

VOLTA CULTURAL CENTER

The revitalization of post-industrial heritage

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AR3MET105 A Matter of Scale (2023/24)

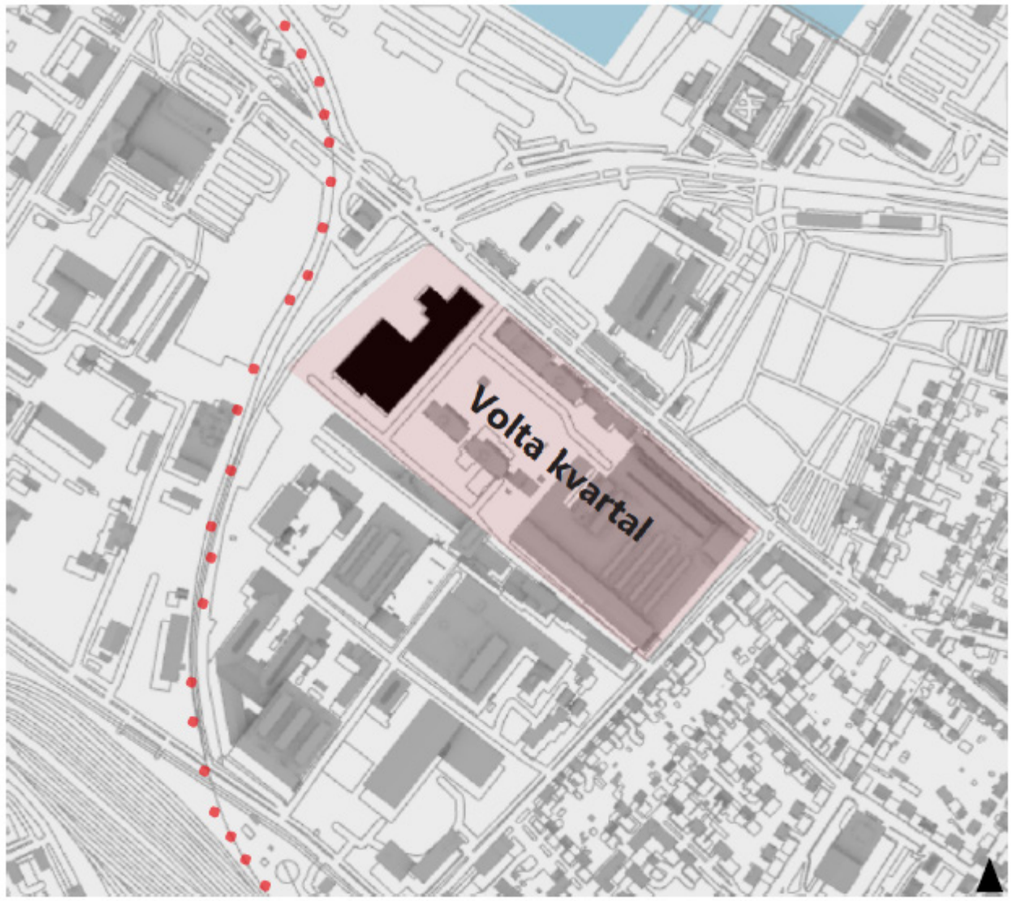
Kalamaja

means “Fish House”

