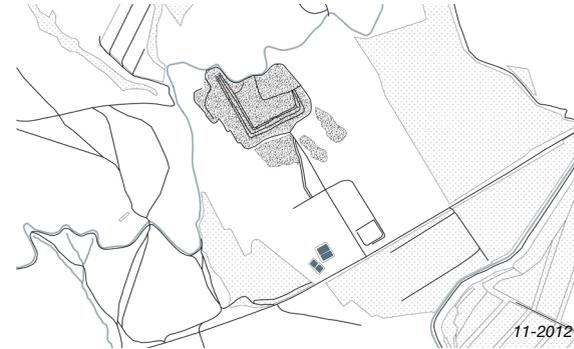
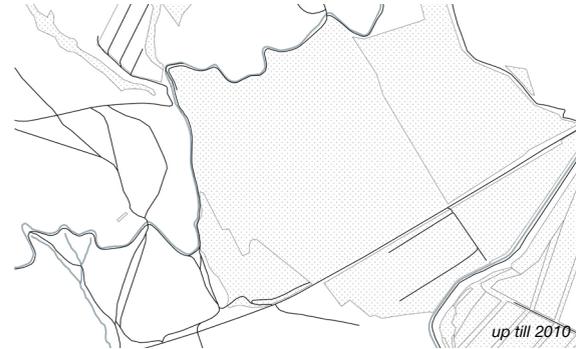
*Lilo Wholesale Bazaar
trade space as found*



*Tbilisi's flea market
trade space as found*



*Infrared Images of Didi Lilo Landfill (Tornike Mermanishvili)
trade space as found*



*Didi Lilo Landfill, growth over time
trade space as found*

How might we re-imagine trade space in a way that is better integrated with its environmental and social contexts, generating productive and synergetic spaces of urban culture in a growing economy like Tbilisi?

[Research]

Trade as a narrative of change

Trade spaces are territorial

Trade spaces are disjointed

Trade space as found in Tbilisi

Research question

[Design Proposal]

The Site

Flows & movements

The Programme

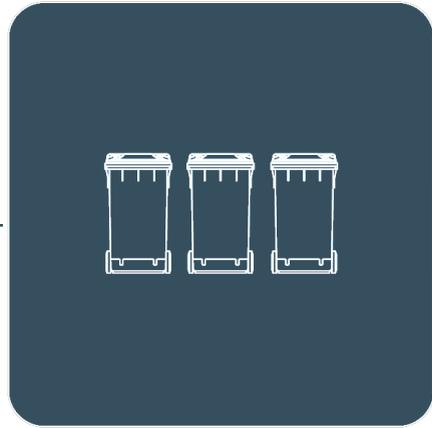
Translating into forms

[The Design]

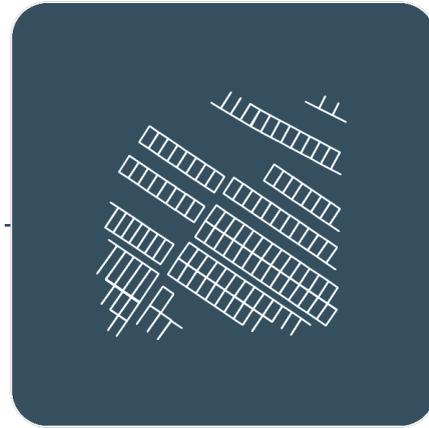
Site Plan

The Engine

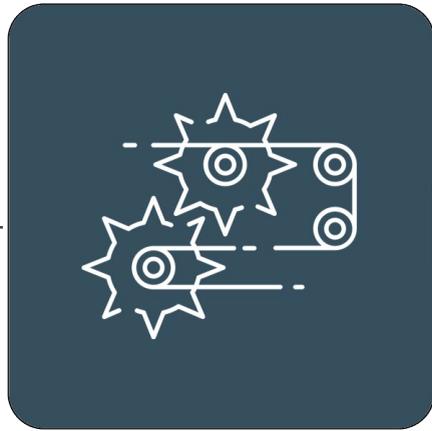
The Hive



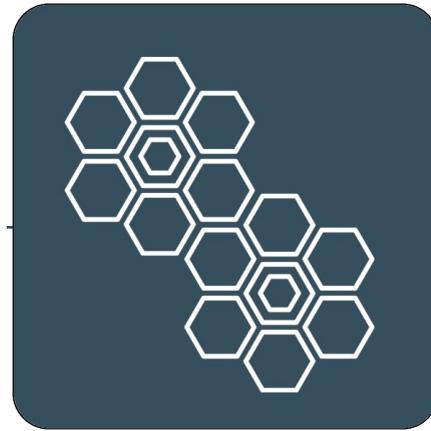
WASTE SORTING FACILITY



BAZAAR



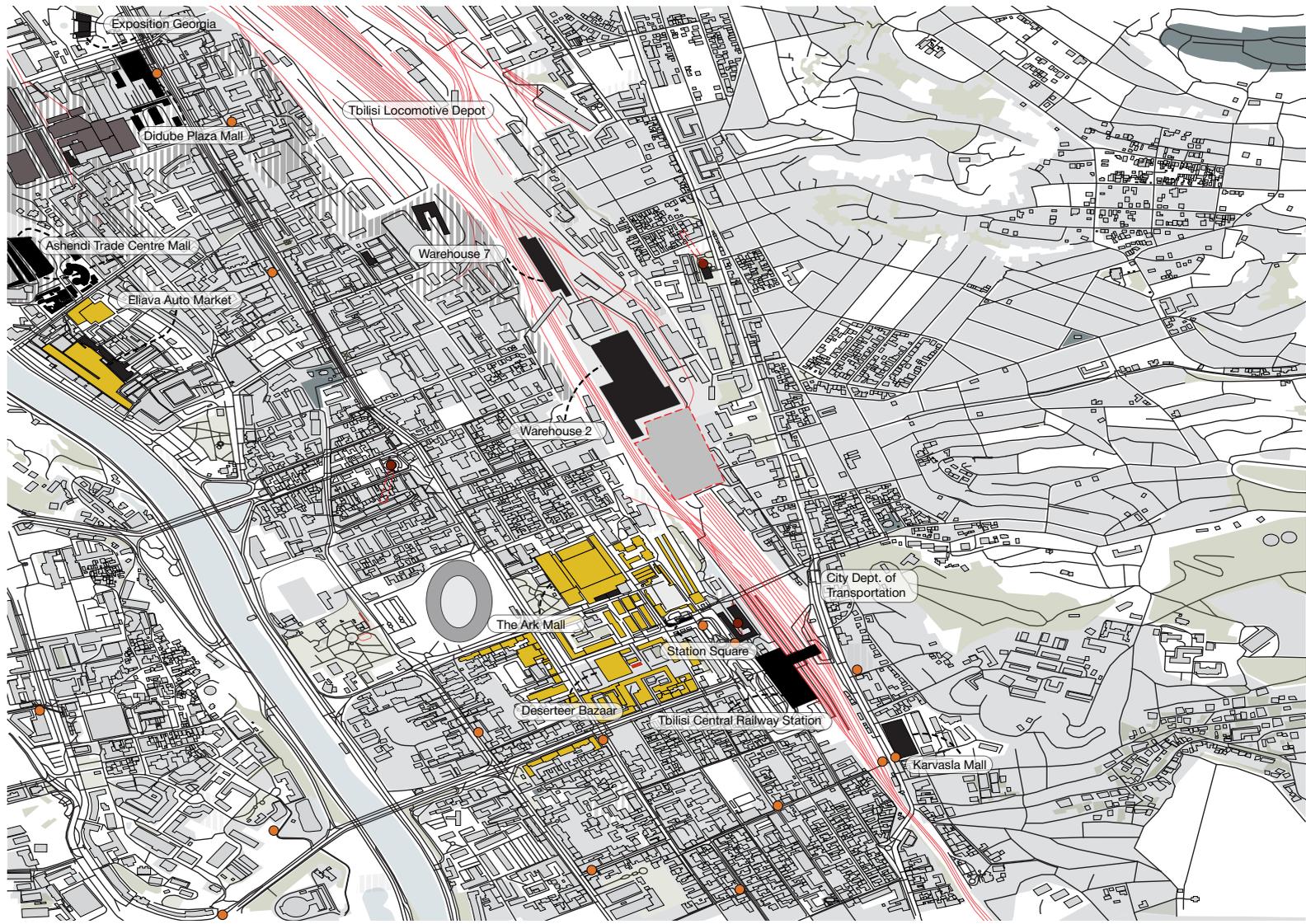
THE ENGINE



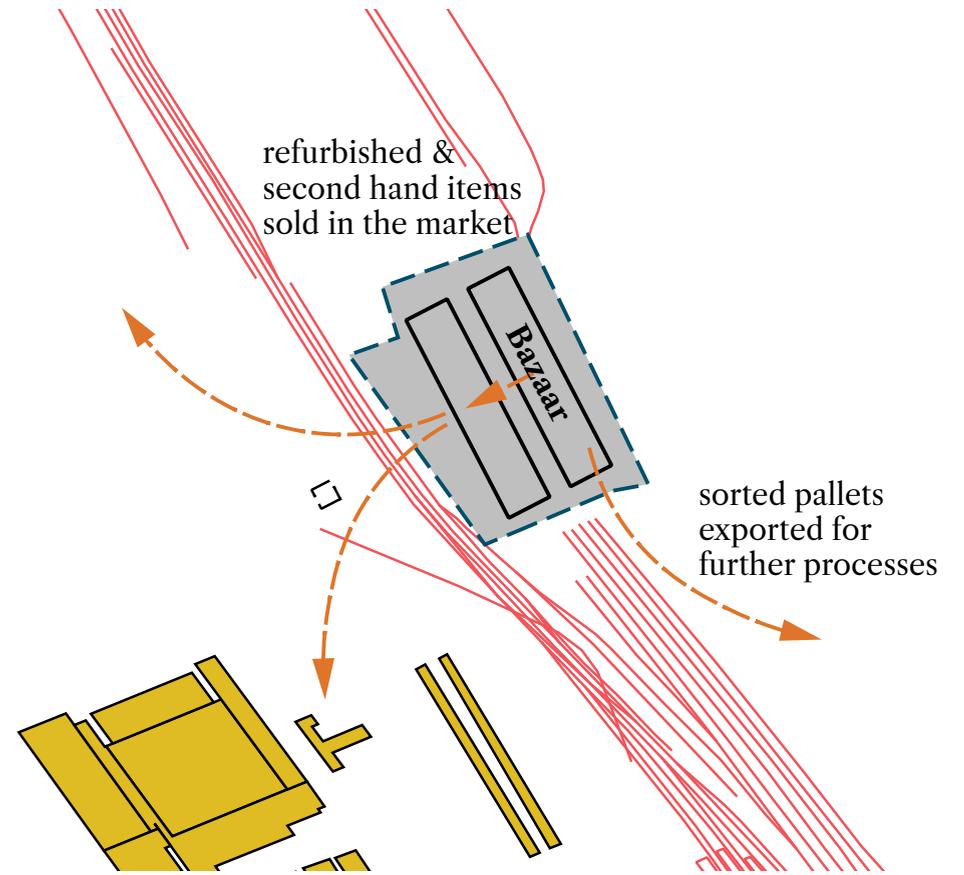
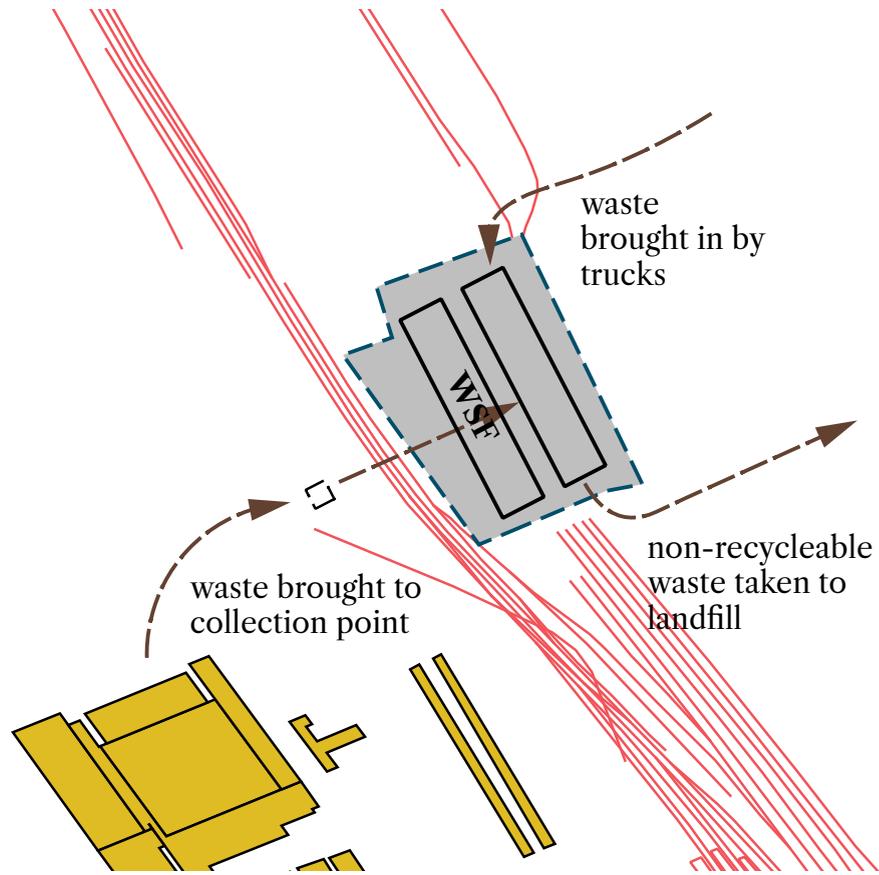
THE HIVE

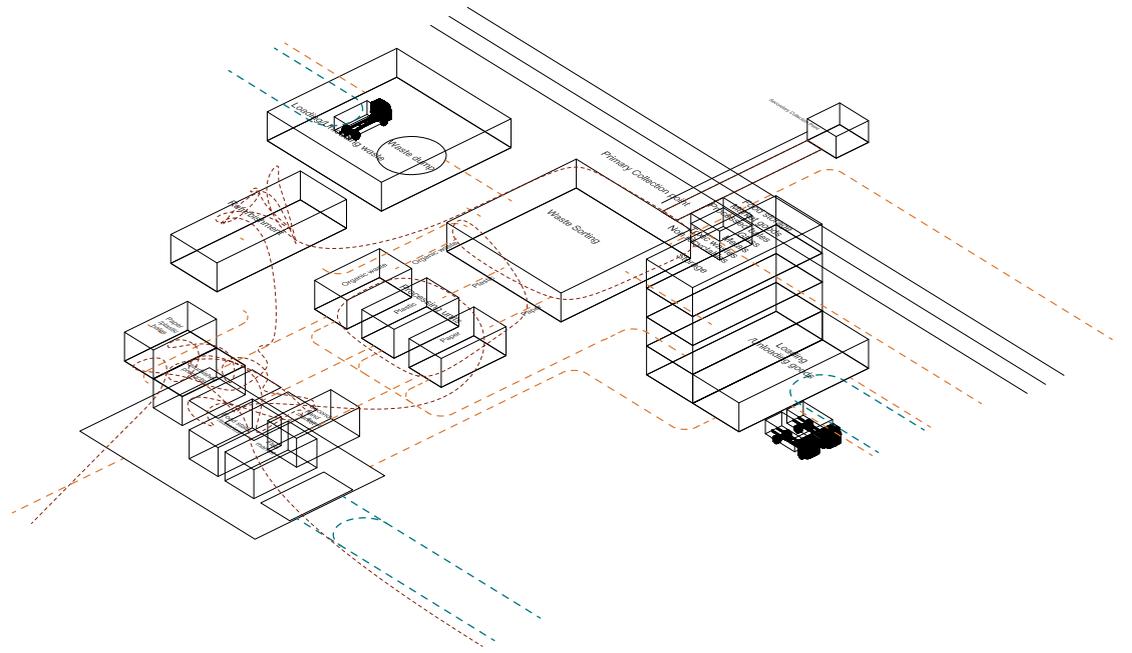
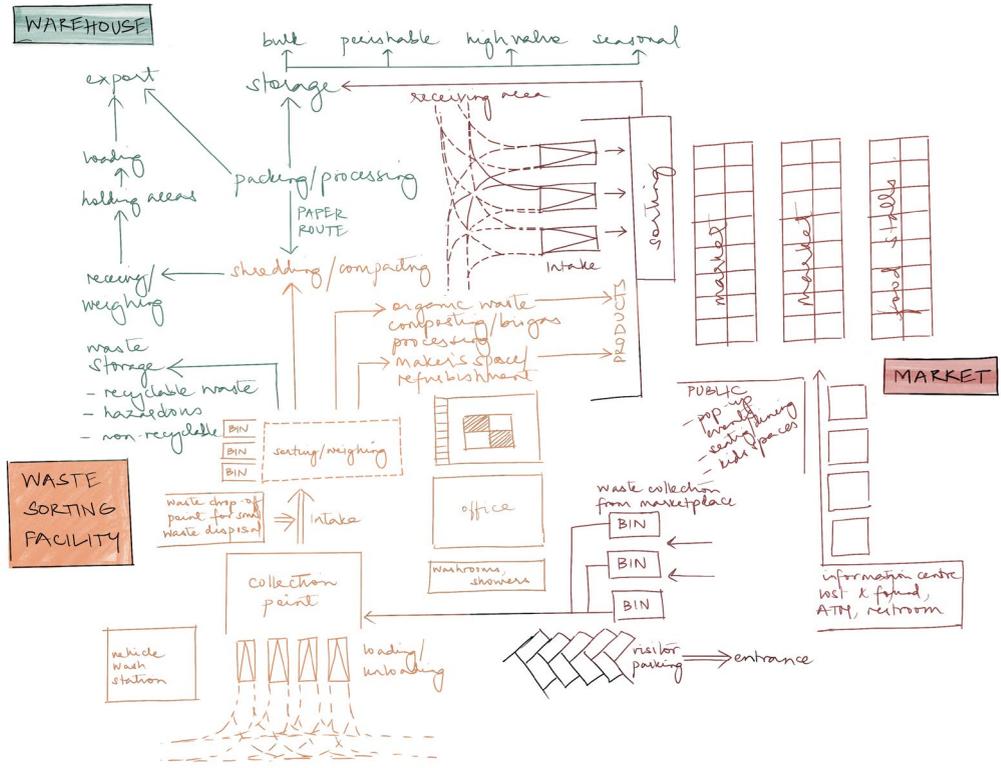


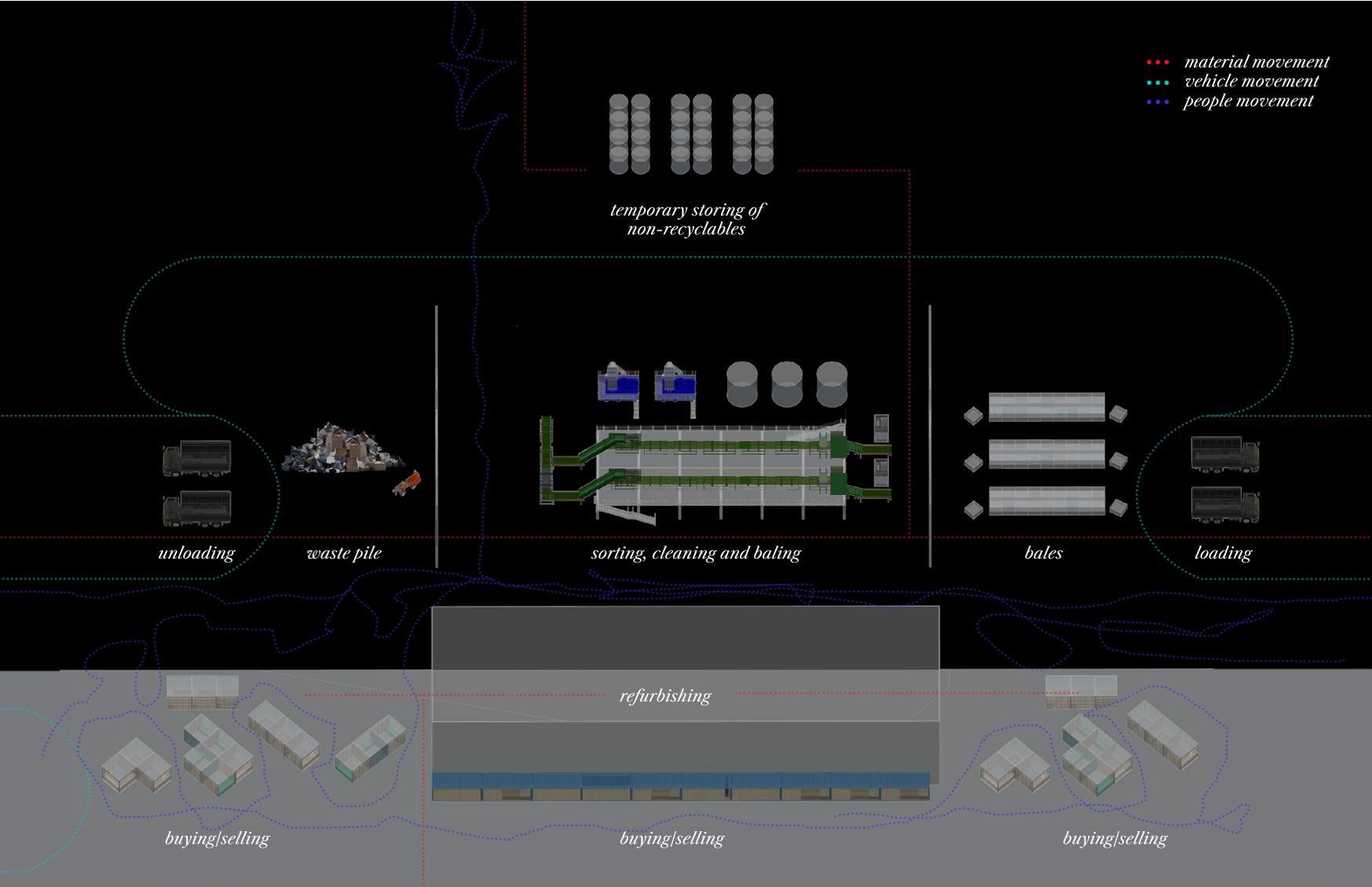
0 250m N

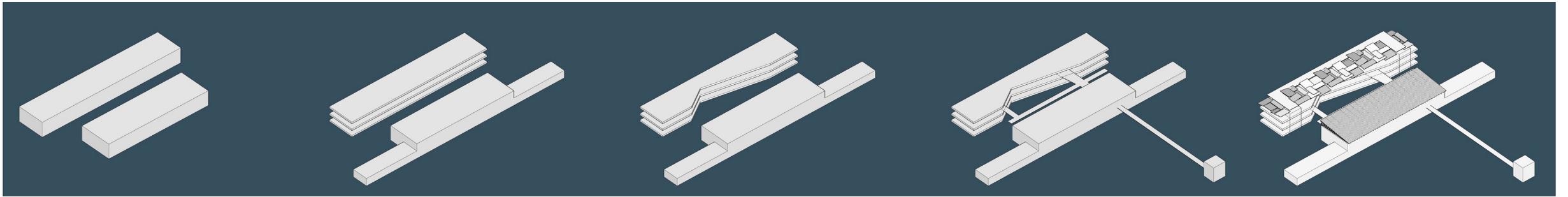


- Metro stations
- Garbage disposal points
- Marketplaces
- - - Site









two linear volumes

introduce permeability

carve out a meeting space

create a walking experience

complementary canopies



materialized

[Research]