Former main fishing port of Tallinn

Industrial sites

VOLTA



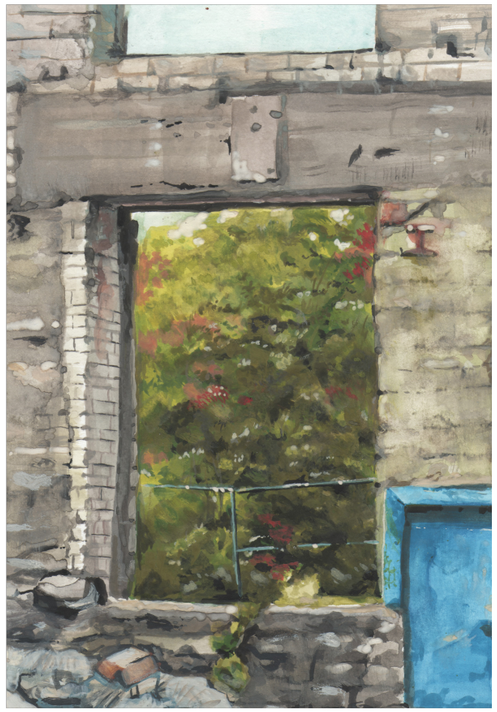
Urban exploring

Limestone walls

Thickness

Basilica-type arches

Immense scale







Photography and watercolor

Study into details

Capture essence

Capture subtle elements

Get a grip on the scale









Volta Factory

1900 - 1996

Engines and generators

Pride of Kalalamajan people

Important heritage

Abandoned

No demolition







Current state Physical

5 buildings

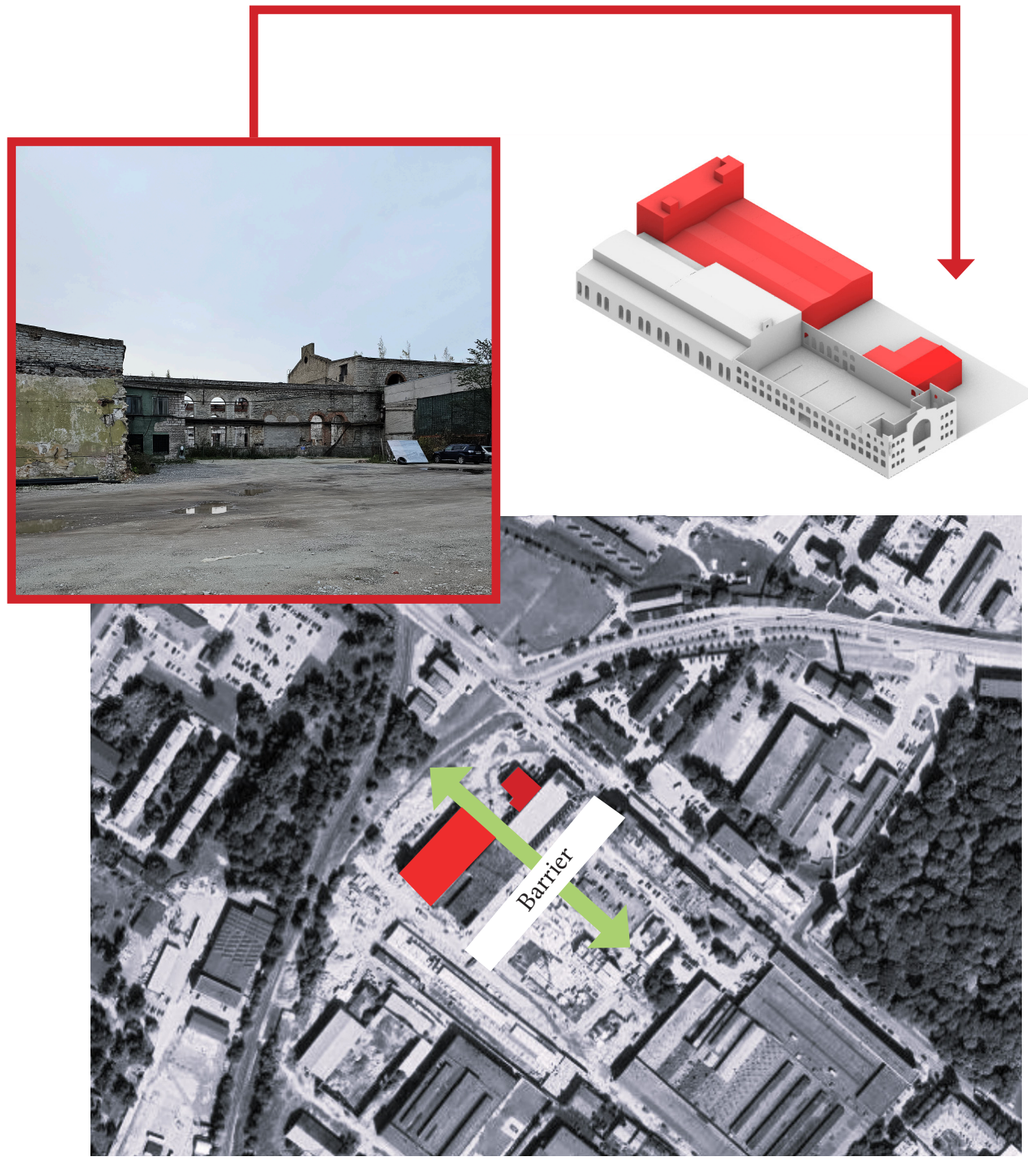
Compromised structures

Wasteland

Barrrier

Free the monumental

Crime



Current state (Vision)

Seaside residential appartmentblocks

Homogenous urban structure



Current state Social

Kalamaja Days

Multiple age groups

Photoshoots

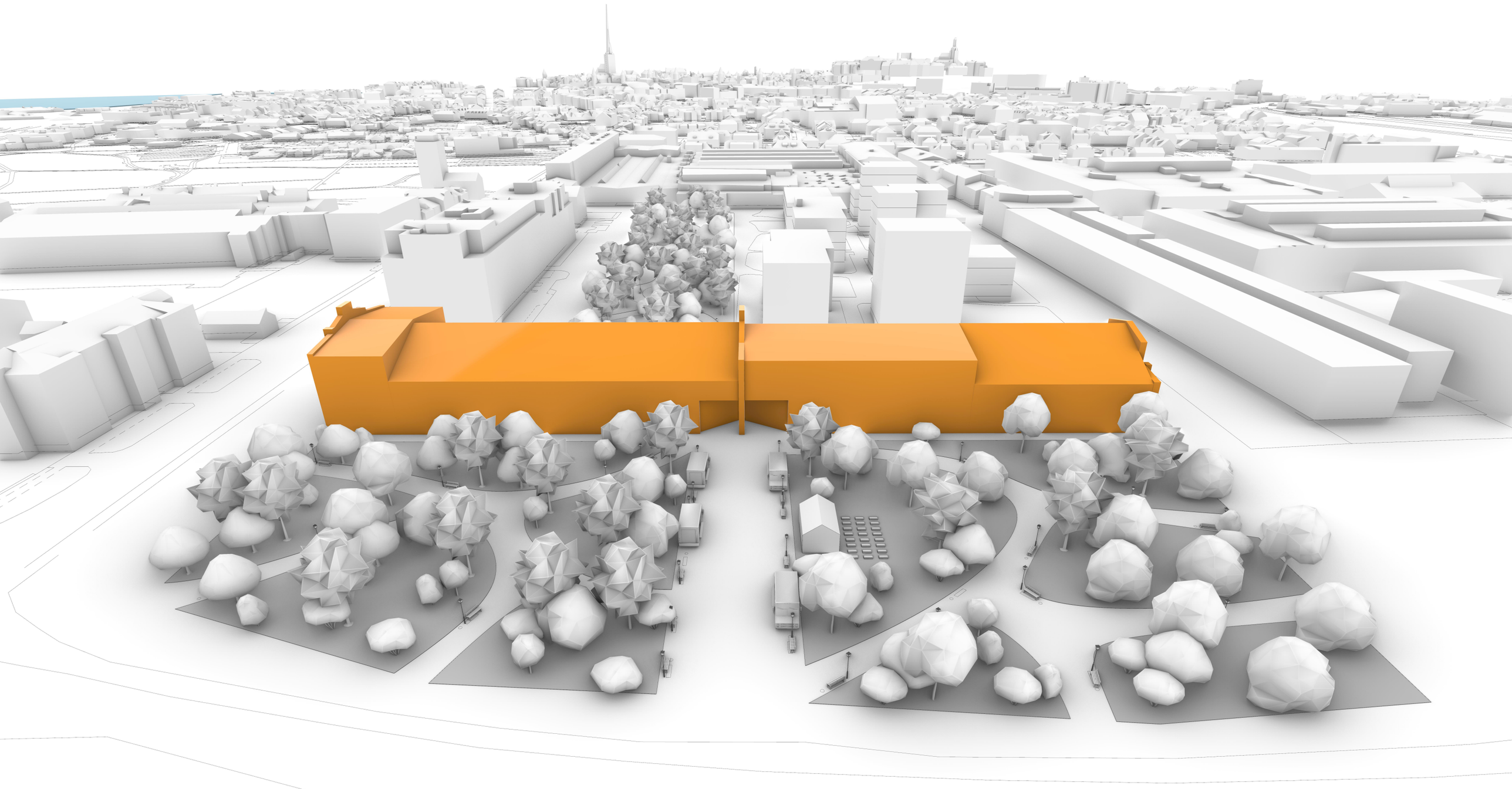
Open house Tallinn Tours

Multifunctional