Trade as a narrative of change

Trade spaces are territorial

Trade spaces are disjointed

Trade space as found in Tbilisi

Research question

[Design Proposal]

The Site

Flows & movements

The Programme

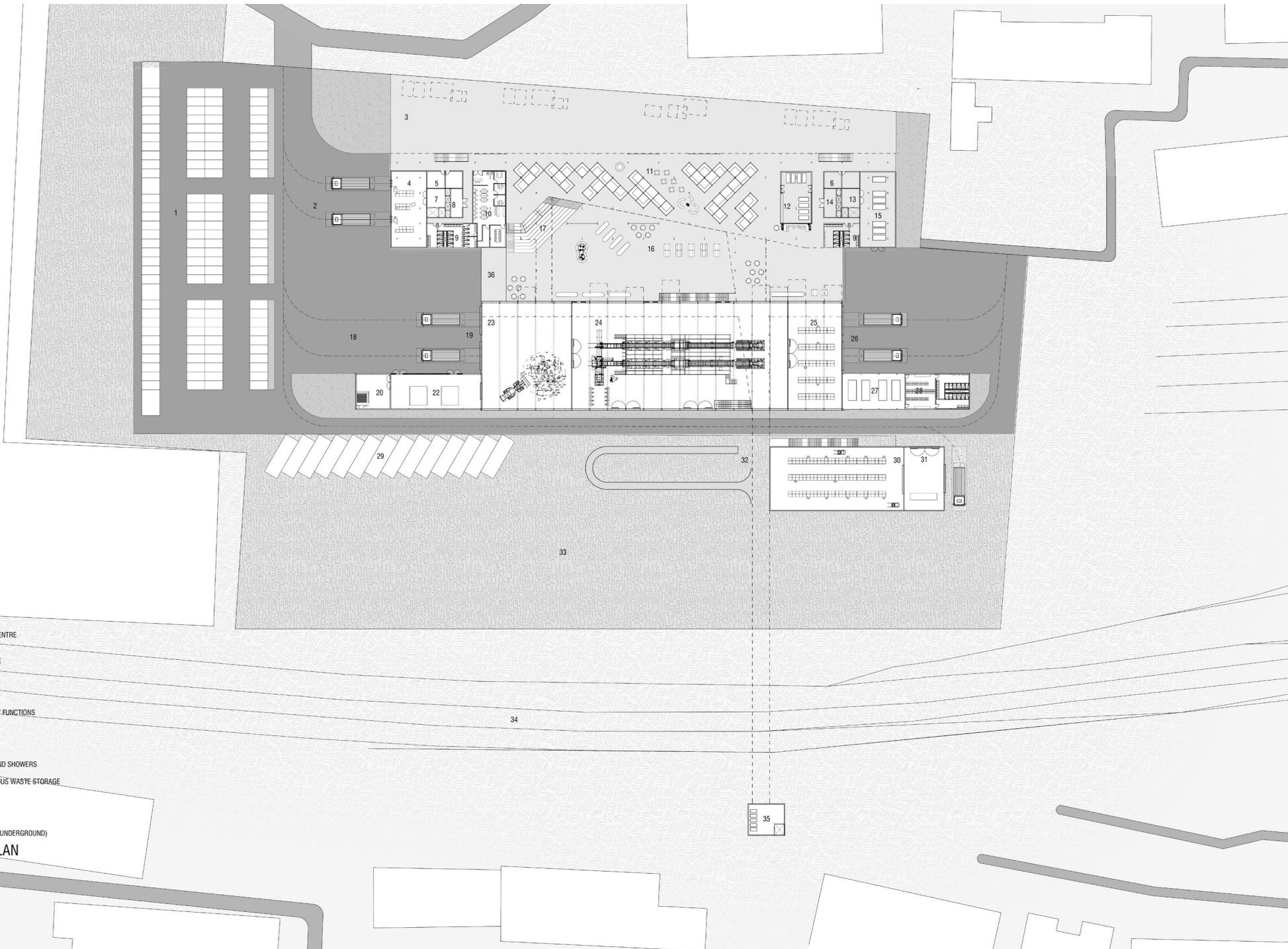
Translating into forms

[The Design]

Site Plan

The Engine

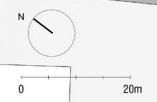
The Hive

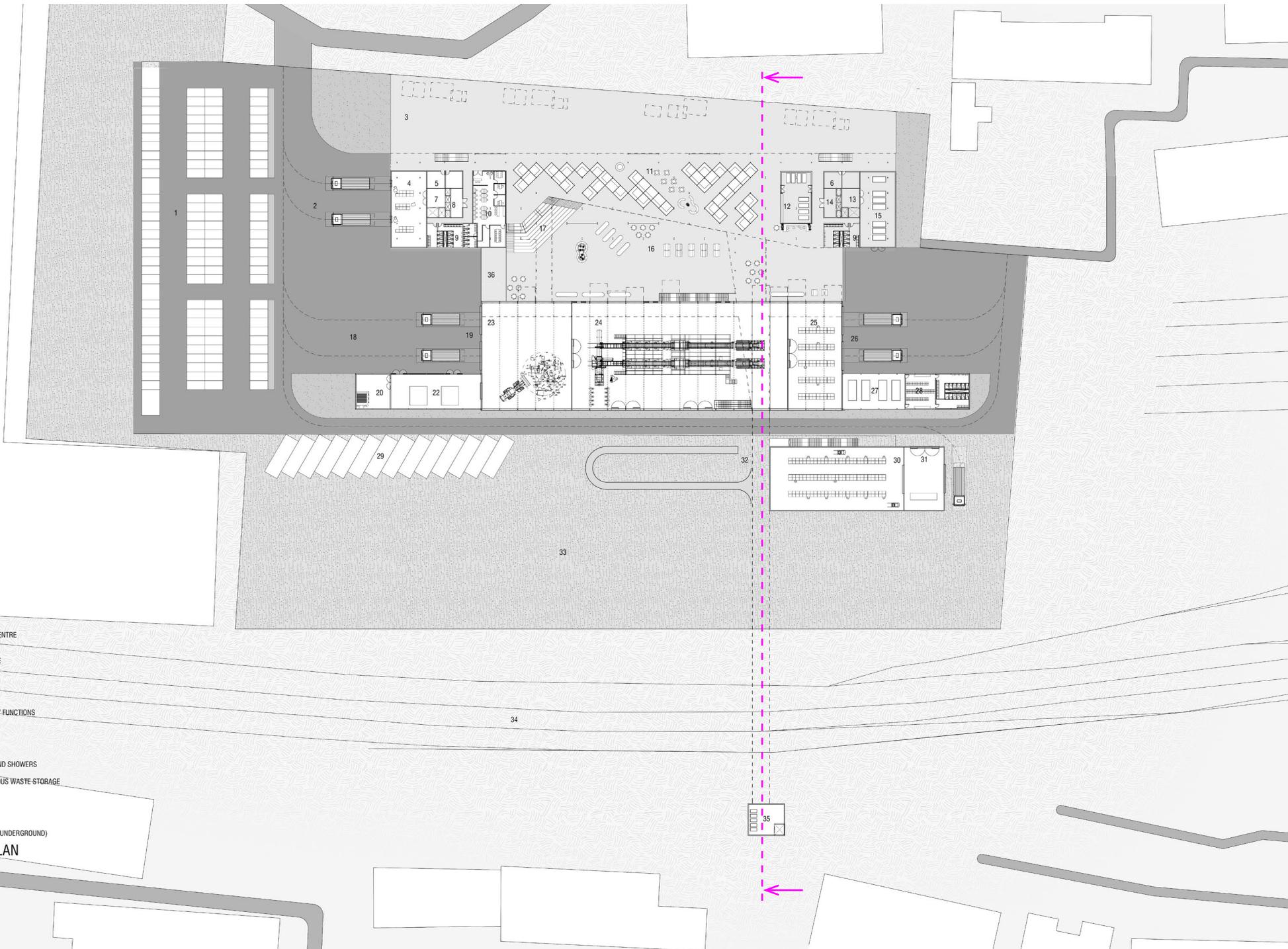


LEGEND

- 1 - VISITOR PARKING
- 2 - MARKET GOODS DROP-OFF
- 3 - PLAZA
- 4 - UNLOADING ZONE
- 5 - IT ROOM
- 6 - LOST AND FOUND
- 7 - FREIGHT ELEVATOR
- 8 - PASSENGER ELEVATORS (2)
- 9 - TOILETS
- 10 - ADMIN OFFICE
- 11 - SECOND HAND MARKET
- 12 - REFURBISHMENT COLLECTION CENTRE
- 13 - FREIGHT ELEVATOR
- 14 - PASSENGER ELEVATOR (2)
- 15 - REFURBISHABLE ITEMS STORAGE
- 16 - OPEN AIR MARKETPLACE
- 17 - STEPPED SEATING
- 18 - GARBAGE DROP-OFF
- 19 - GARBAGE UNLOADING
- 20 - TRANSFORMER ROOM
- 22 - MACHINE REPAIR AND AUXILIARY FUNCTIONS
- 23 - DUMPING ZONE
- 24 - WASTE SORTING AREA
- 25 - BALE STORAGE
- 26 - LOADING ZONE
- 27 - OPEN CONTAINER STORAGE
- 28 - WORKERS LOCKERS, TOILETS AND SHOWERS
- 29 - TRUCK PARKING
- 30 - NON RECYCLABLE AND HAZARDOUS WASTE STORAGE
- 31 - LOADING ZONE
- 32 - RAMP
- 33 - FUTURE EXPANSION AREA
- 34 - RAILWAY TRACKS
- 35 - WASTE COLLECTION POINT
- 36 - RAINWATER HARVESTING TANK (UNDERGROUND)

**GROUND FLOOR PLAN
1:500**

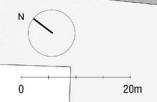


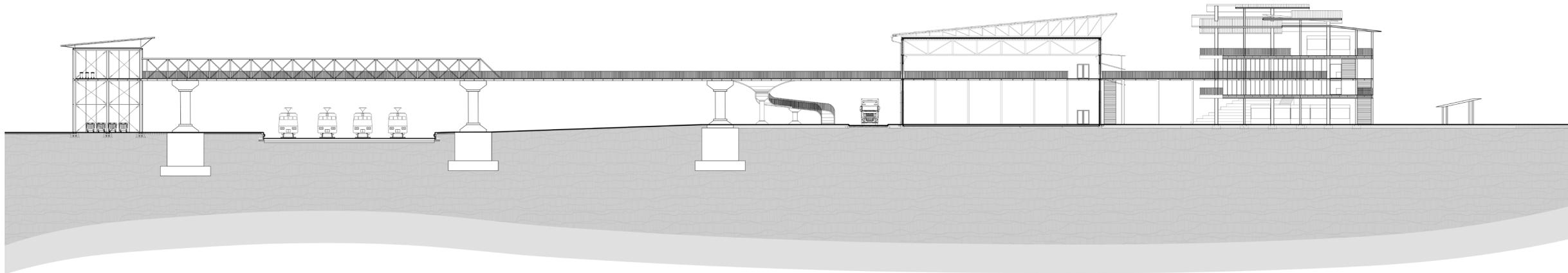


LEGEND

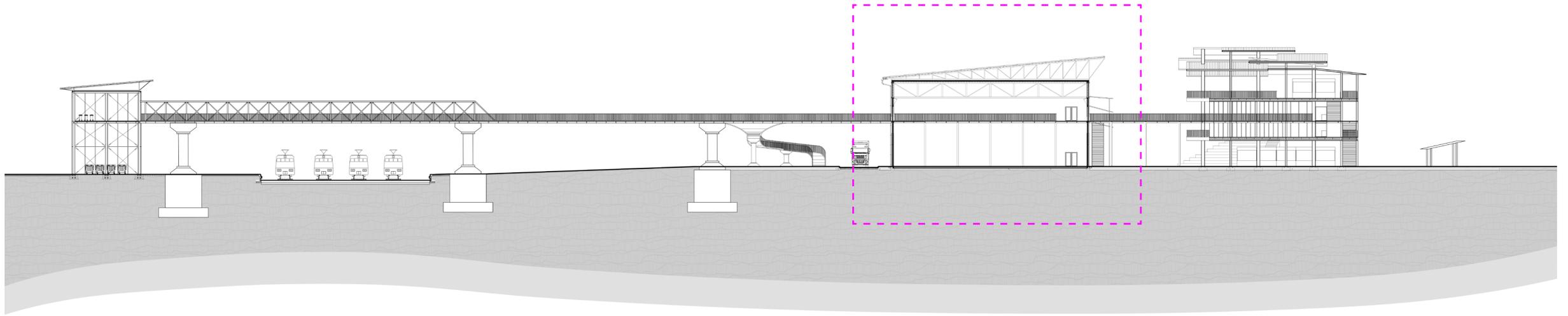
- 1 - VISITOR PARKING
- 2 - MARKET GOODS DROP-OFF
- 3 - PLAZA
- 4 - UNLOADING ZONE
- 5 - IT ROOM
- 6 - LOST AND FOUND
- 7 - FREIGHT ELEVATOR
- 8 - PASSENGER ELEVATORS (2)
- 9 - TOILETS
- 10 - ADMIN OFFICE
- 11 - SECOND HAND MARKET
- 12 - REFURBISHMENT COLLECTION CENTRE
- 13 - FREIGHT ELEVATOR
- 14 - PASSENGER ELEVATOR (2)
- 15 - REFURBISHABLE ITEMS STORAGE
- 16 - OPEN AIR MARKETPLACE
- 17 - STEPPED SEATING
- 18 - GARBAGE DROP-OFF
- 19 - GARBAGE UNLOADING
- 20 - TRANSFORMER ROOM
- 22 - MACHINE REPAIR AND AUXILIARY FUNCTIONS
- 23 - DUMPING ZONE
- 24 - WASTE SORTING AREA
- 25 - BALE STORAGE
- 26 - LOADING ZONE
- 27 - OPEN CONTAINER STORAGE
- 28 - WORKERS LOCKERS, TOILETS AND SHOWERS
- 29 - TRUCK PARKING
- 30 - NON RECYCLABLE AND HAZARDOUS WASTE STORAGE
- 31 - LOADING ZONE
- 32 - RAMP
- 33 - FUTURE EXPANSION AREA
- 34 - RAILWAY TRACKS
- 35 - WASTE COLLECTION POINT
- 36 - RAINWATER HARVESTING TANK (UNDERGROUND)