VOLTA CULTURAL CENTER



Two halls

Almost identical

multiple storries high



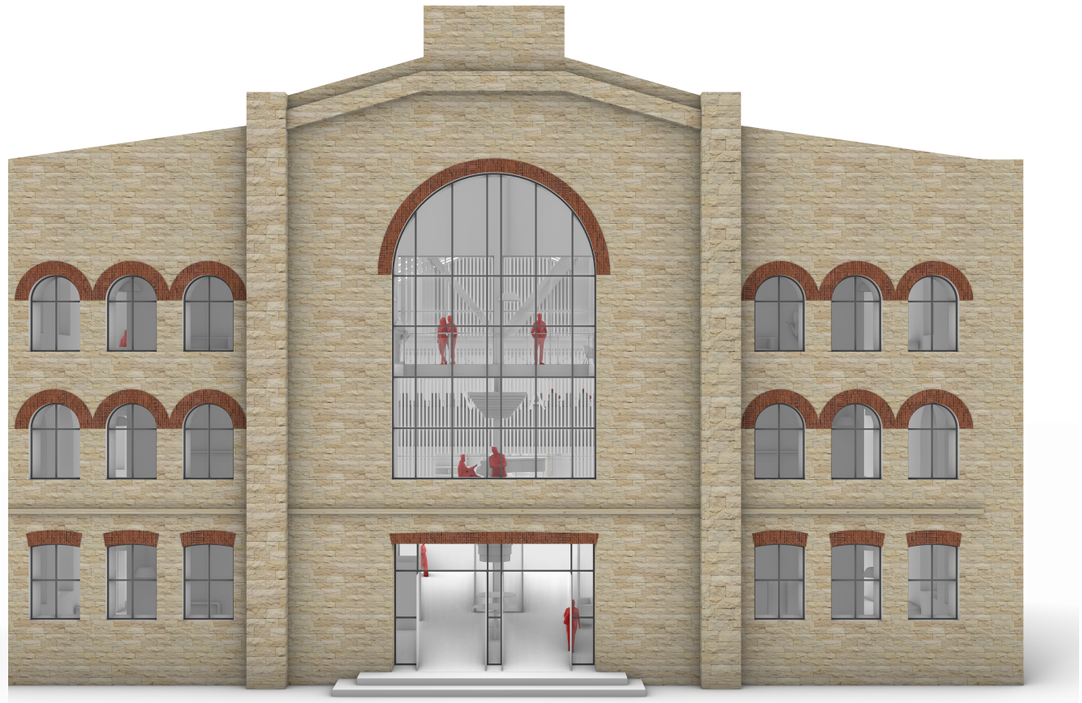
Elevations

Restore limestone look

Symmetry as a tool of formality

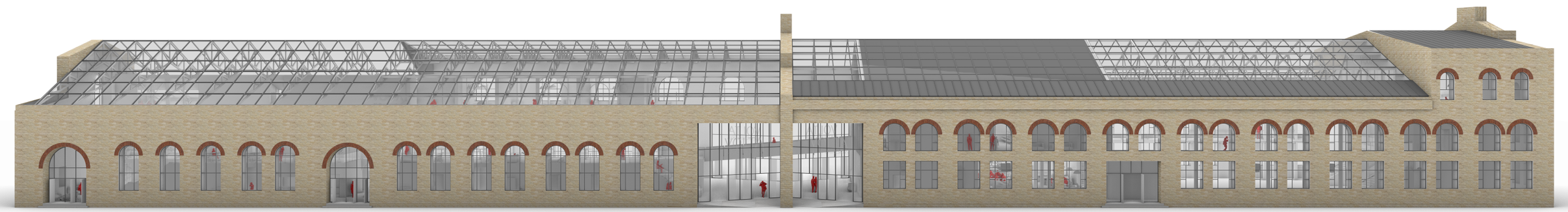
Incorporate now present openings







North-west elevation



South-east elevation

Passages

Perpendicular axis

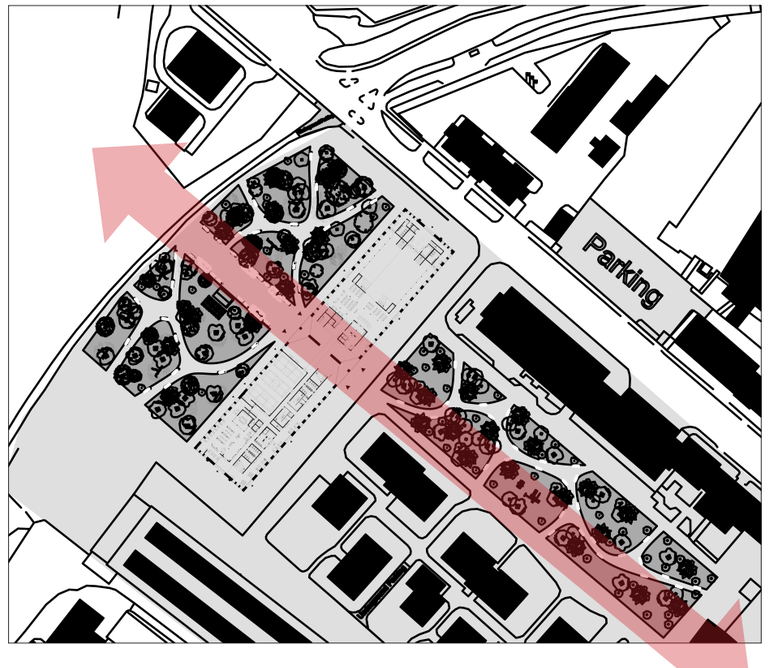
Green space place + Botanical + community garden