**GROUND FLOOR PLAN
1:500**

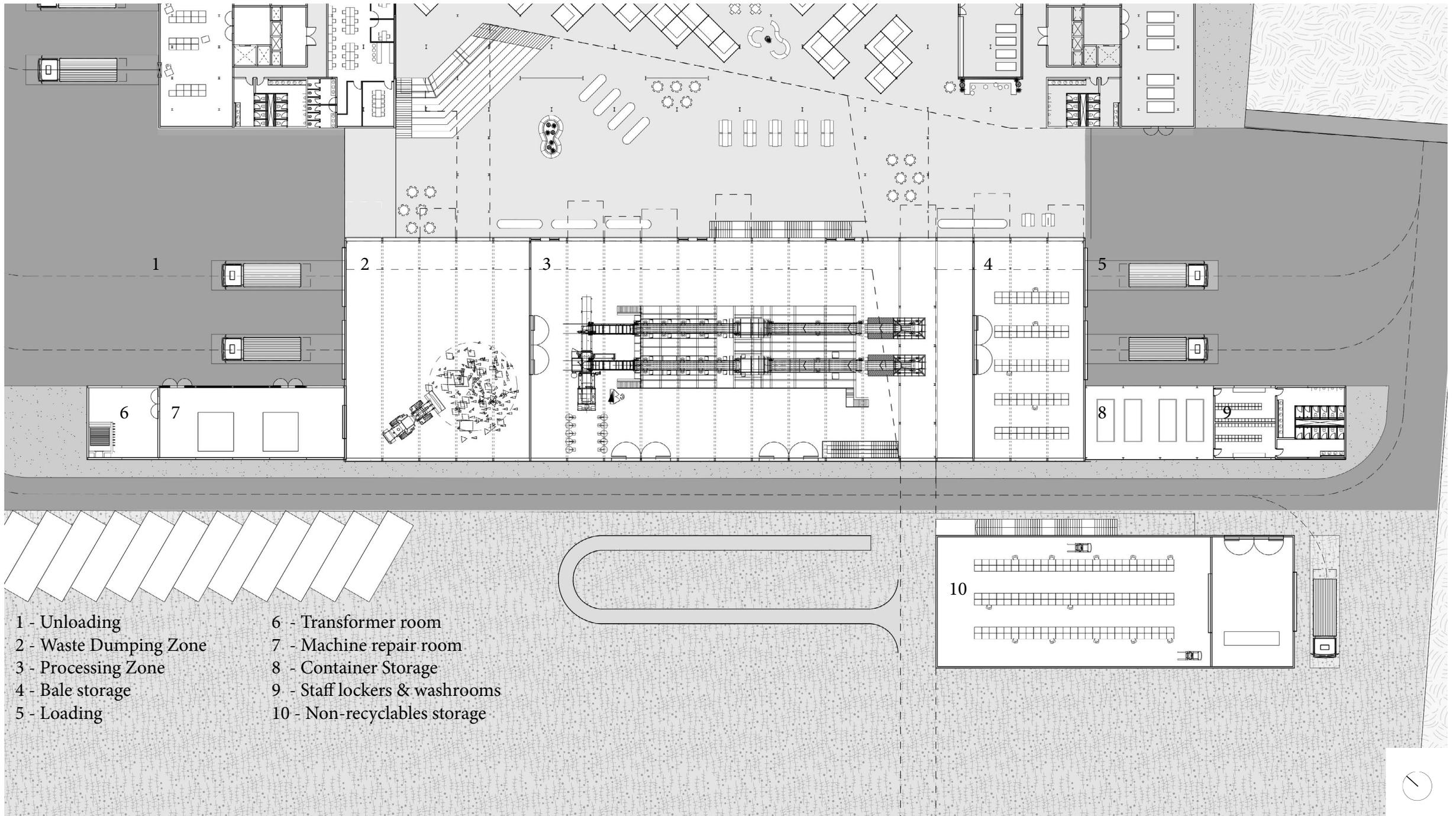


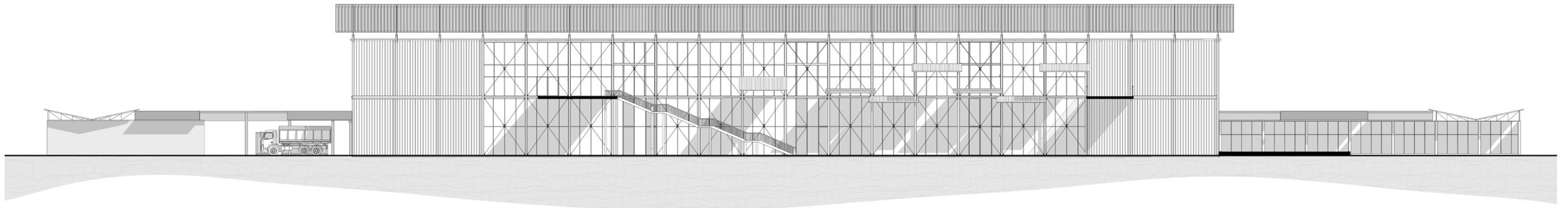


Section X-X'
1:200

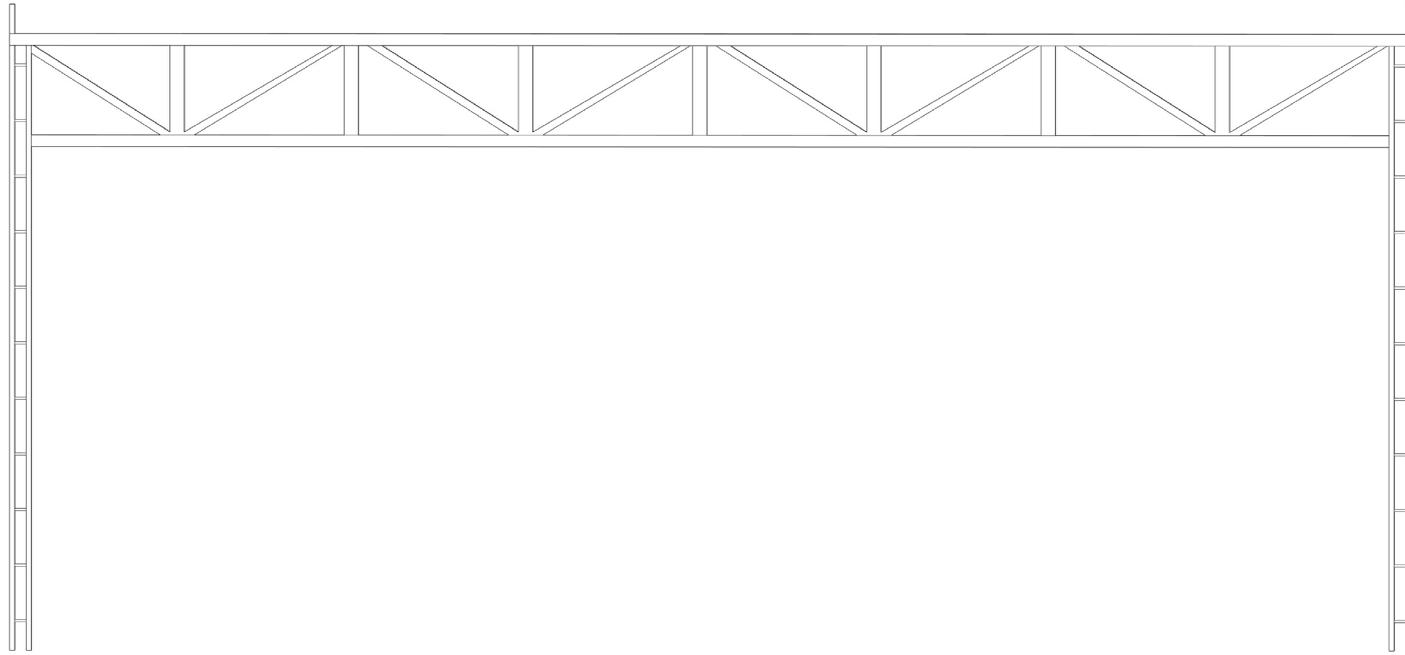


Section X-X'
The Engine

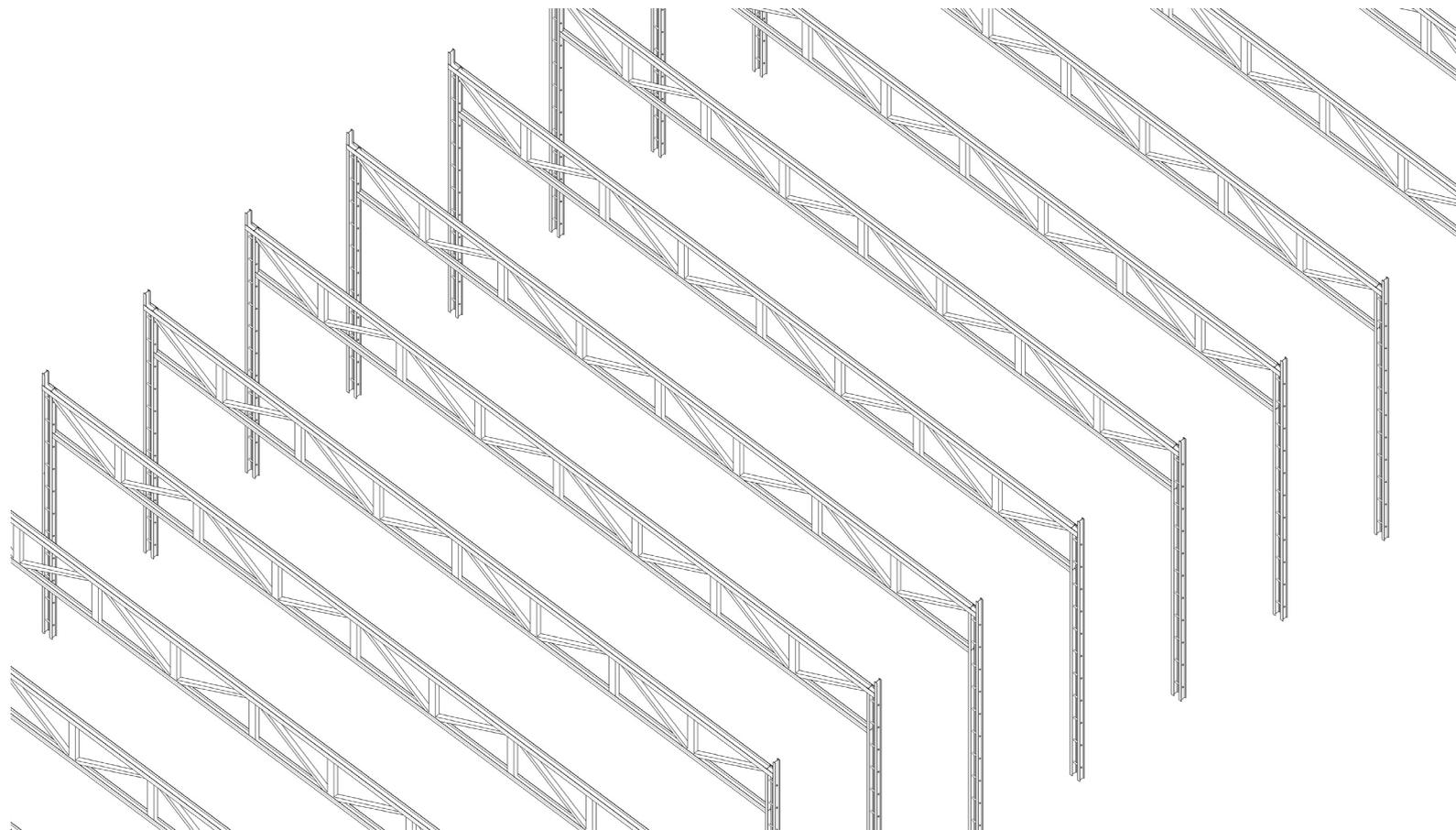




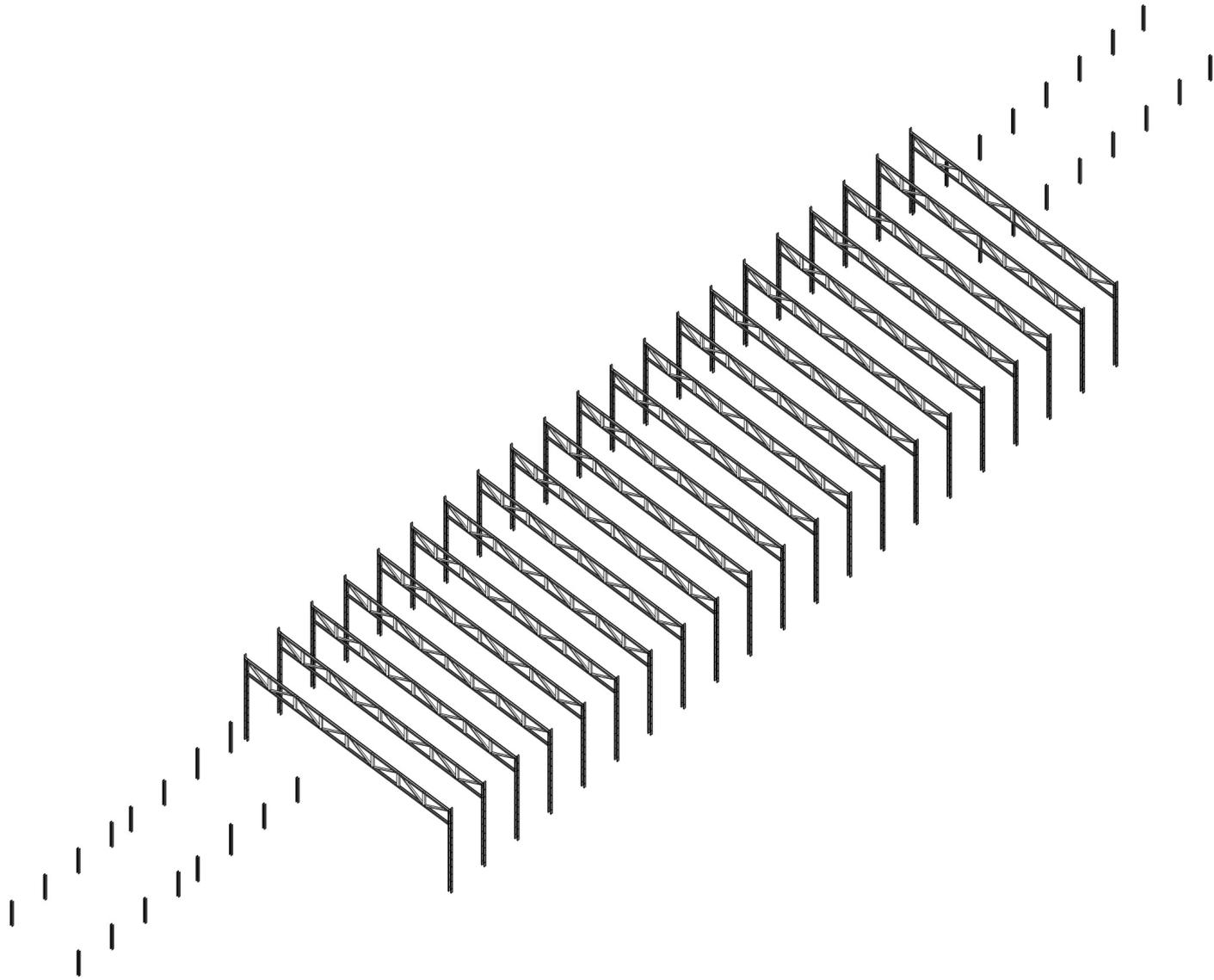
Elevation C
1:200



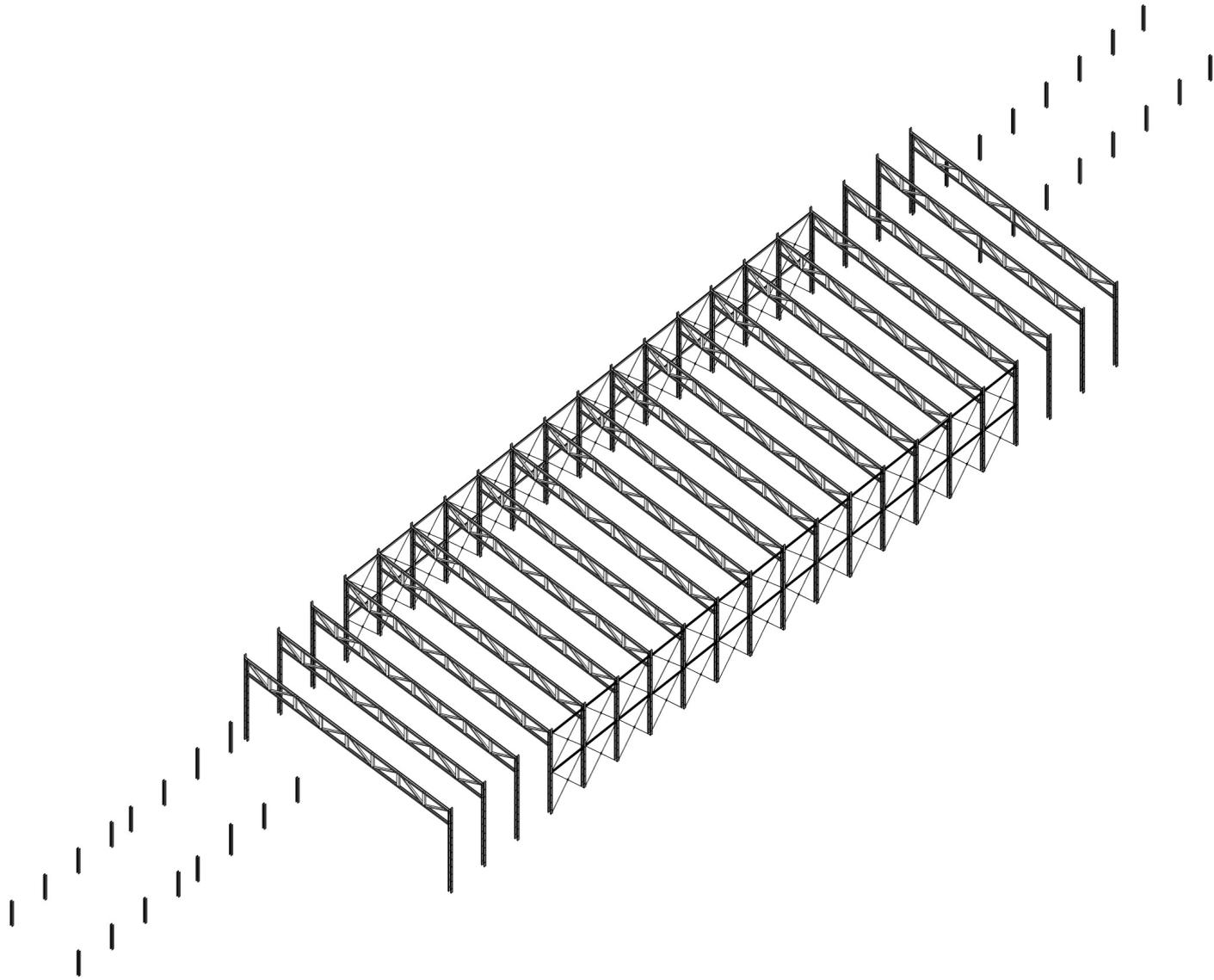
steel truss structure with twin-columns



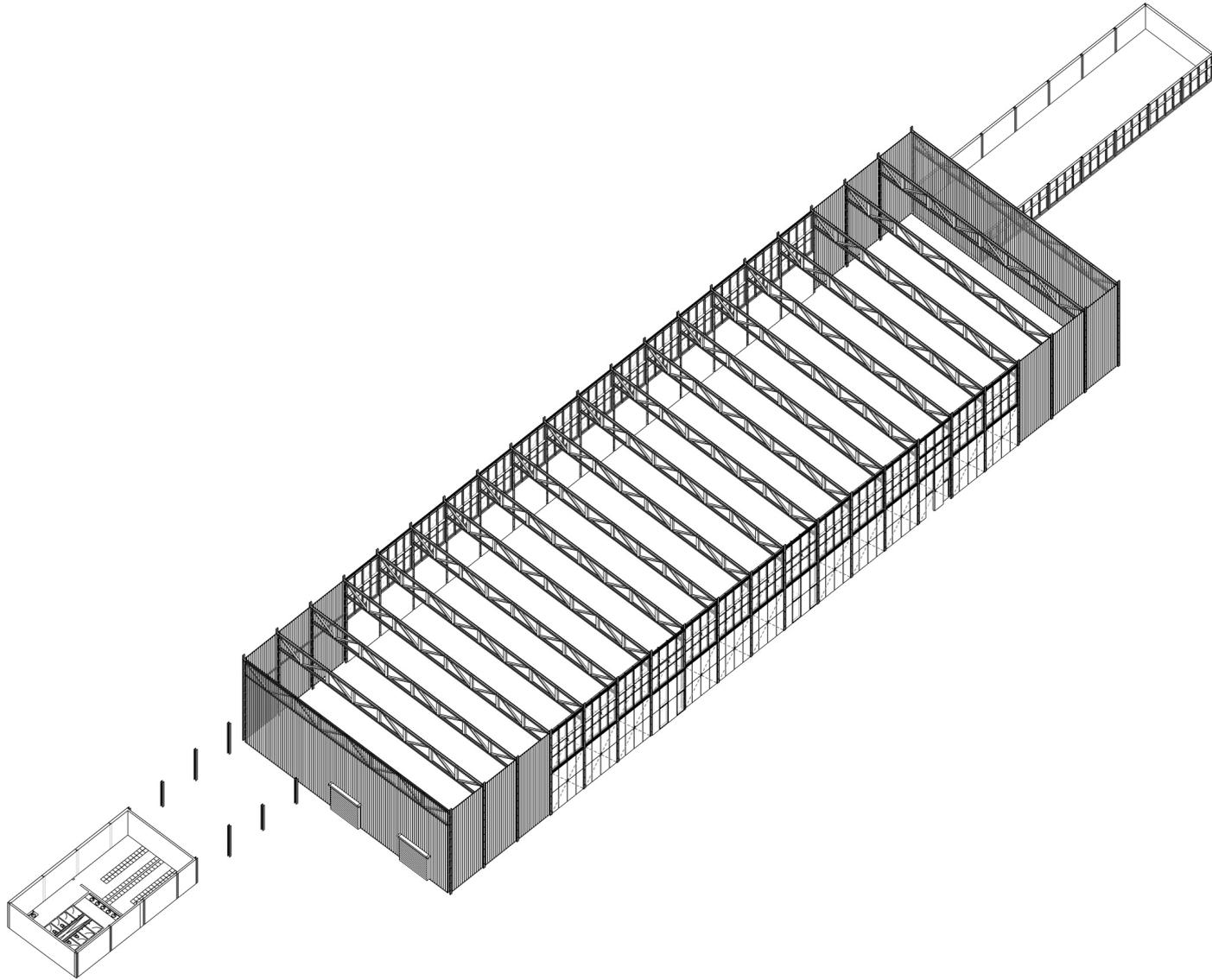
5m grid



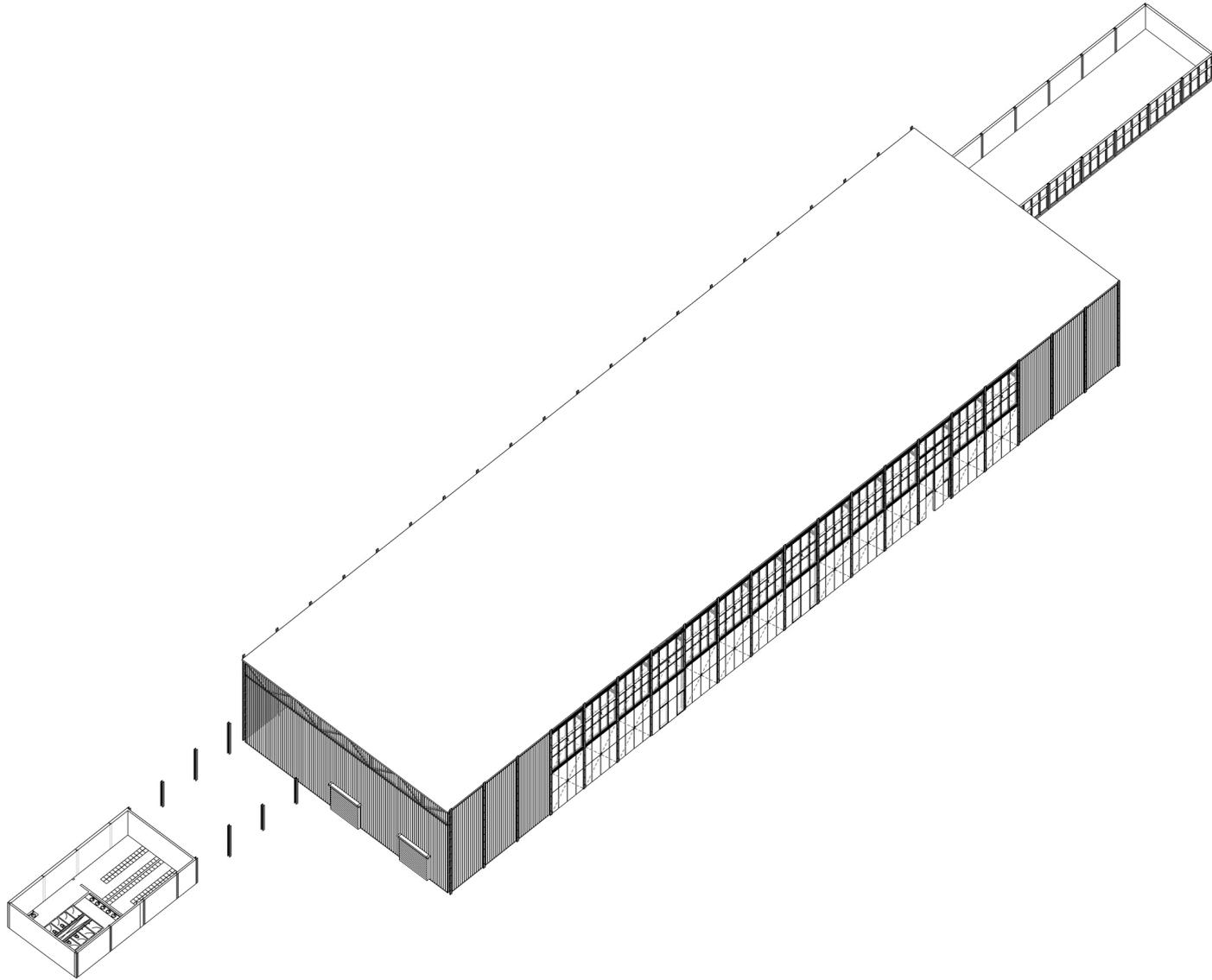
5m grid



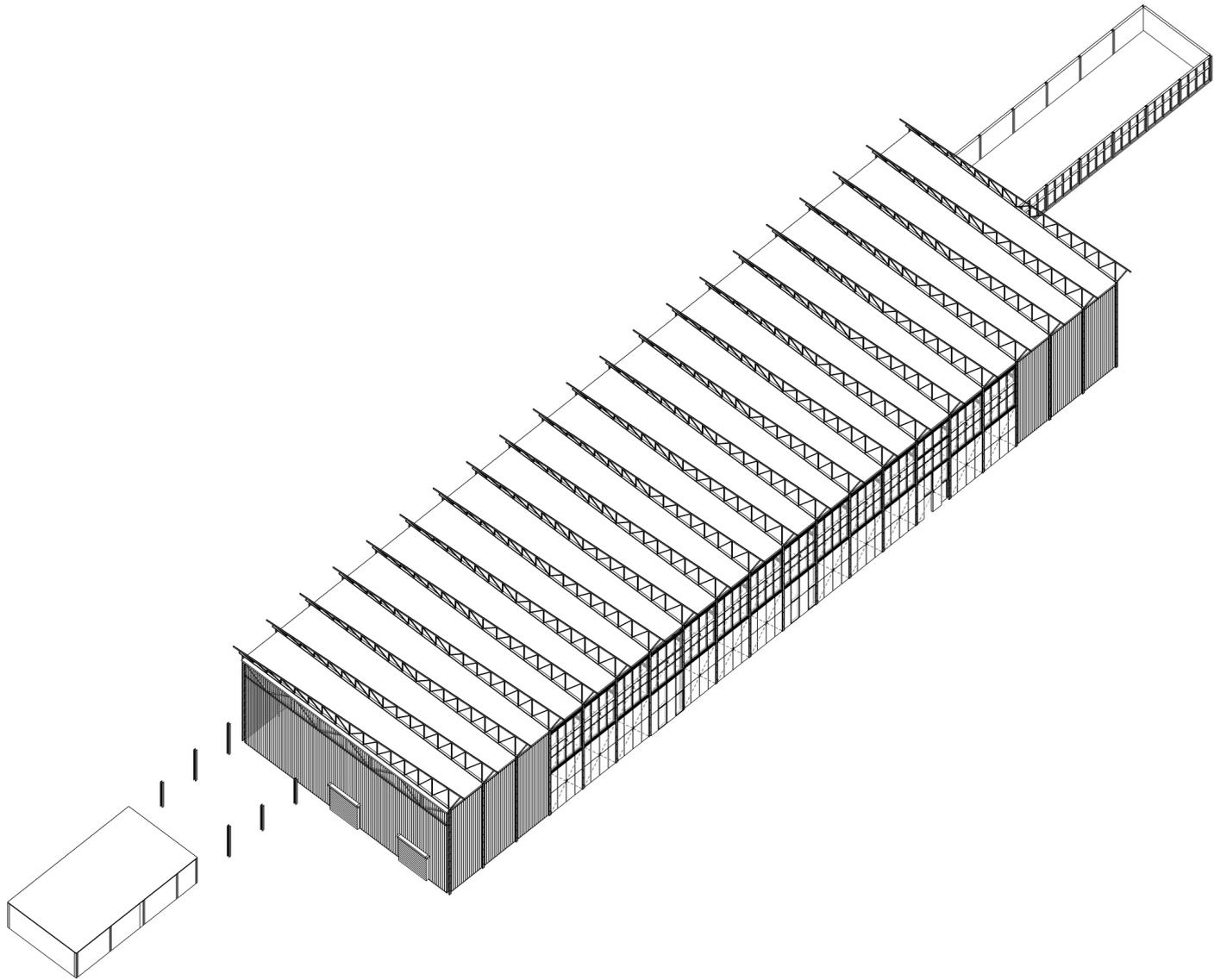
steel cross bracing