Open up barrier

Social control + use

Undergound garages





Botanical Garden

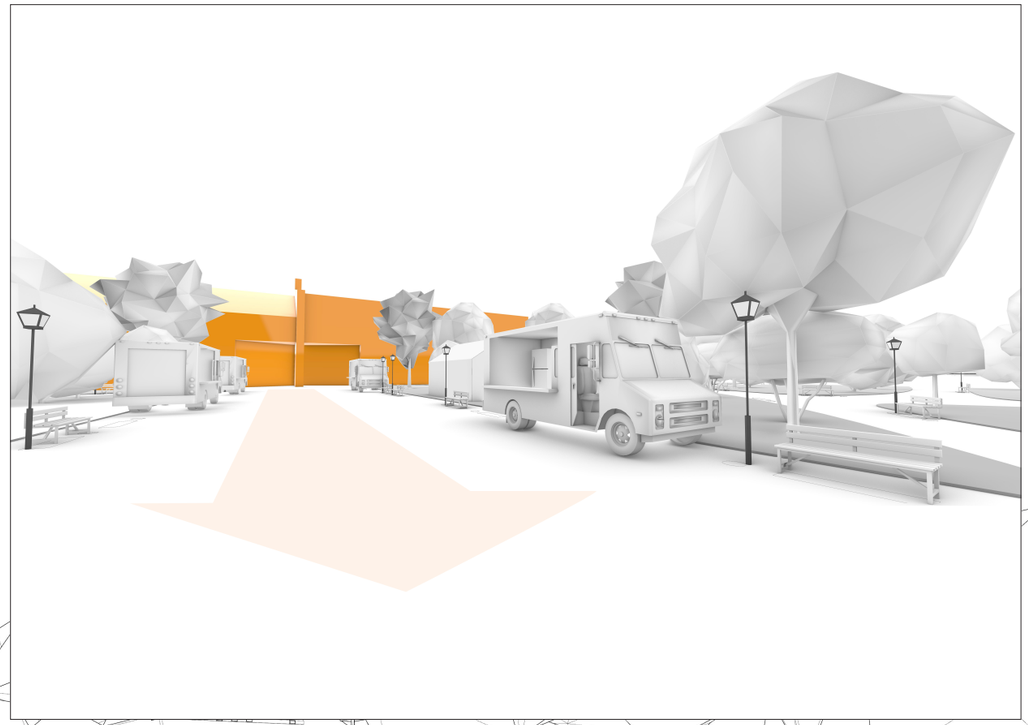
Community garden

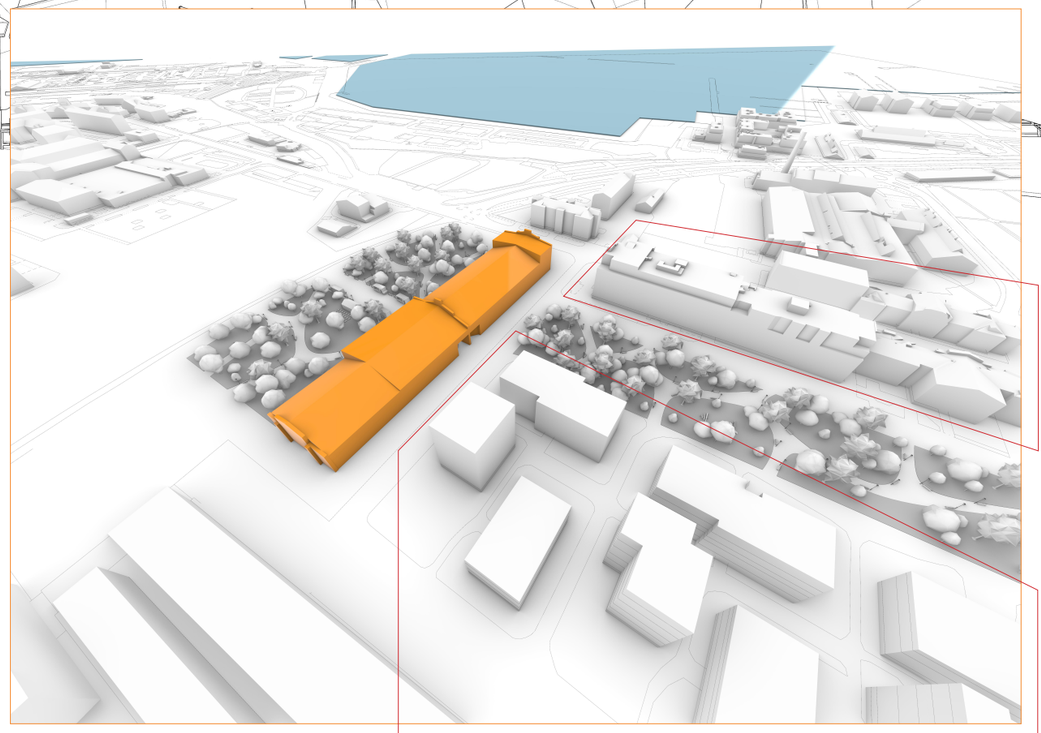
Boost social cohasion

Open up barrier

Safety

Green View from the culture center





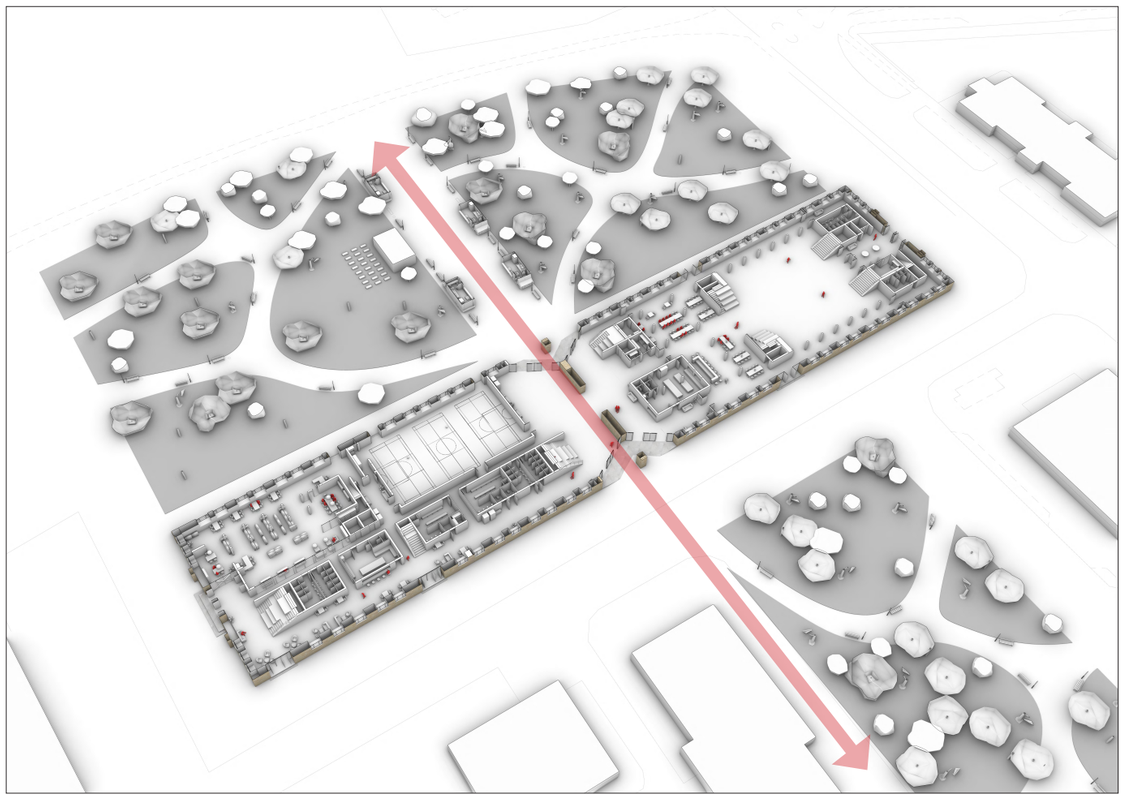
VOLTA residential apartments