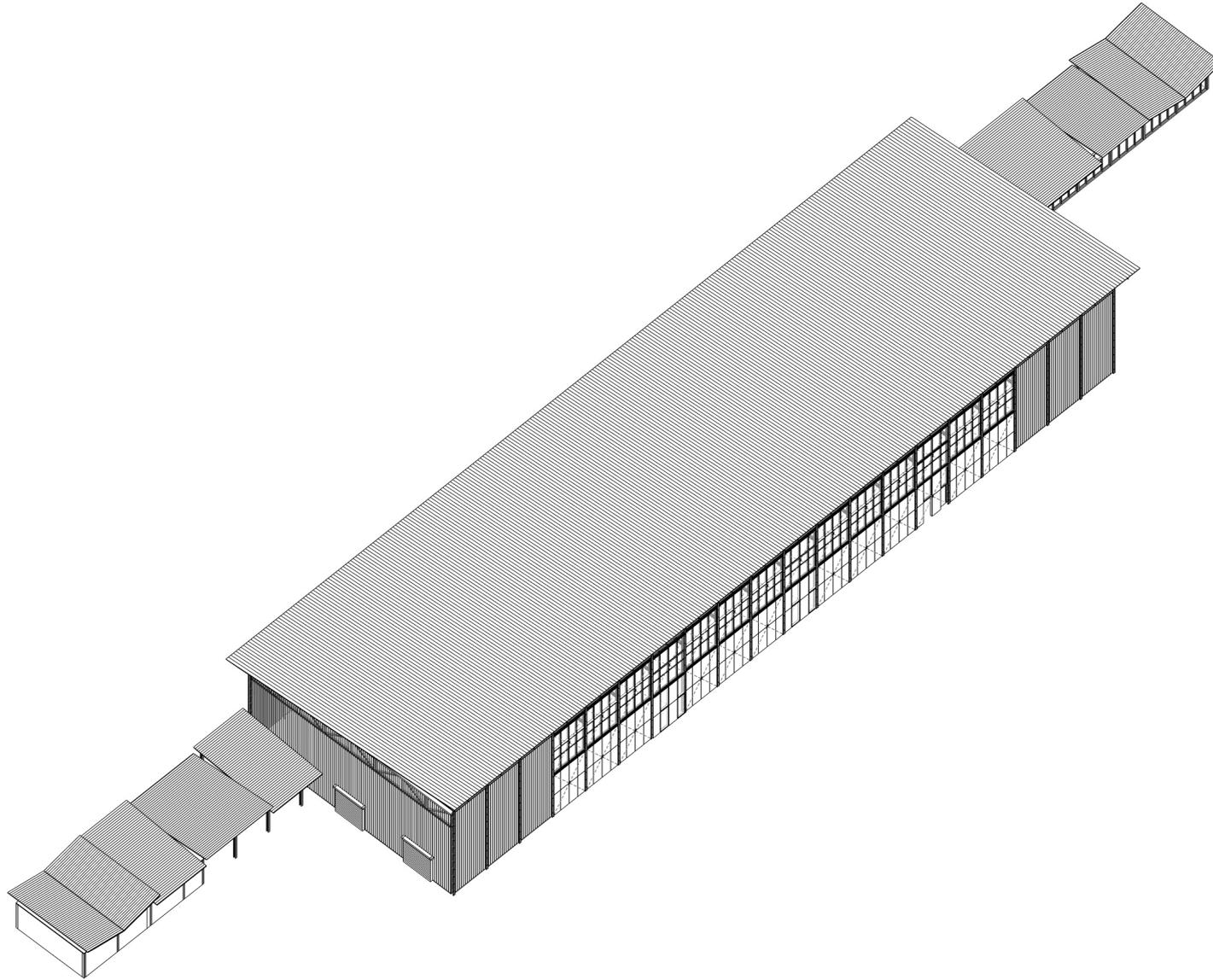
U-glass, insulated glass and patinated copper facades



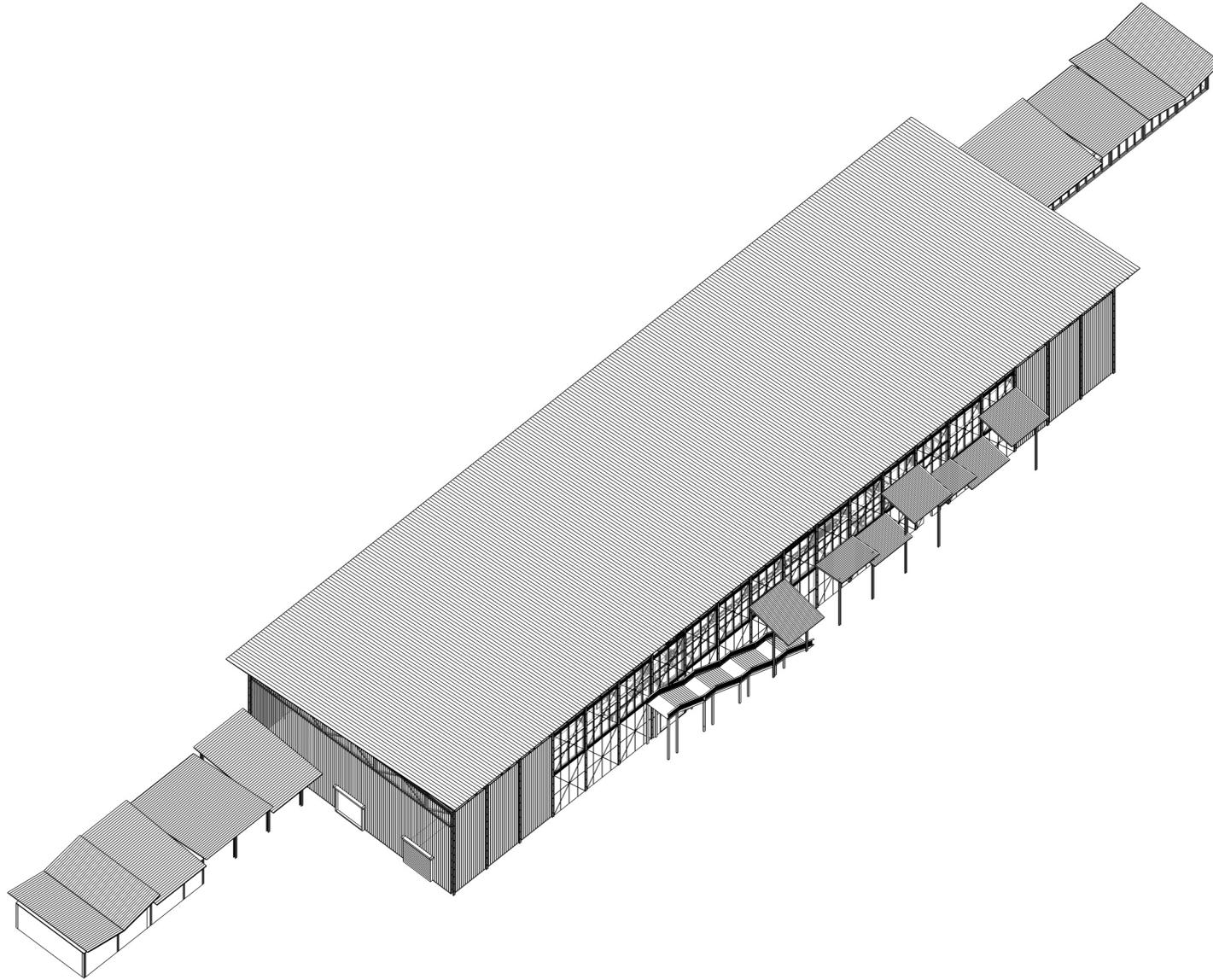
primary insulated roof



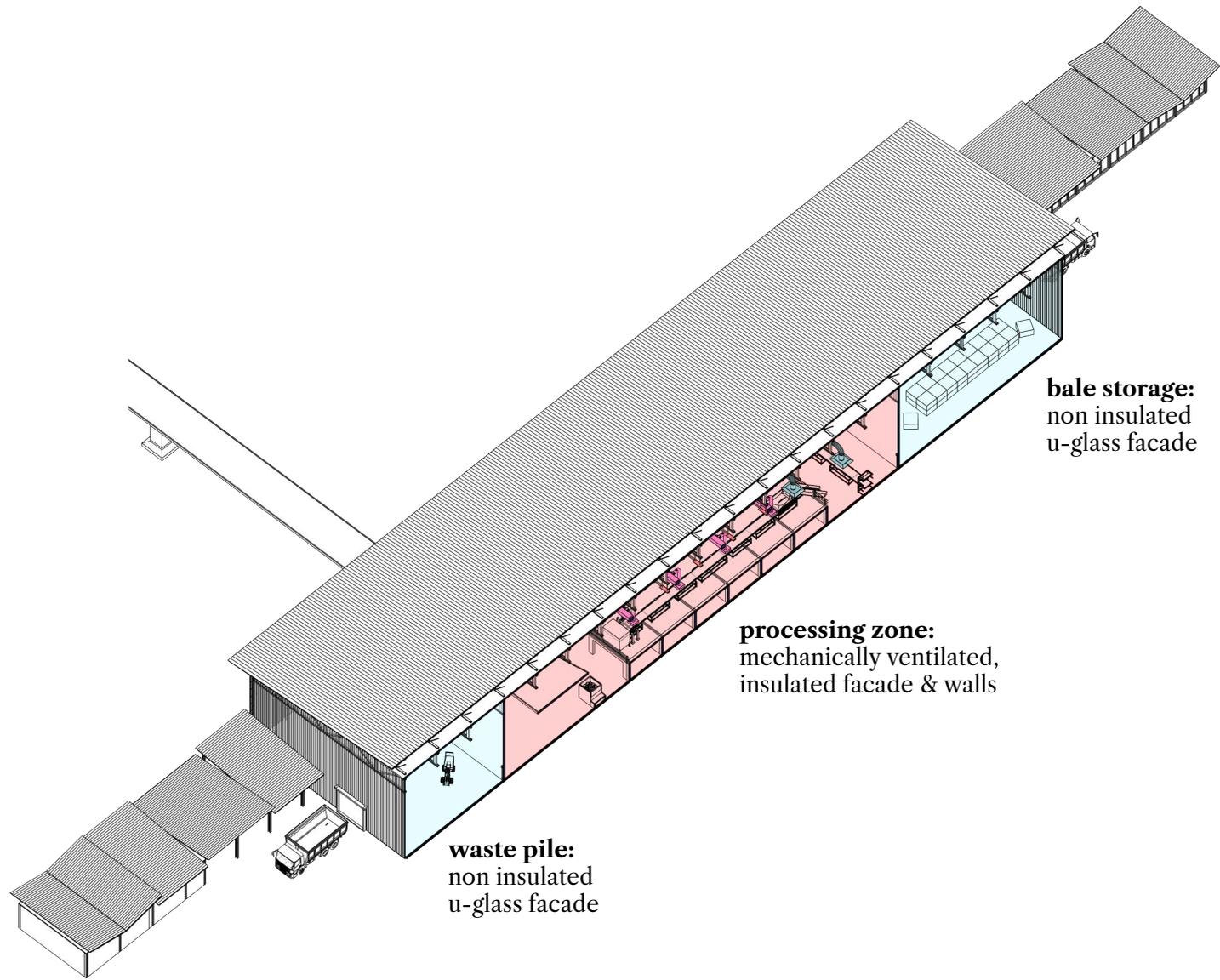
secondary truss



secondary roof



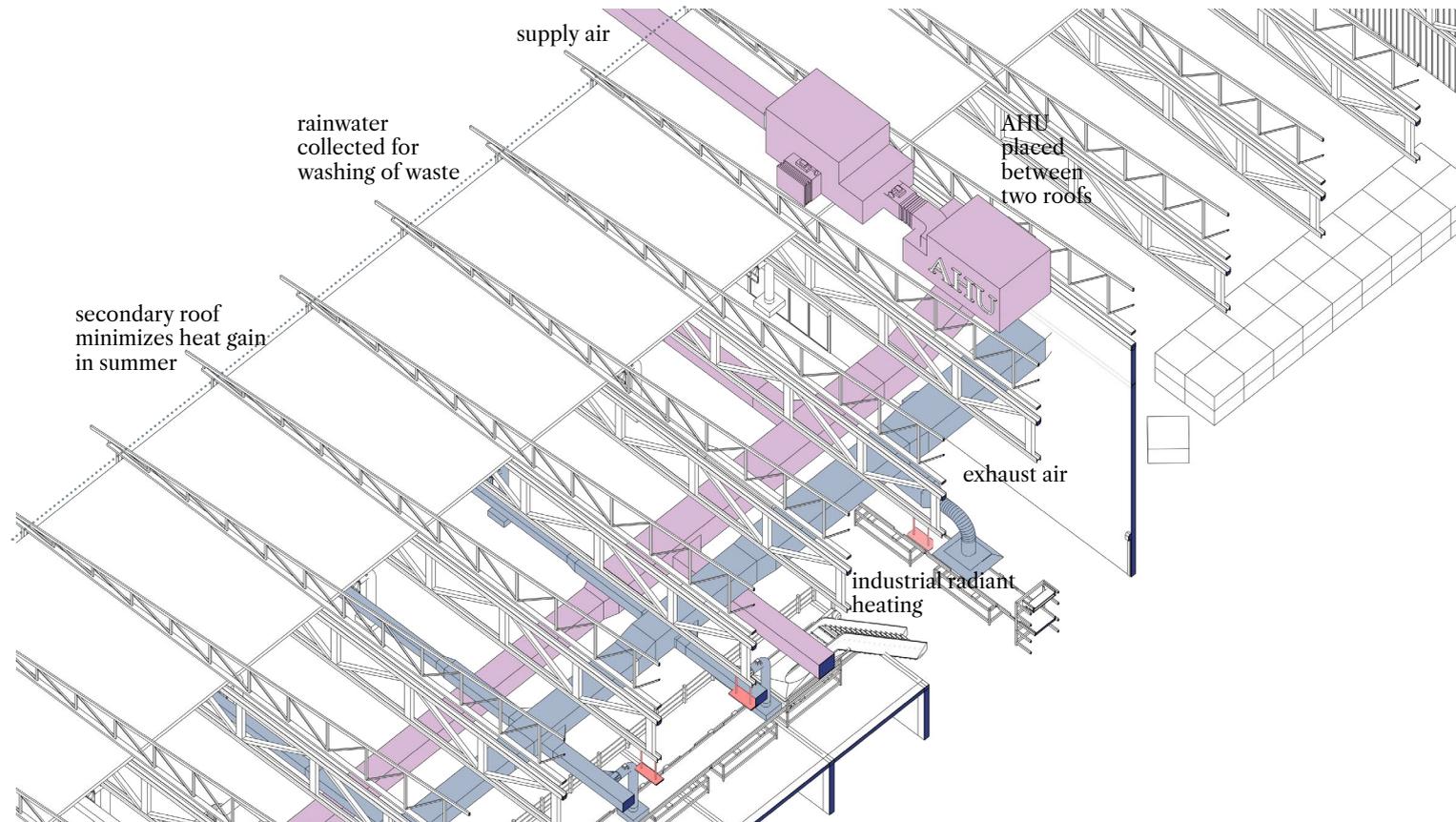
additional roof structures

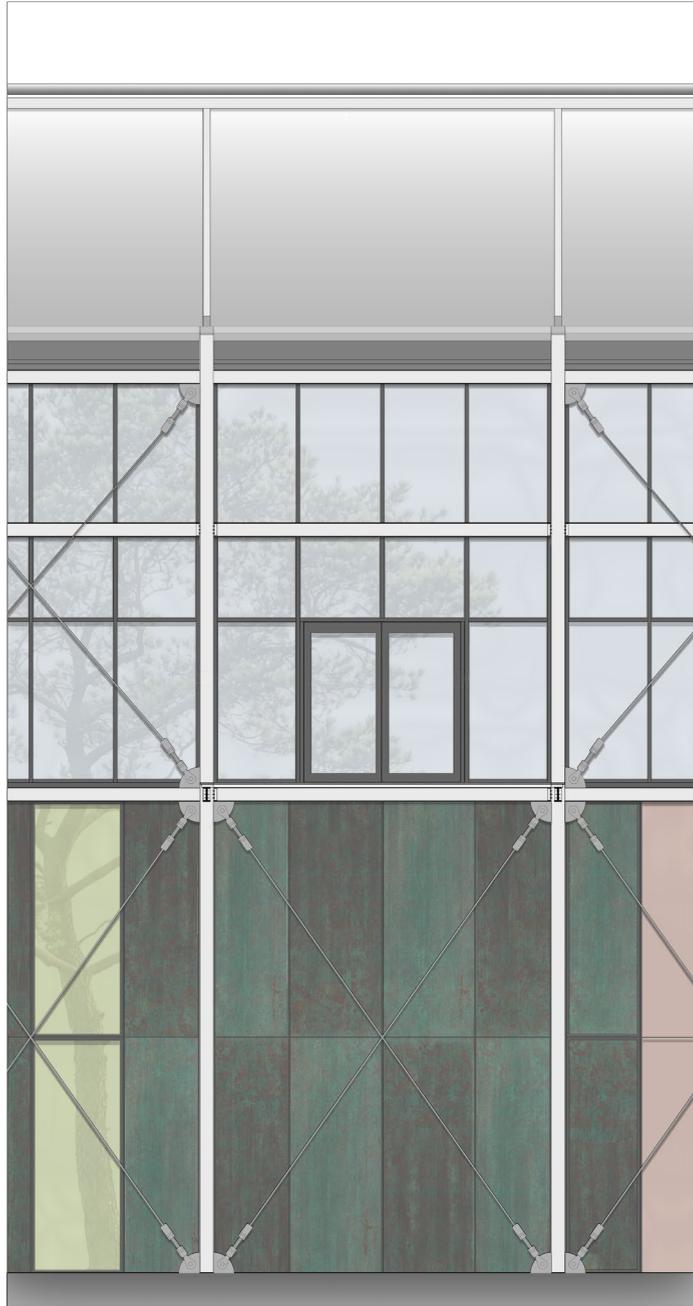
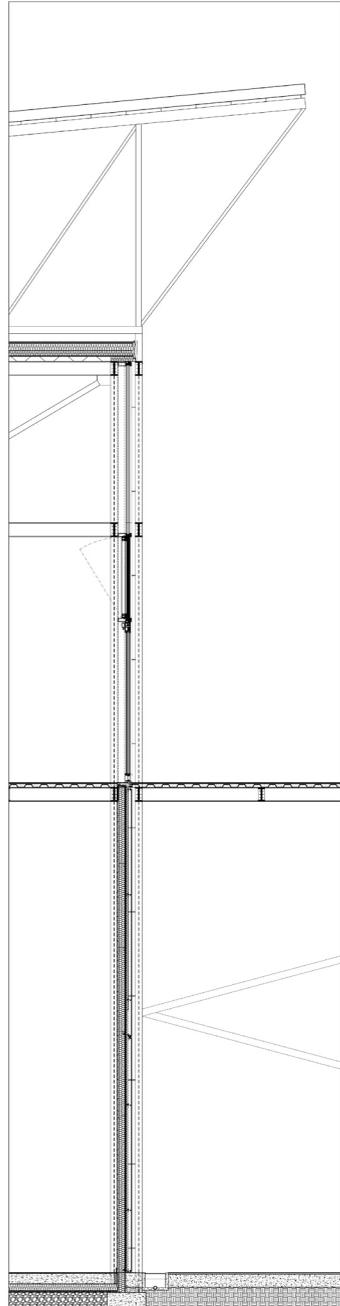


waste pile:
non insulated
u-glass facade

processing zone:
mechanically ventilated,
insulated facade & walls

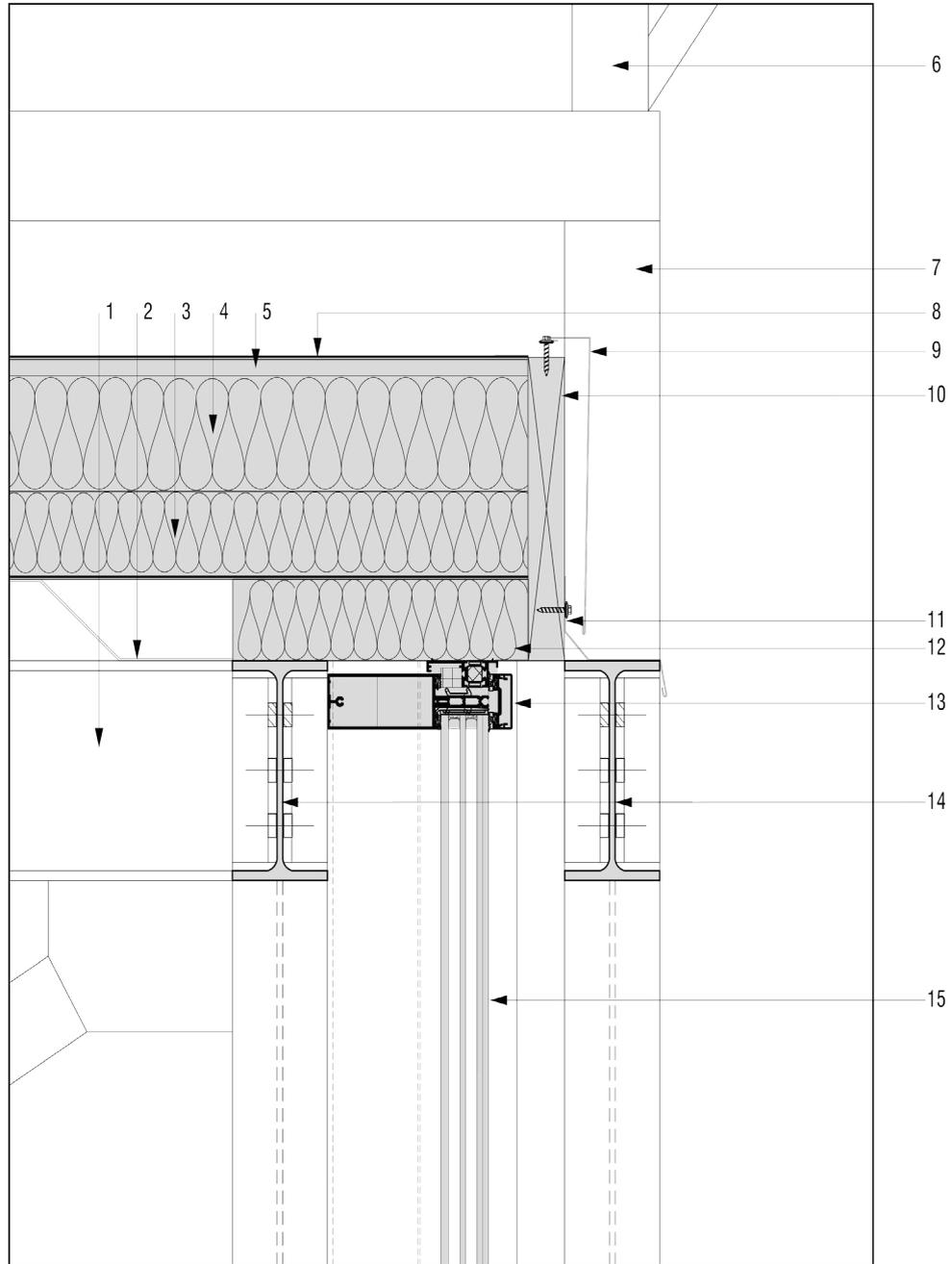
bale storage:
non insulated
u-glass facade







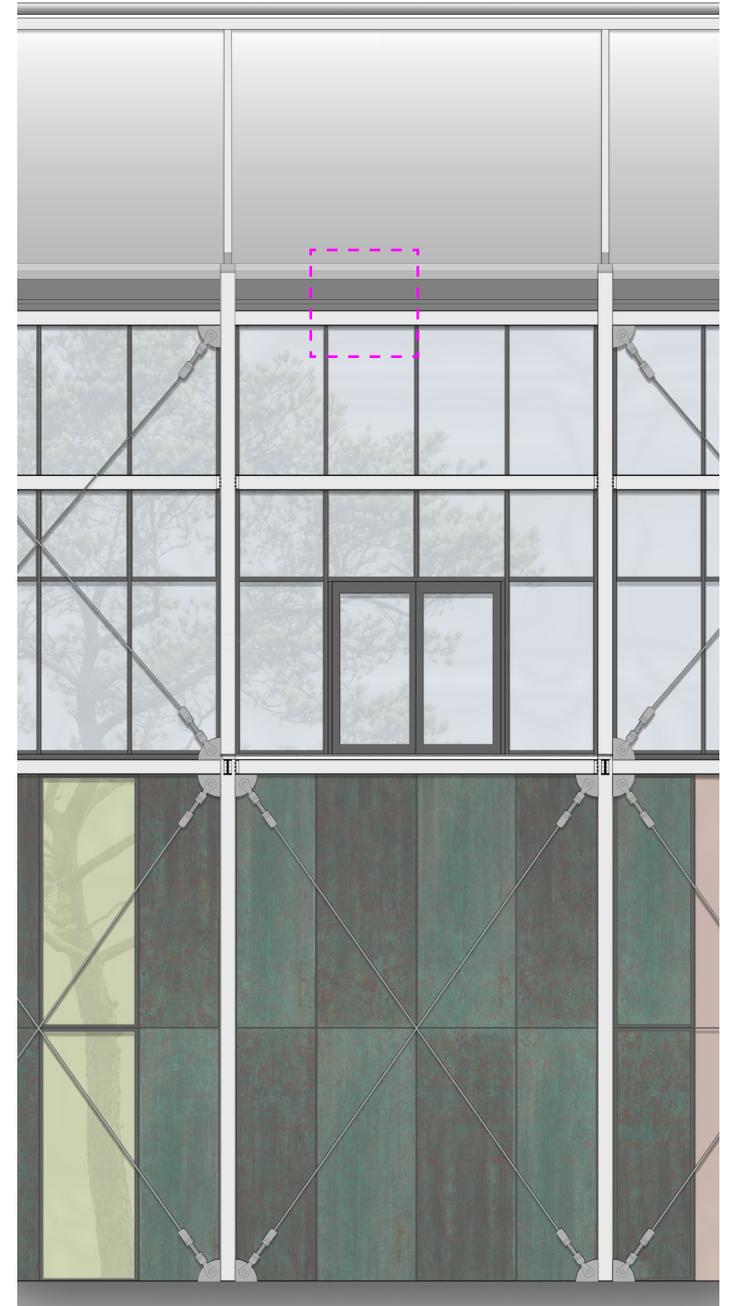
patina - a story of weathered decay and transformation

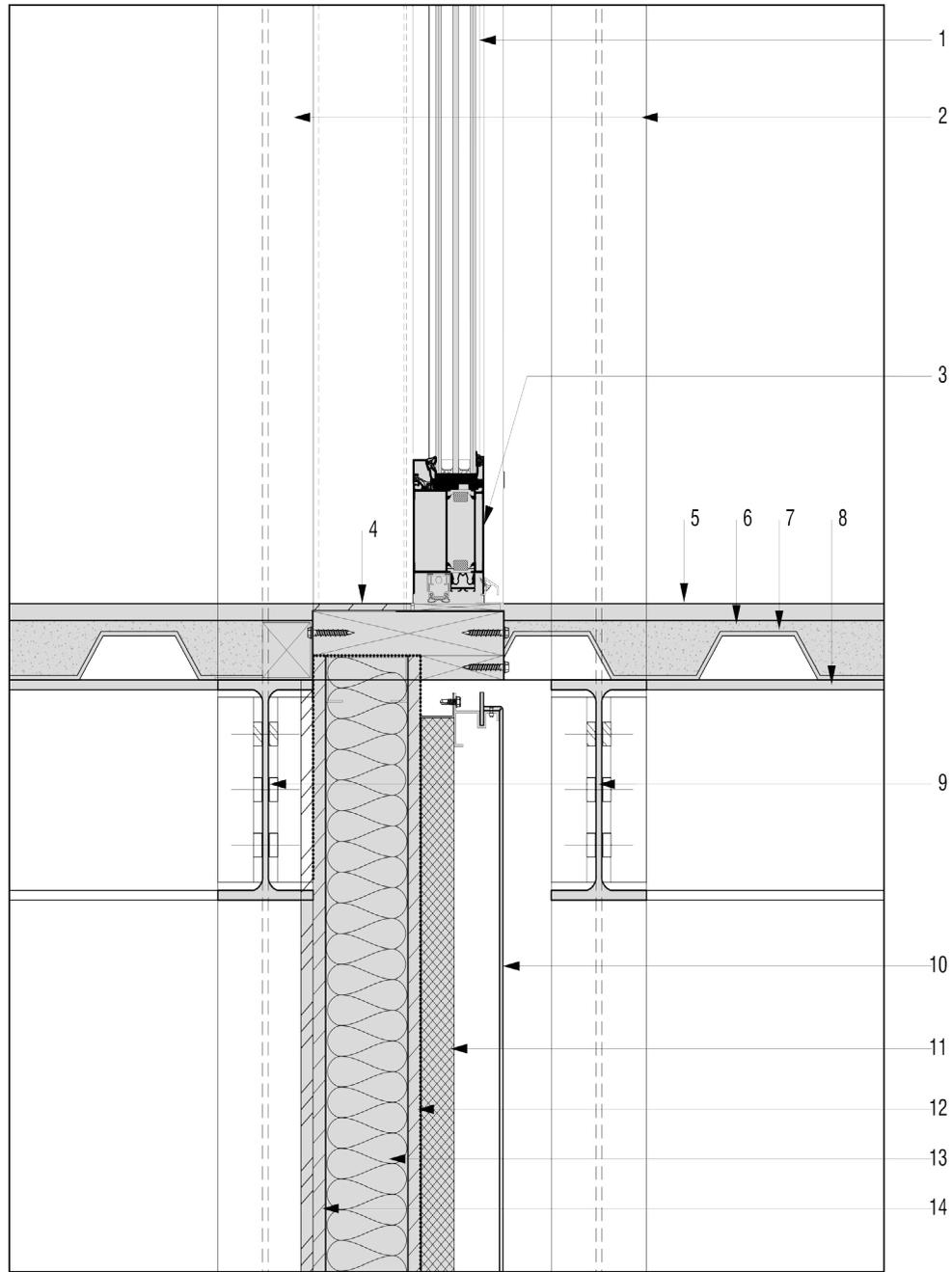


- 1 - PRIMARY ROOF TRUSS
- 2 - CORRUGATED METAL SHEETING
- 3 - VAPOUR BARRIER LAYER
+80 MM THK. MINERAL WOOL INSULATION
- 4 - 120MM THK. MINERAL WOOL INSULATION
- 5 - METAL ROOF SHEET
- 6 - SECONDARY ROOF TRUSS
- 7 - IPE 200 STEEL COLUMN (BEHIND)
- 8 - 2MM POLYOLEFIN SEALING LAYER
- 9 - ALUMINIUM FLASHING
- 10 - WOODEN BLOCKING
- 11 - ALUMINIUM DRIP EDGE FLASHING
- 12 - 80MM THK MINERAL WOOL INSULATION
- 13 - 50MM WIDE TRANSOM CAP
- 14 - IPE 200 TWIN BEAMS
- 15 - TRIPLE GLAZING (8MM + 8MM
+ 12MM TOUGHENED GLASS)

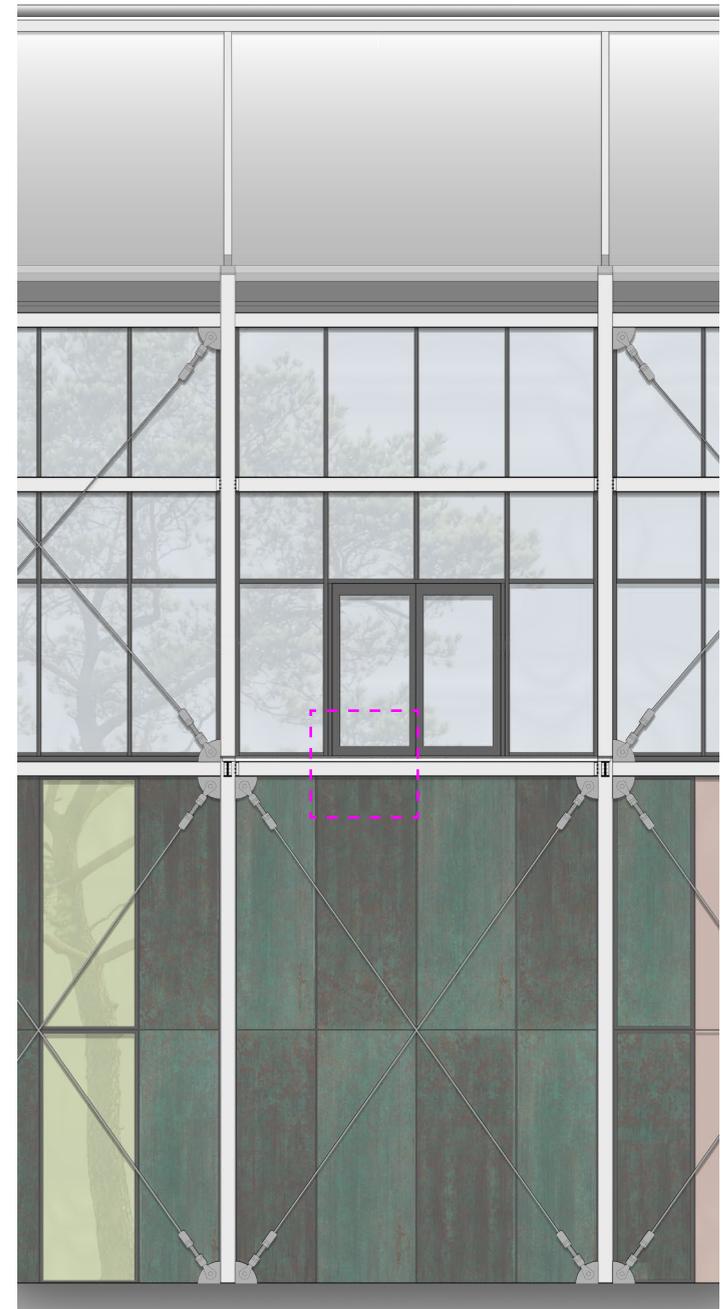
FACADE DETAIL 1

SCALE 1:5



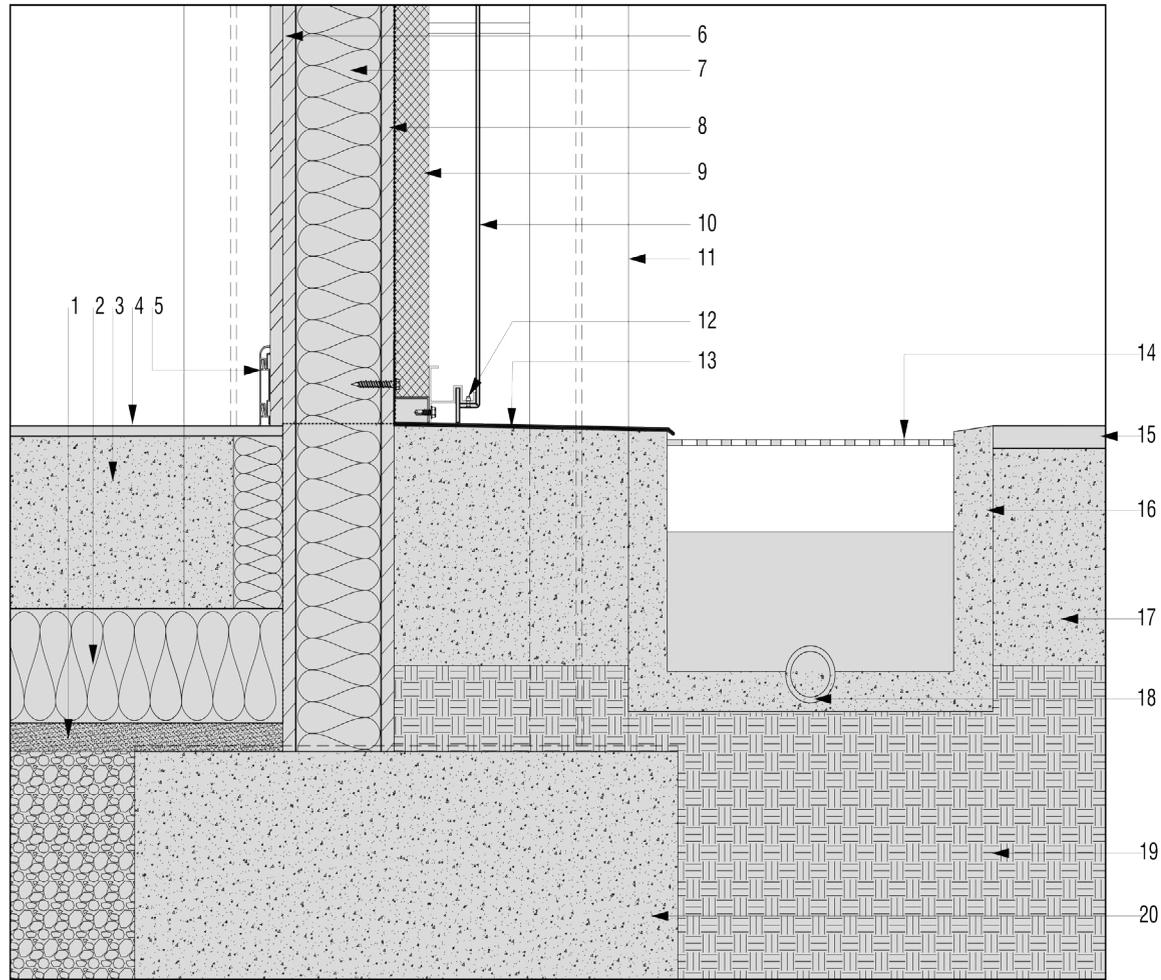


- 1 - TRIPLE GLAZING (8MM + 8MM + 12MM TOUGHENED GLASS)
- 2 - IPE 200 STEEL TWIN COLUMNS
- 3 - ALUMINIUM DOOR FRAME
- 4 - VINYL FINISH THRESHOLD
- 5 - CHEQUERED PLATE FLOOR FINISH
- 6 - 20MM CEMENT SCREED
- 7 - CORRUGATED STEEL FLOOR DECKING PLATE
- 8 - IPE 200 STEEL BEAM
- 9 - IPE 200 STEEL TWIN BEAMS
- 10 - 3350X1300MM PATINATED COPPER FACADE PANEL
- 11 - EXTERIOR XPS INSULATION
- 12 - 20MM THK. SHEATHING BOARD
- 13 - 80MM THK. MINERAL WOOL INSULATION
- 14 - 2X 20MM THK. FIRE RESISTANT PLASTERBOARD



FACADE DETAIL 2

SCALE 1:5



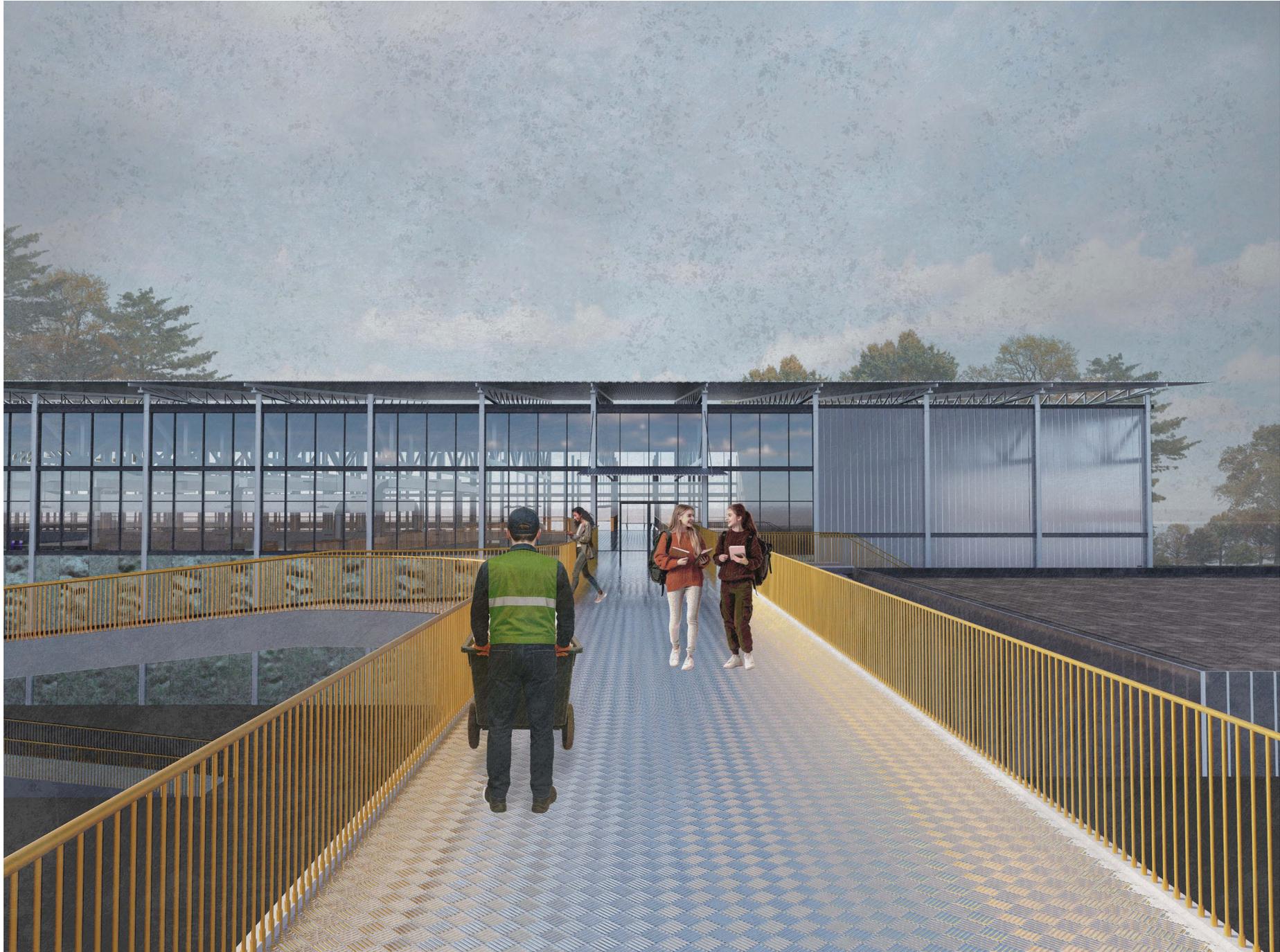
FACADE DETAIL 3

SCALE 1:5

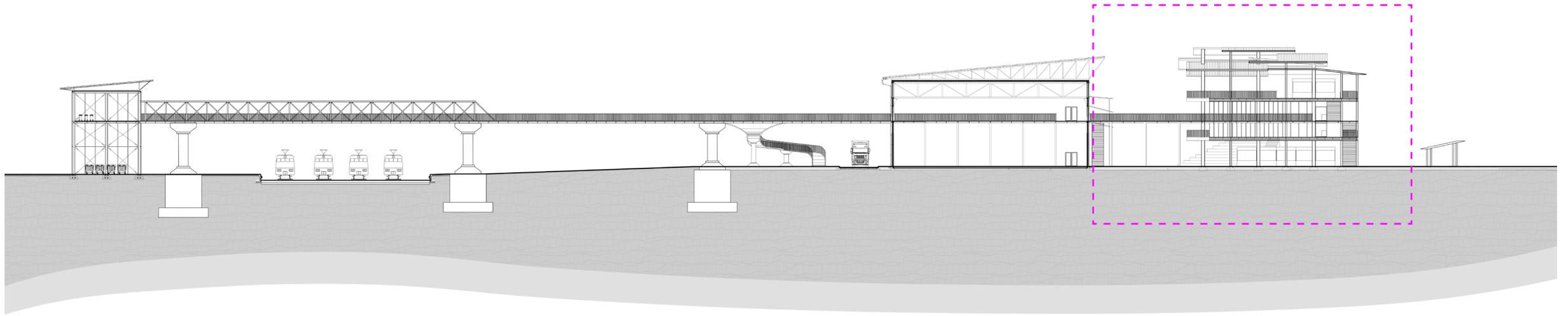
- 1 - 25MM SAND BLINDING
- 2 - 100MM XTRATHERM FLOOR INSULATION + DAMP PROOF COURSE LAYER
- 3 - 150MM CONCRETE SLAB
- 4 - 10MM CEMENT SLURRY FLOOR FINISH
- 5 - 75MM ALUMINIUM SKIRTING
- 6 - 2X 20MM THK FIRE RESISTANT PLASTERBOARD
- 7 - 80MM THK. MINERAL WOOL INSULATION
- 8 - 20MM THK. FIBREBOARD
- 9 - EXTERIOR XPS INSULATION
- 10 - PATINATED COPPER FACADE PANEL

- 11 - IPE 200 TWIN COLUMN (BEHUND)
- 12 - FACADE PANEL CONNECTOR
- 13 - ALUMINIUM DRIP EDGE FLASHING
- 14 - STEEL GRATING
- 15 - 20MM THK. NATURAL STONE PAVERS
- 16 - CONCRETE STORM WATER GUTTER
- 17 - 150MM CONCRETE SLAB
- 18 - 50 MM DIA. STORM WATER PIPE
- 19 - COMPACTED EARTH
- 20 - CONCRETE FOUNDATION BLOCK

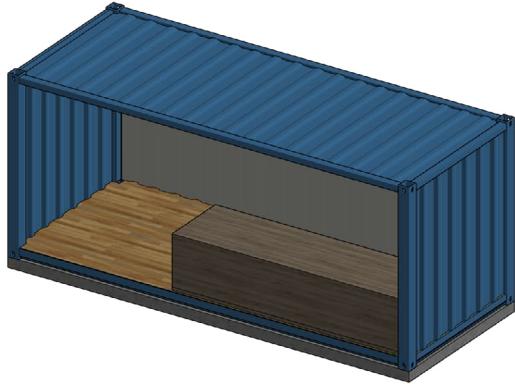




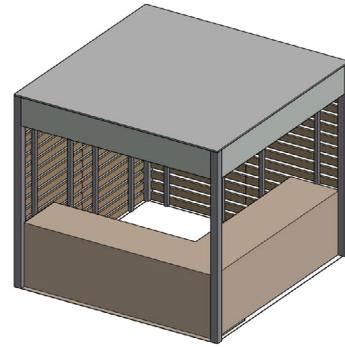




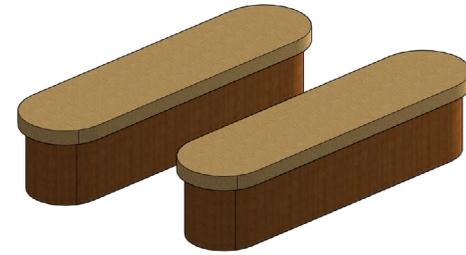
Section X-X'
The Hive



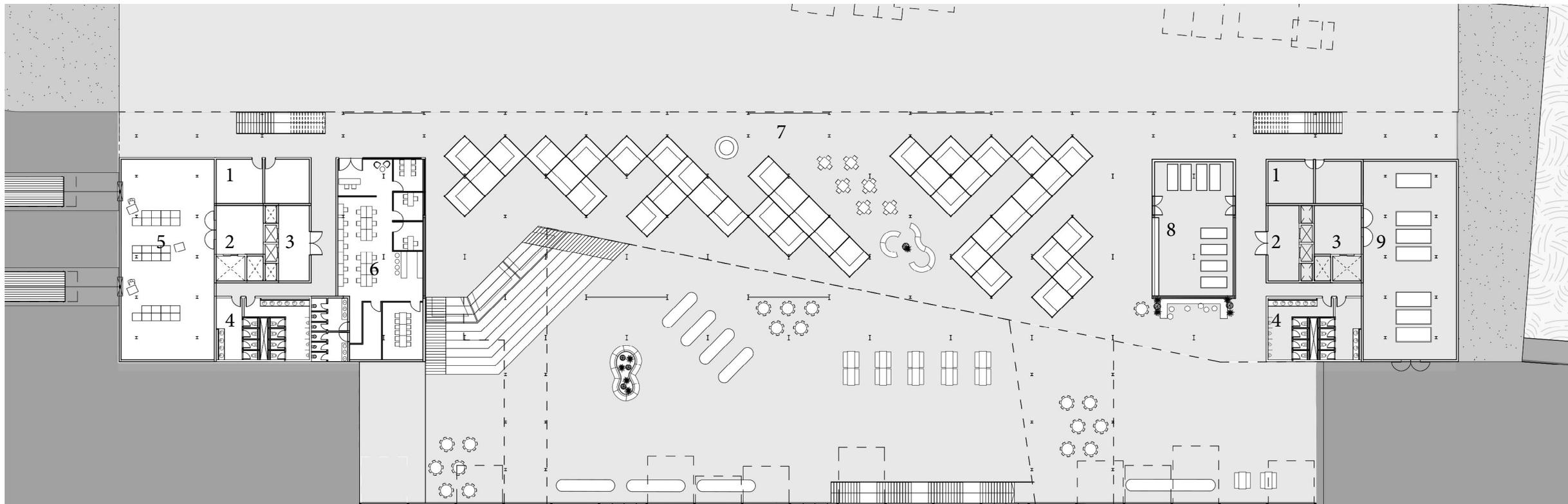
container shops



kiosks



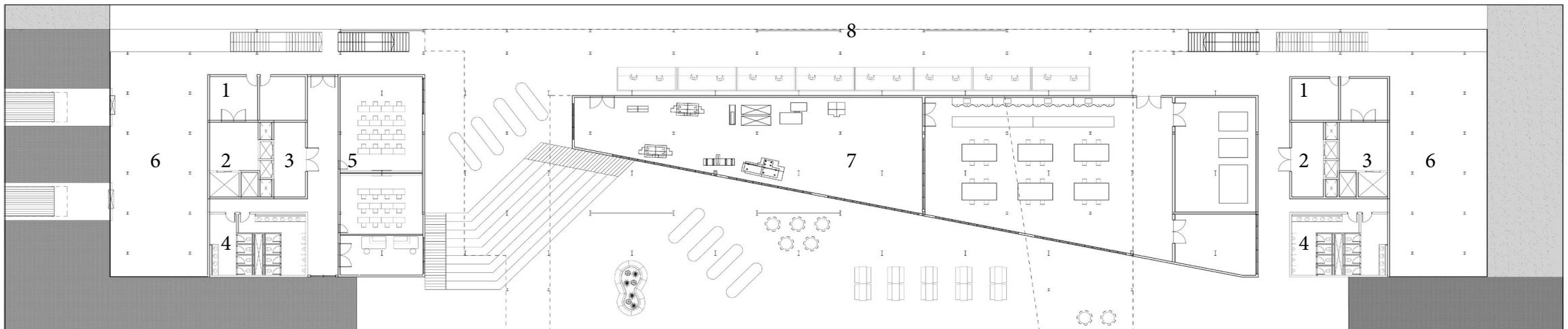
pop-up shops



Ground Floor Plan

- 1 - Service rooms
- 2 - Freight elevator
- 3 - Passenger elevators
- 4 - Toilets
- 5 - Market goods unloading
- 6 - Admin office
- 7 - Second hand goods/refurbished goods market
- 8 - Refurbishable items collection
- 9 - Storage





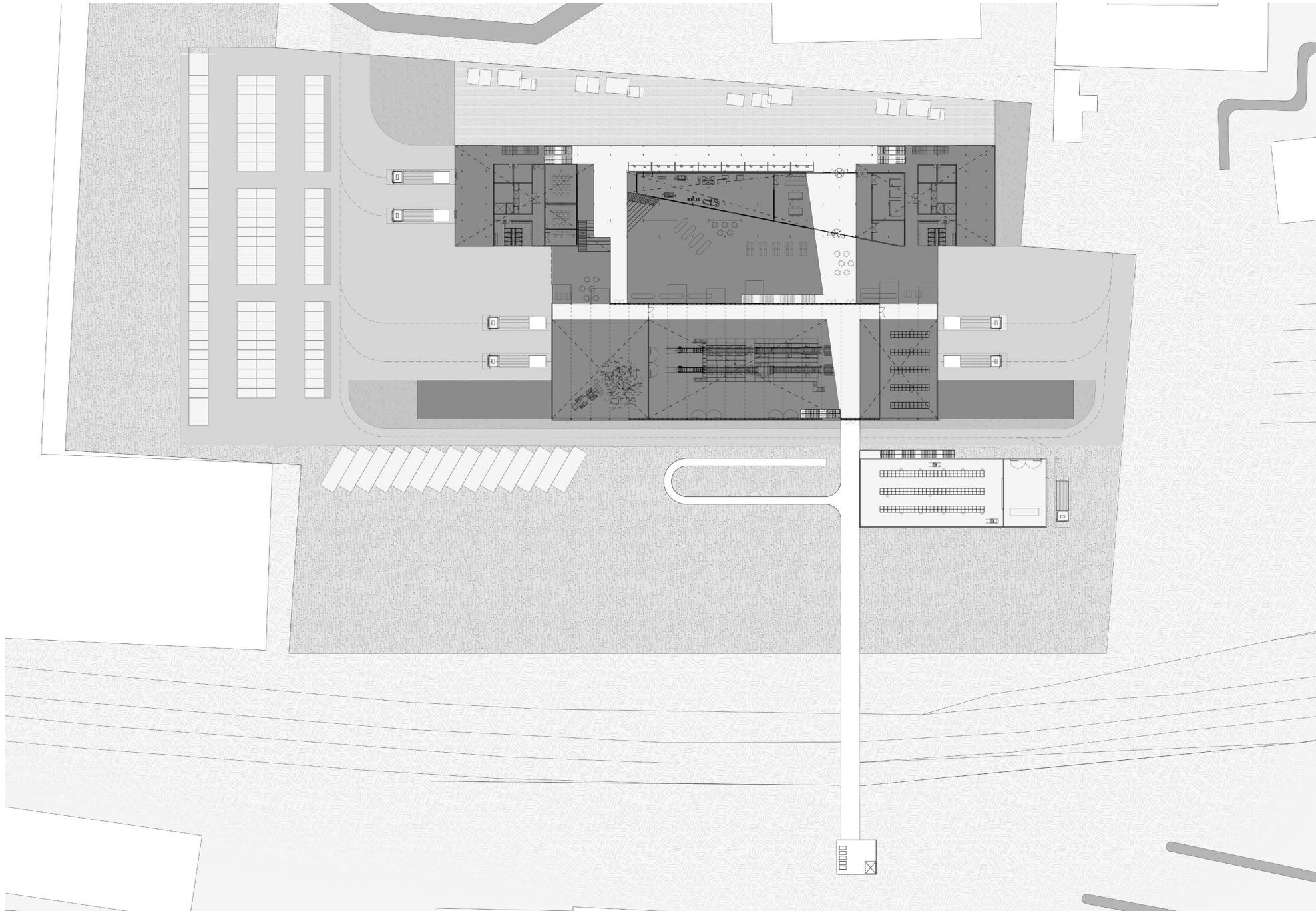
First Floor Plan
+4m lvl

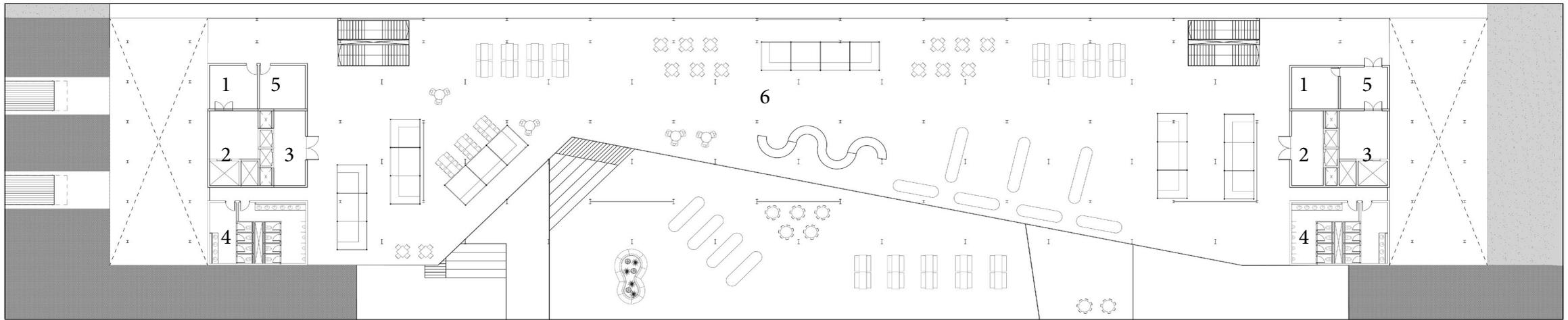
- 1 - Service rooms
- 2 - Freight elevator
- 3 - Passenger elevators
- 4 - Toilets

- 5 - Education & awareness centre
- 6 - Multi-purpose galleries
- 7 - Refurbishment centre
- 8 - Container markets



Bridge Plan
+7.5 m lvl



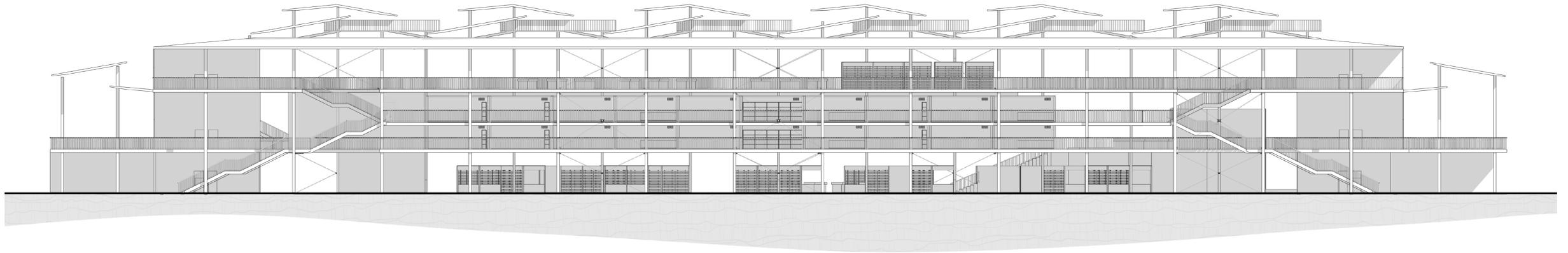


Second Floor Plan
+10m lvl

- 1 - Service rooms
- 2 - Freight elevator
- 3 - Passenger elevators

- 4 - Toilets
- 5 - Cold rooms/storage
- 6 - Open air food markets





Elevation A

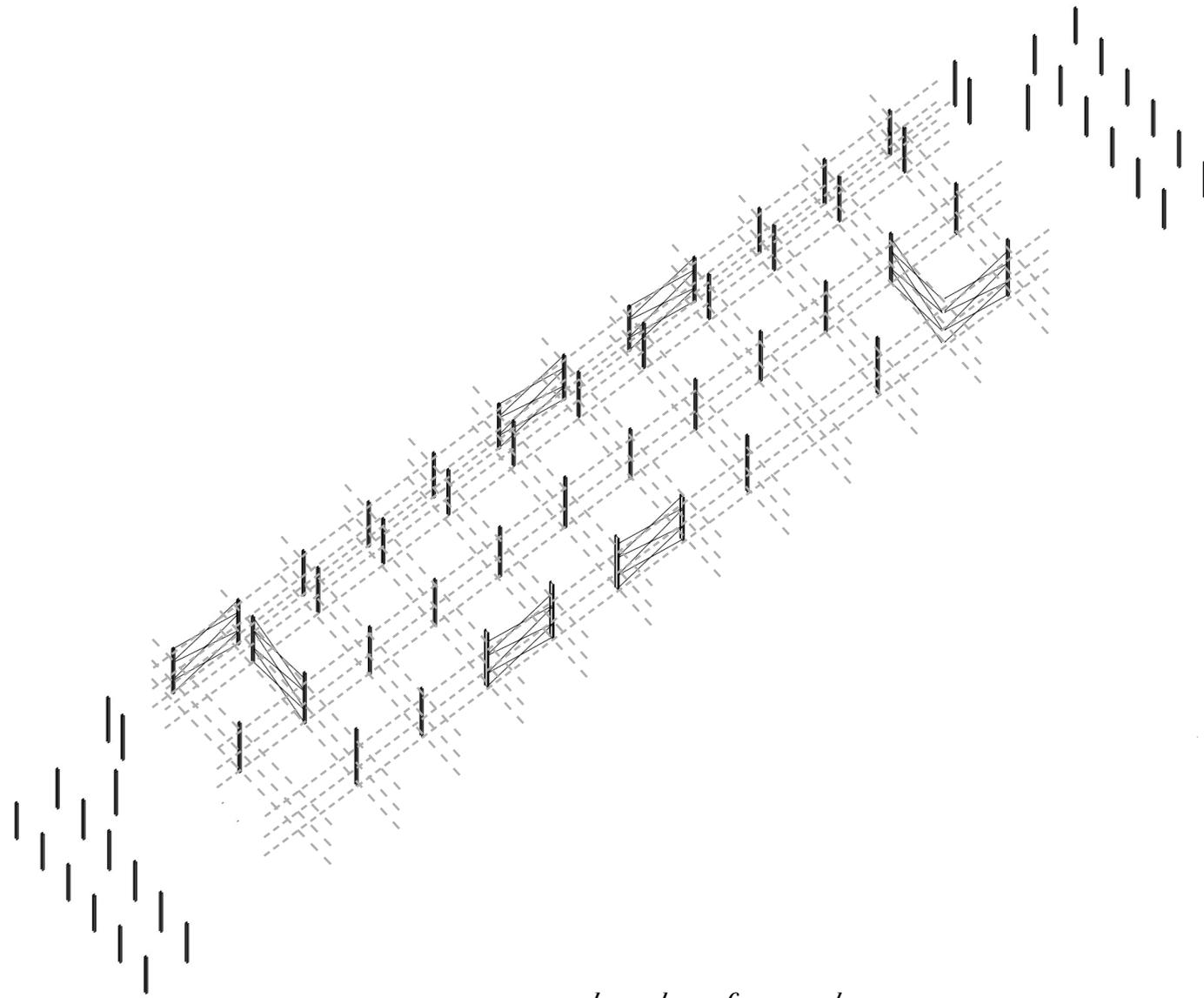


Elevation B

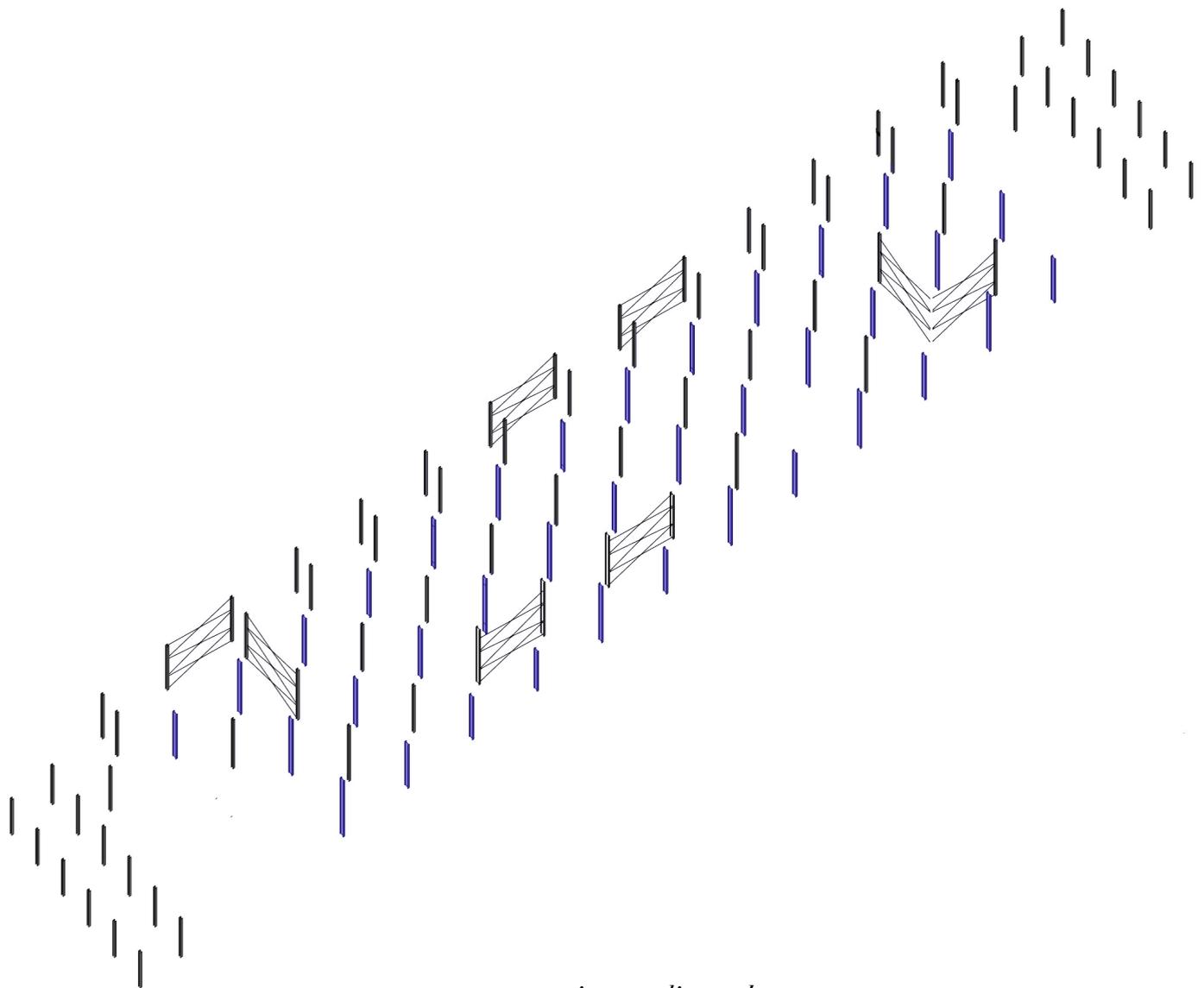




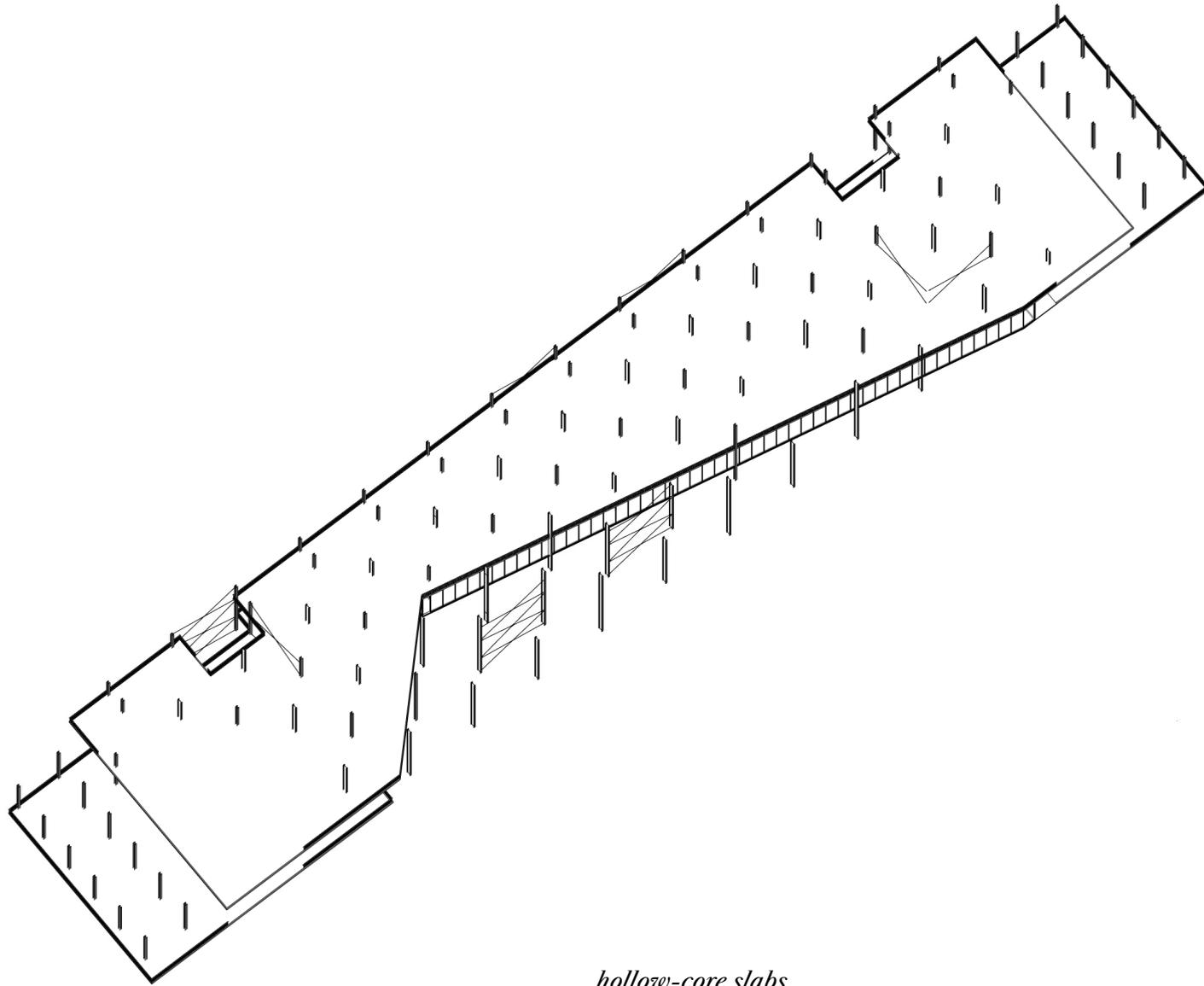




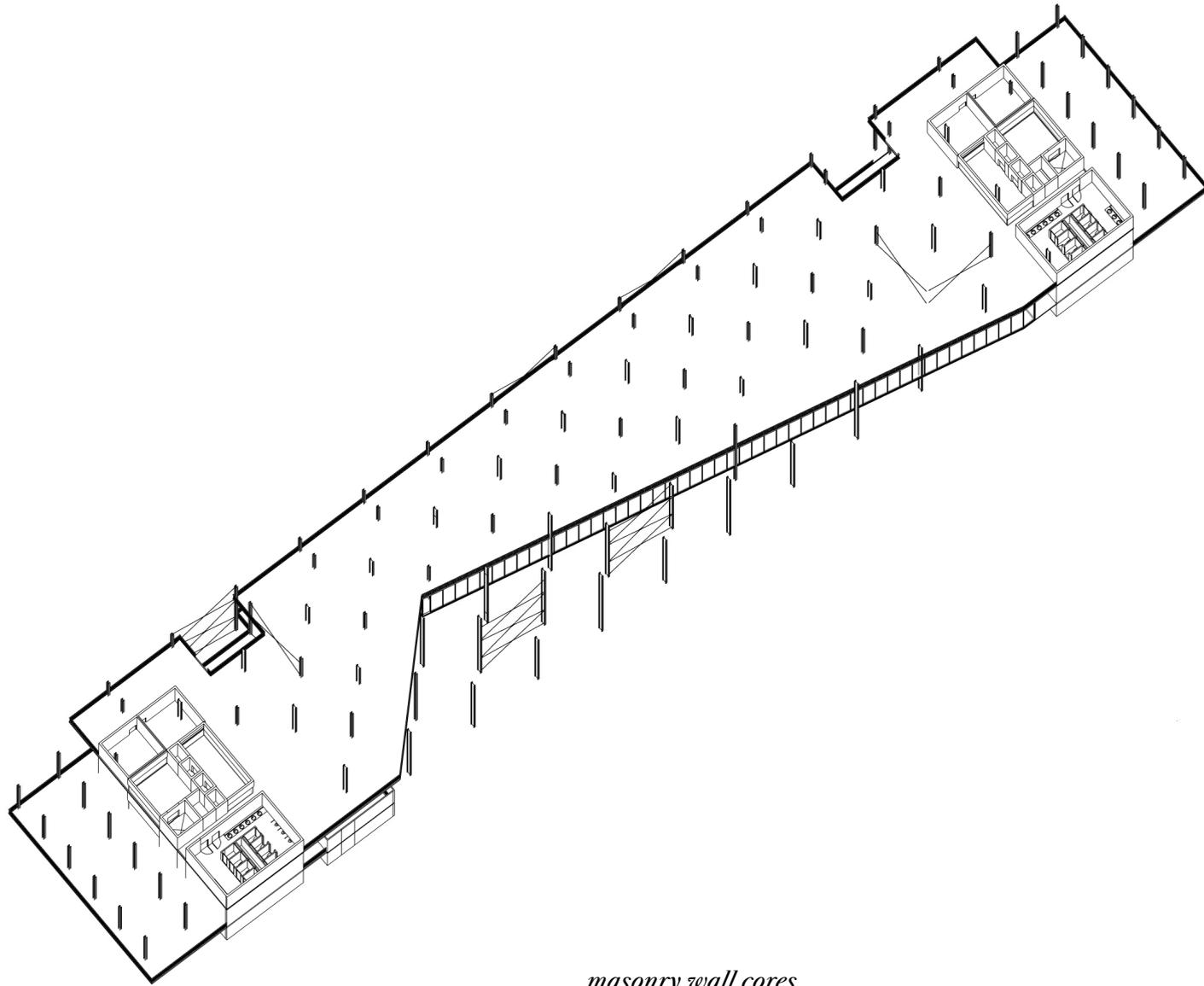
column-beam framework



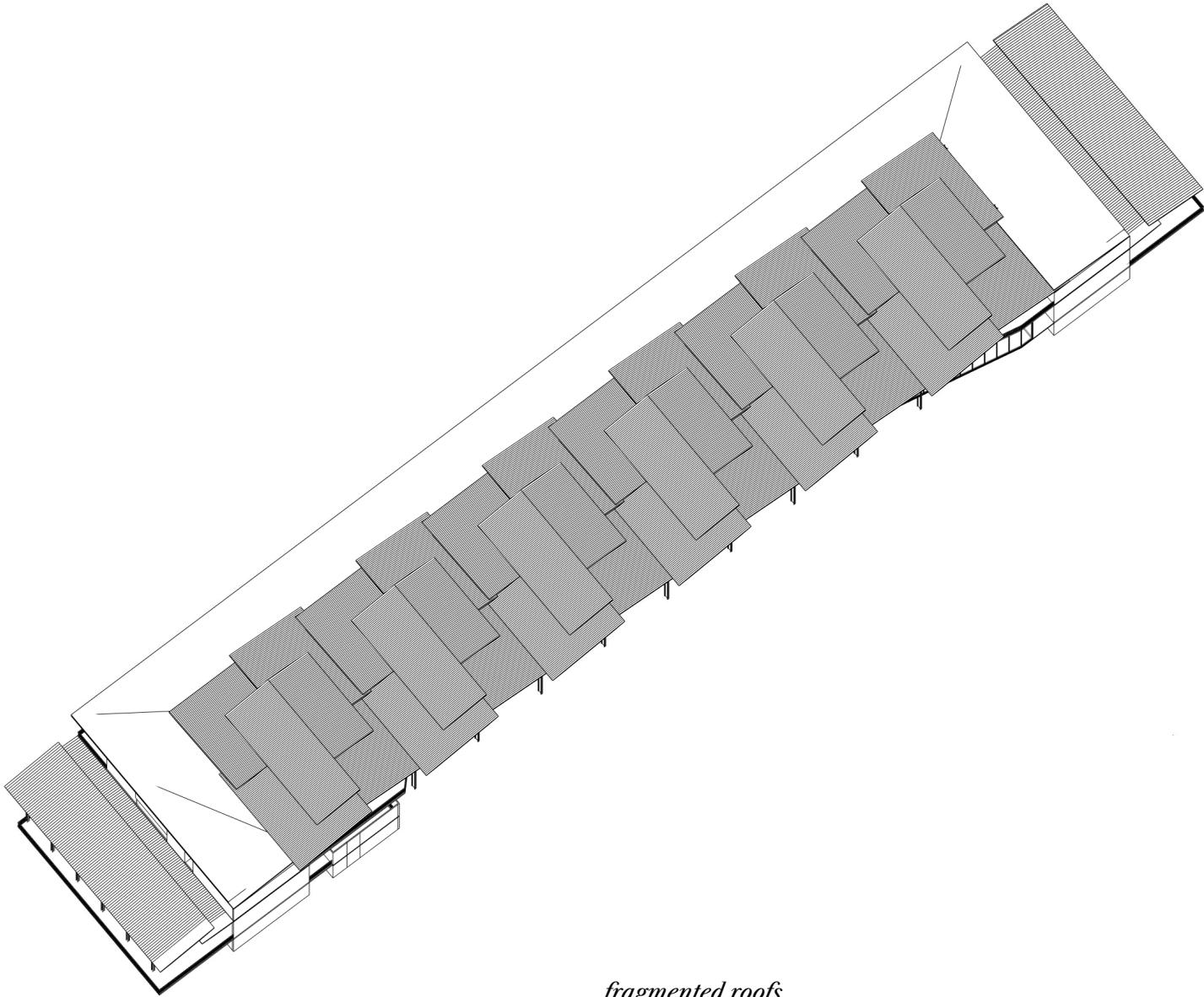
intermediate columns



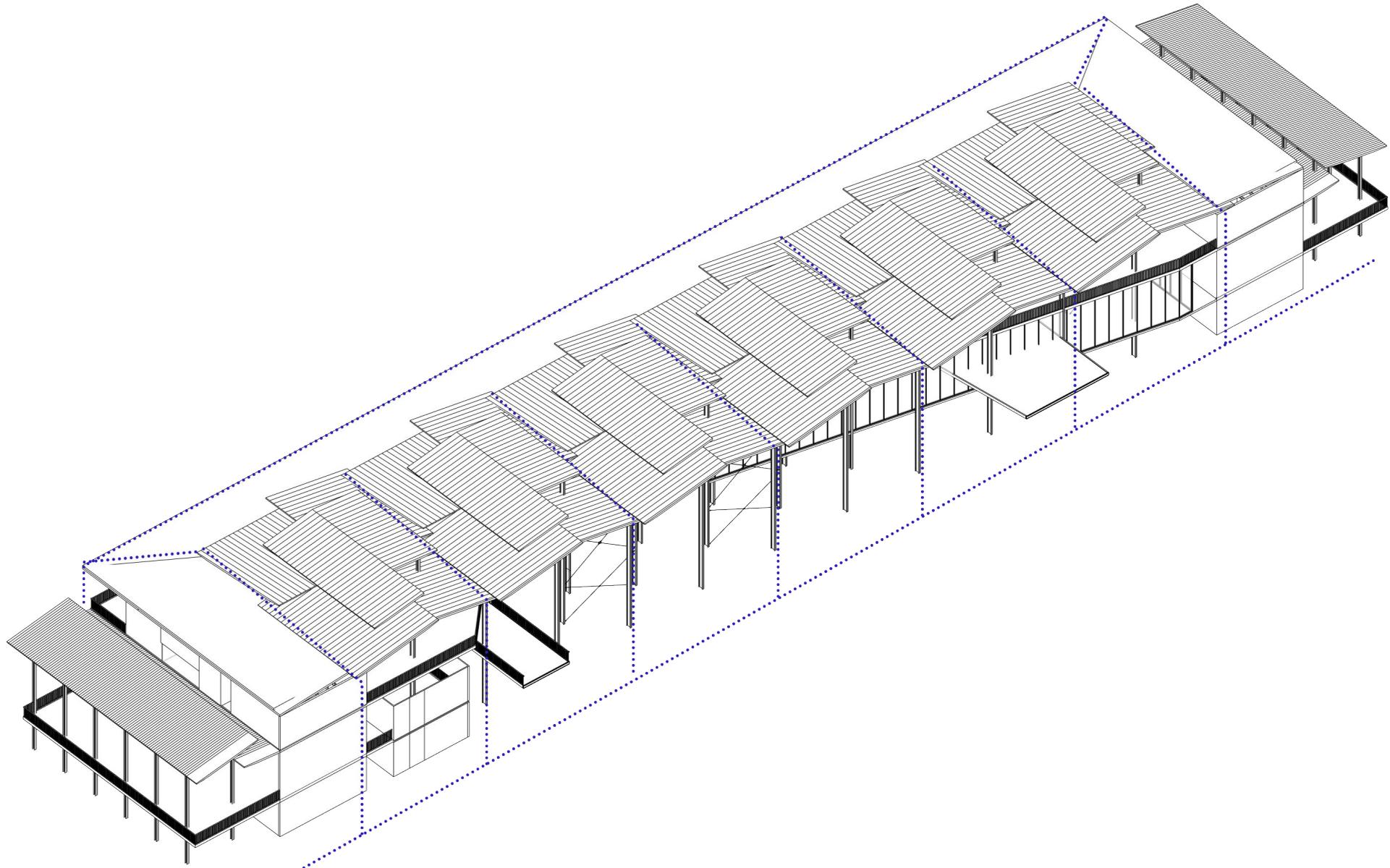
hollow-core slabs



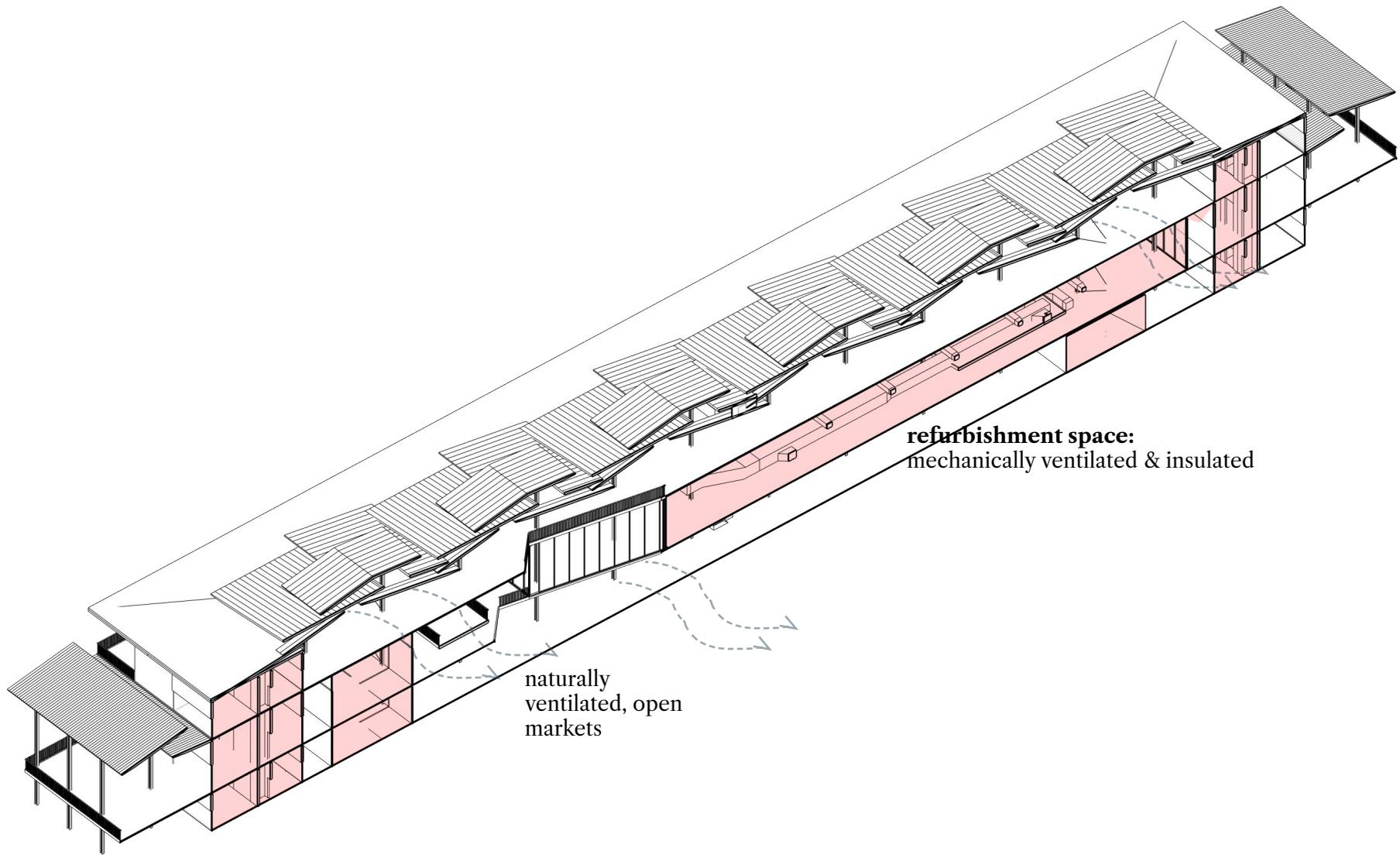
masonry wall cores



fragmented roofs

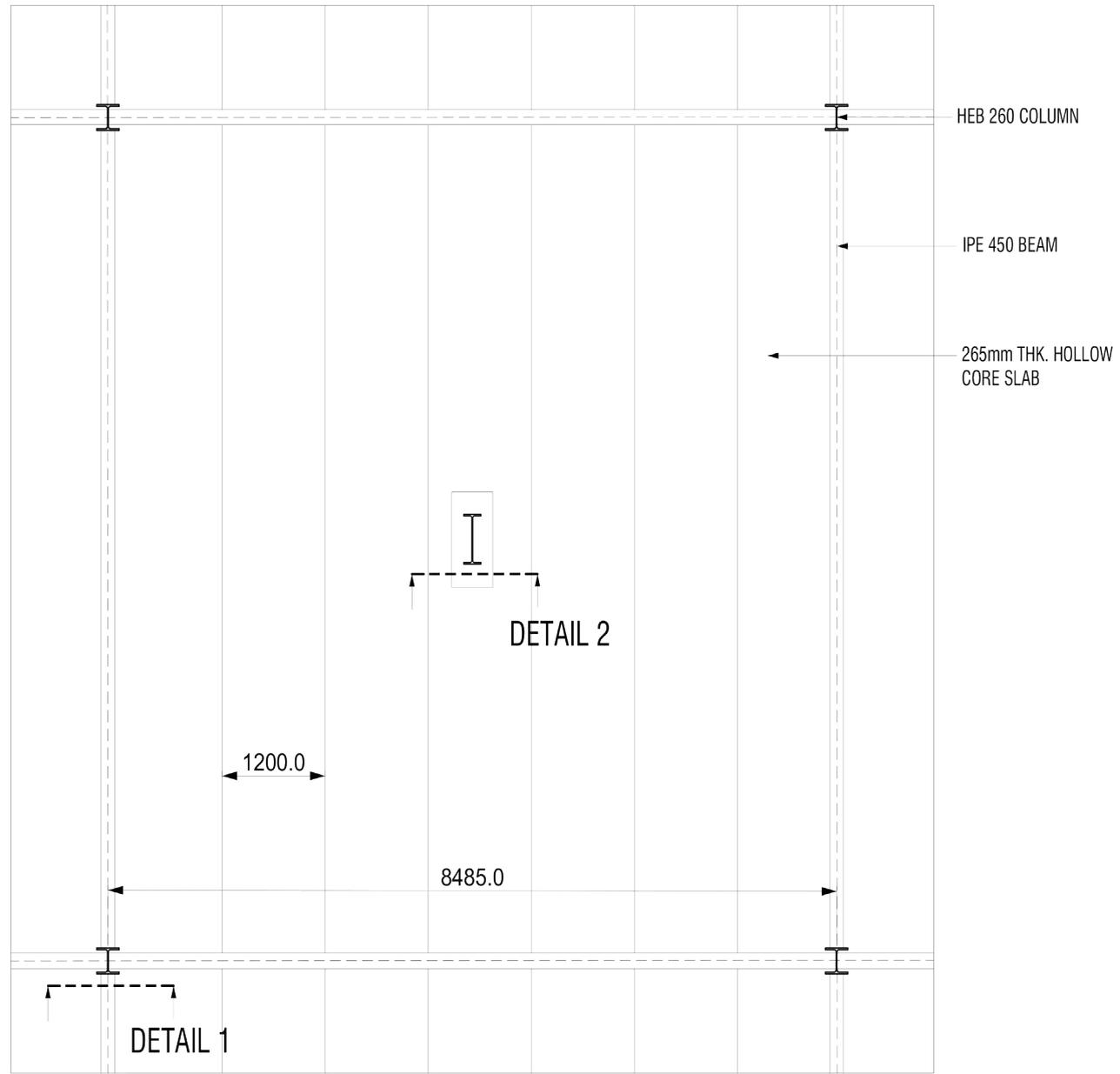


to underground storage tank



refurbishment space:
mechanically ventilated & insulated

naturally
ventilated, open
markets



HEB 260 COLUMN

IPE 450 BEAM

265mm THK. HOLLOW
CORE SLAB

DETAIL 2

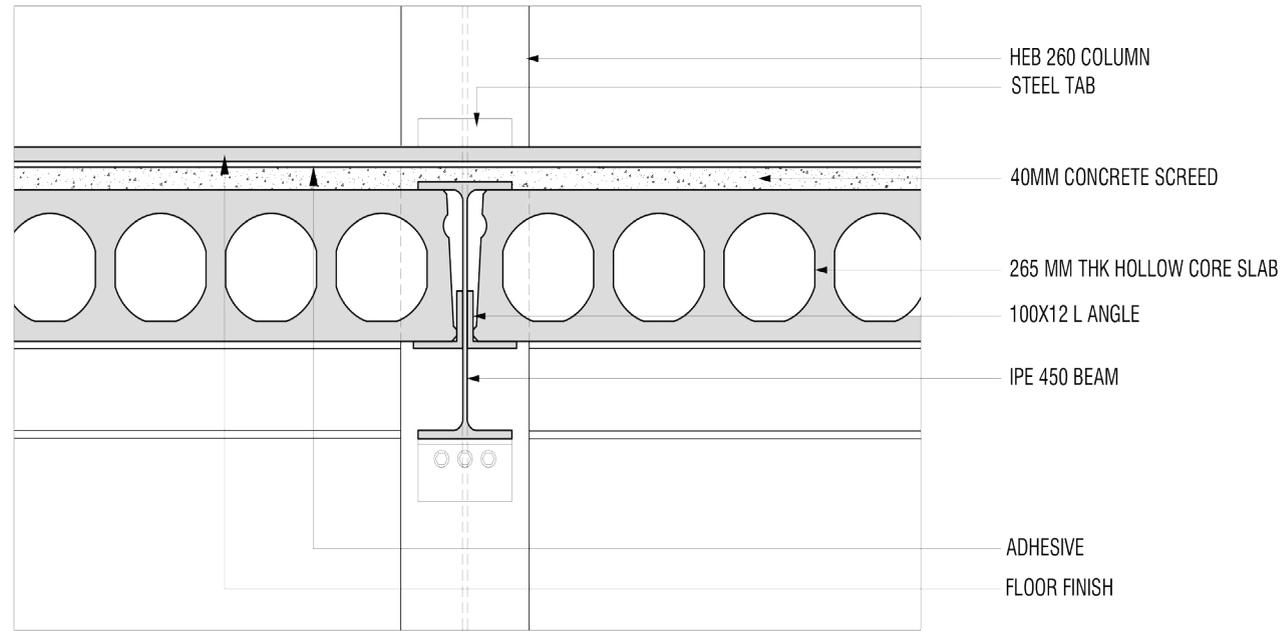
1200.0

8485.0

DETAIL 1

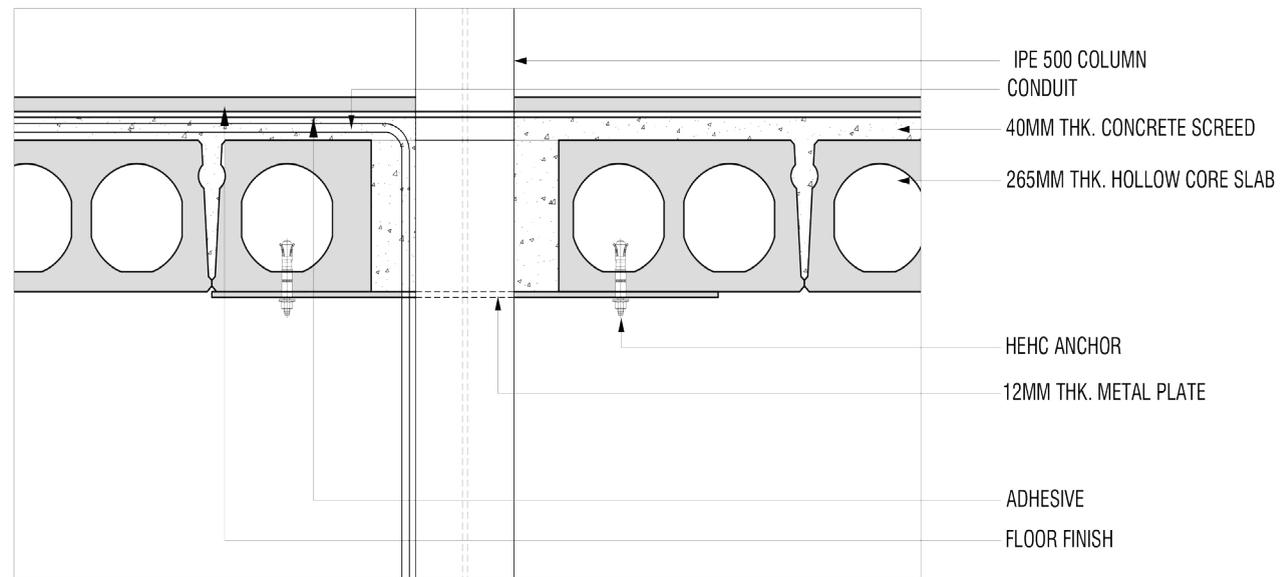
FLOOR SLAB DETAIL - PLAN

SCALE 1:50



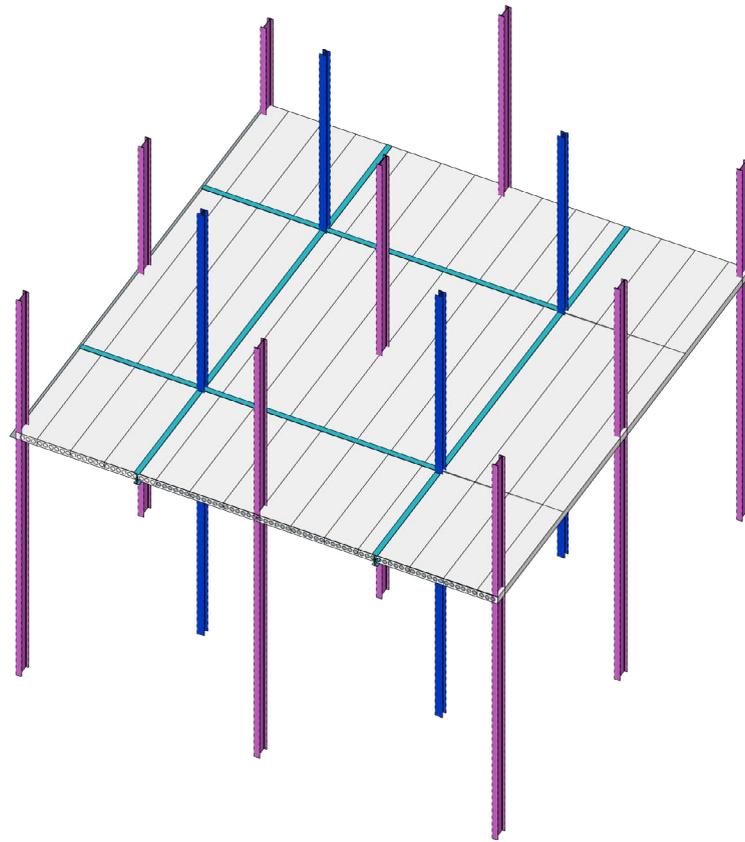
FLOOR SLAB DETAIL 1

SCALE 1:10

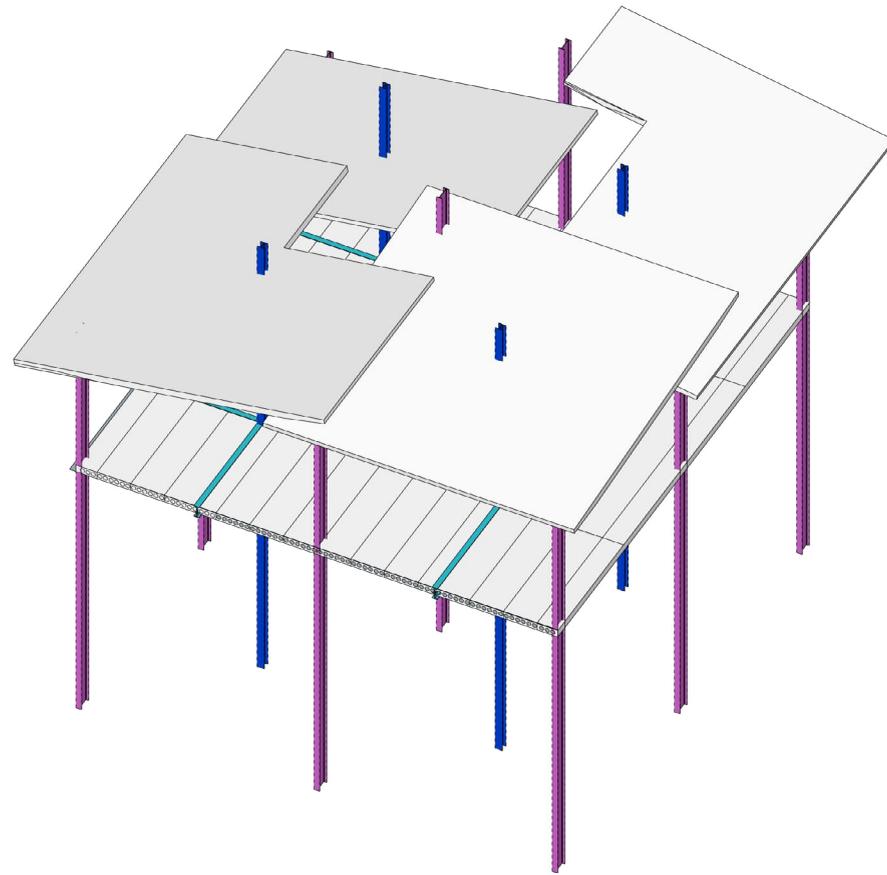


FLOOR SLAB DETAIL 2

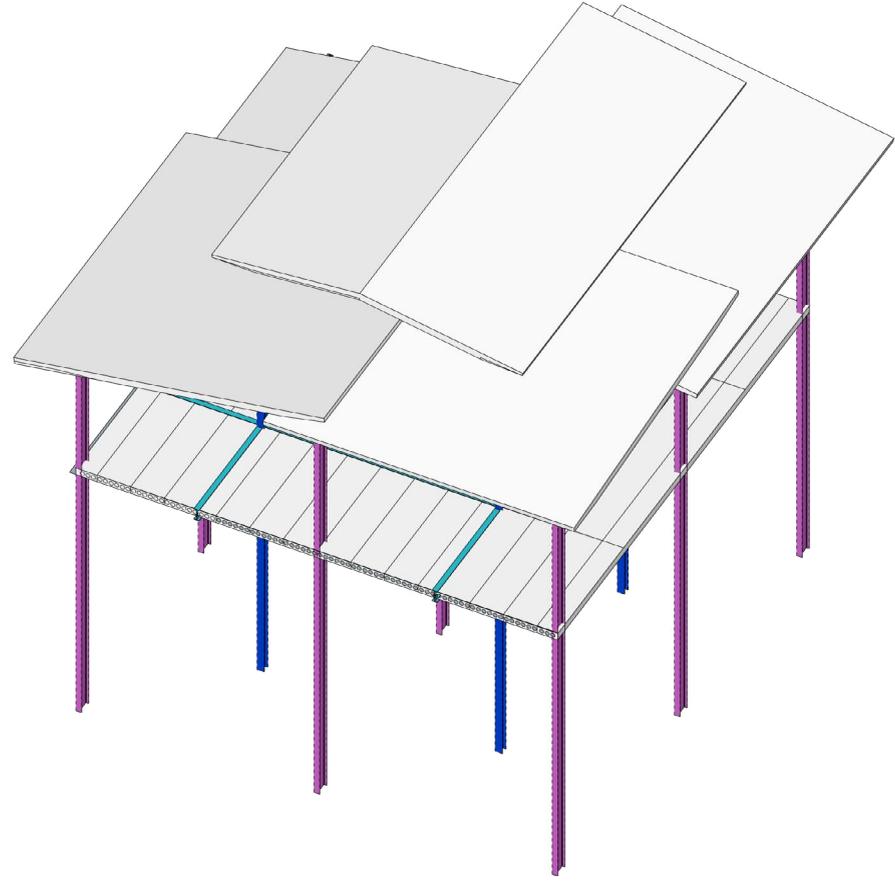
SCALE 1:10



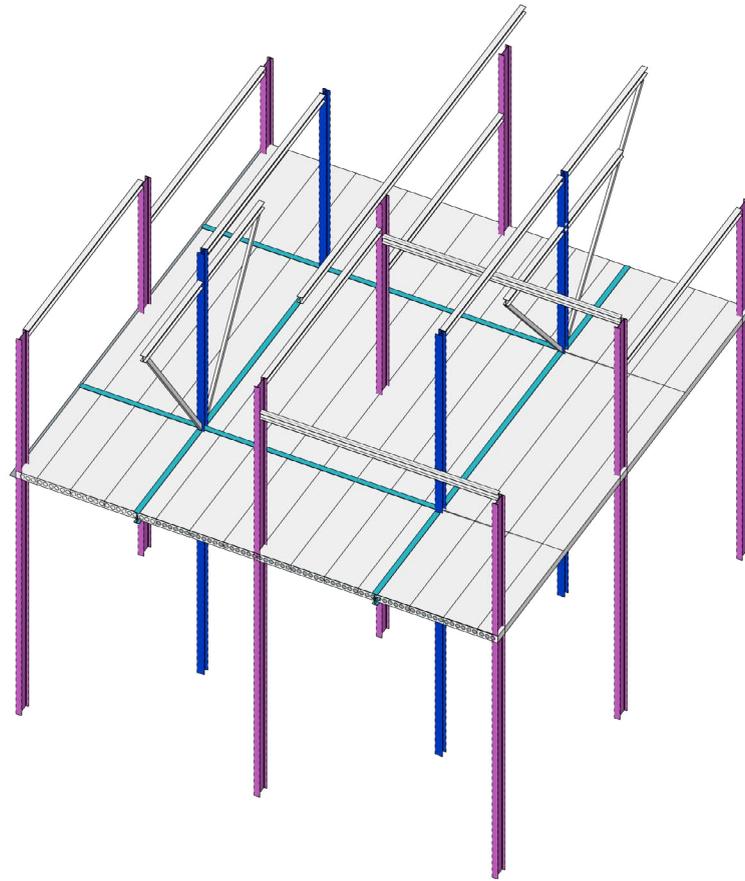
roof fragments



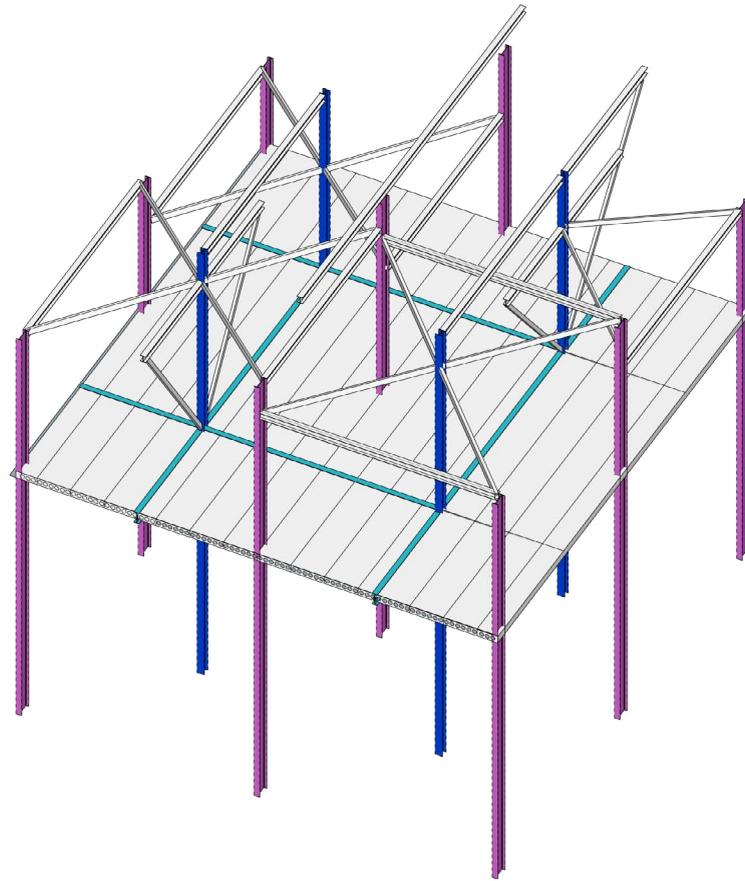
roof fragments



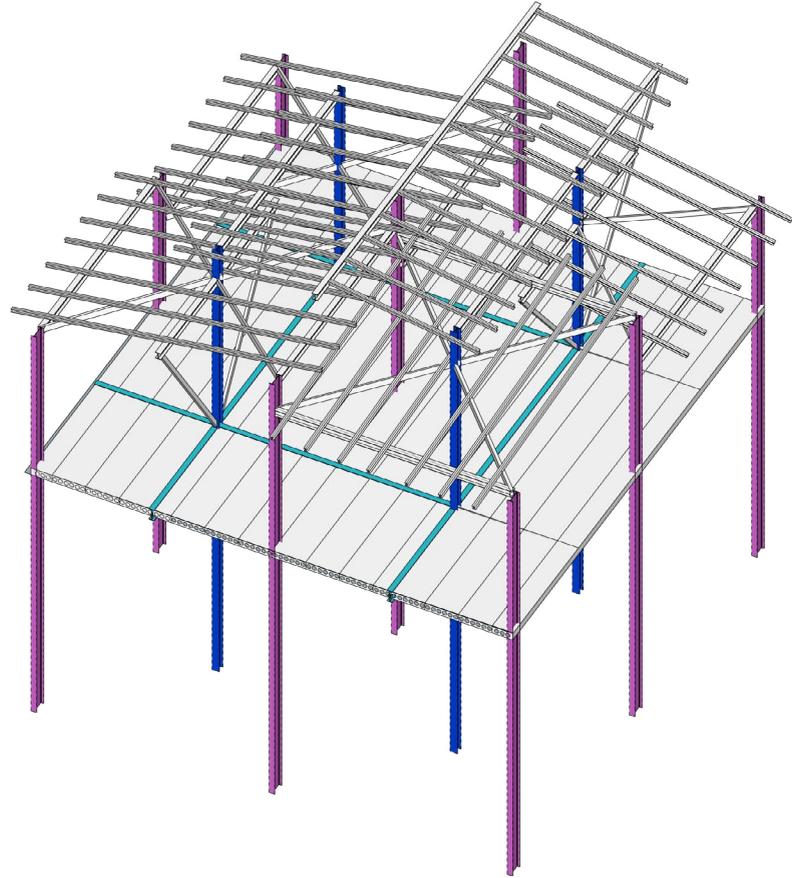
roof fragments



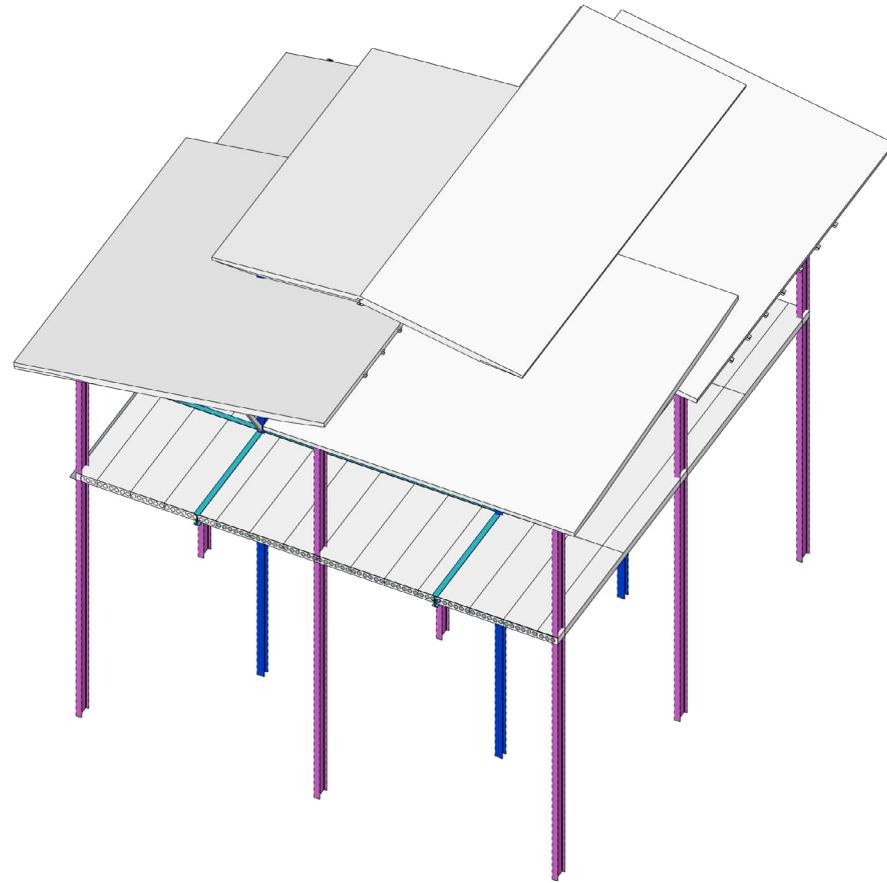
roof fragments



roof fragments



roof fragments



roof fragments



Thank you!