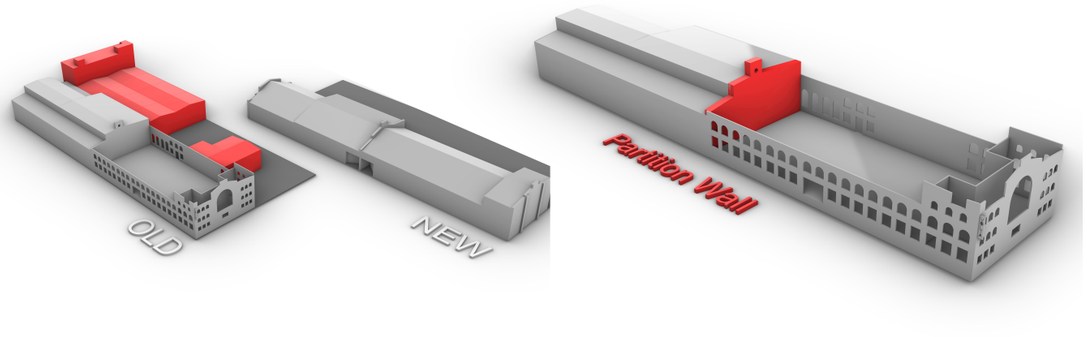
Entrance

Gordon Matta Clark

Partition wall

Utilization & appreciation





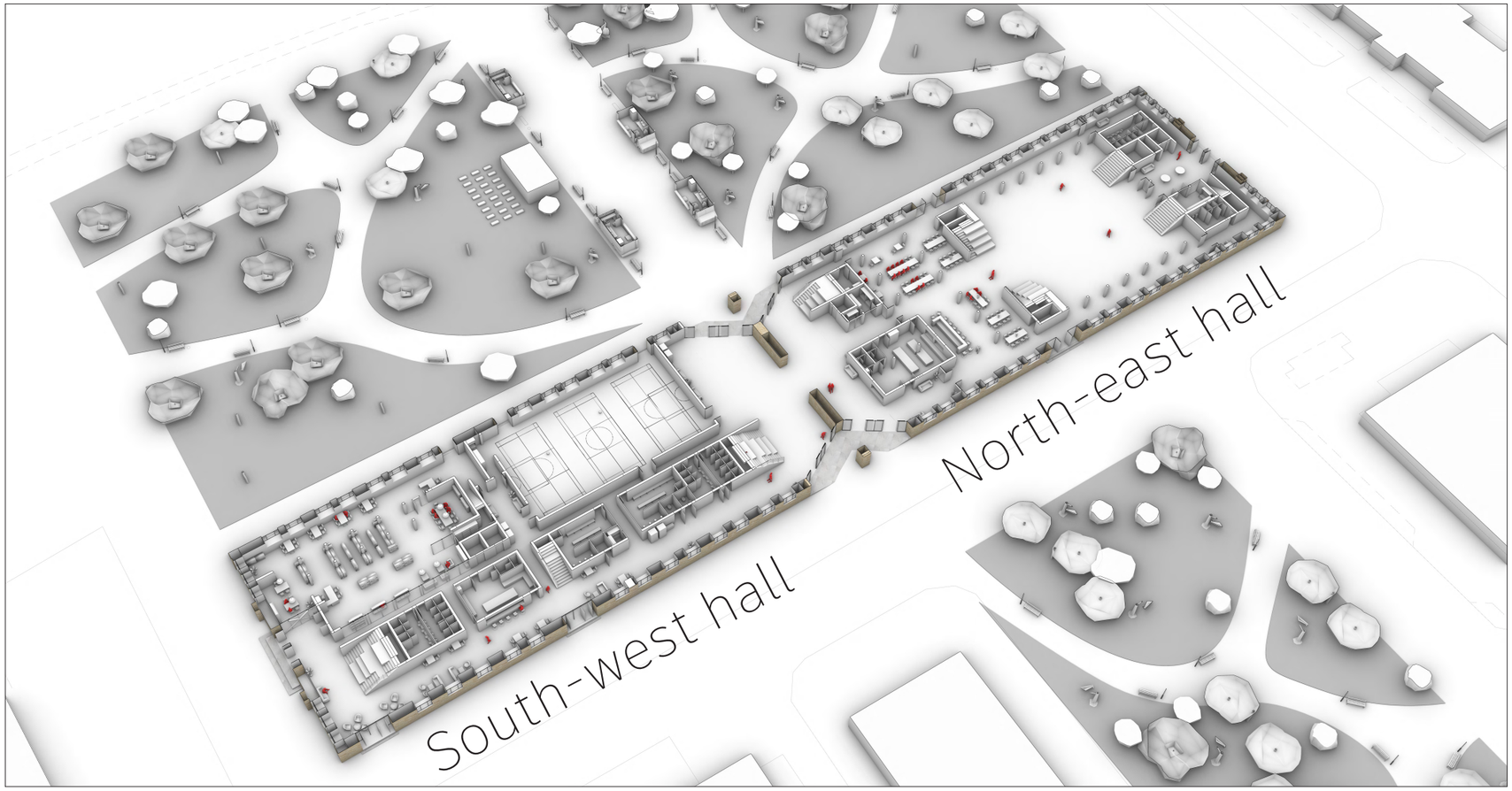


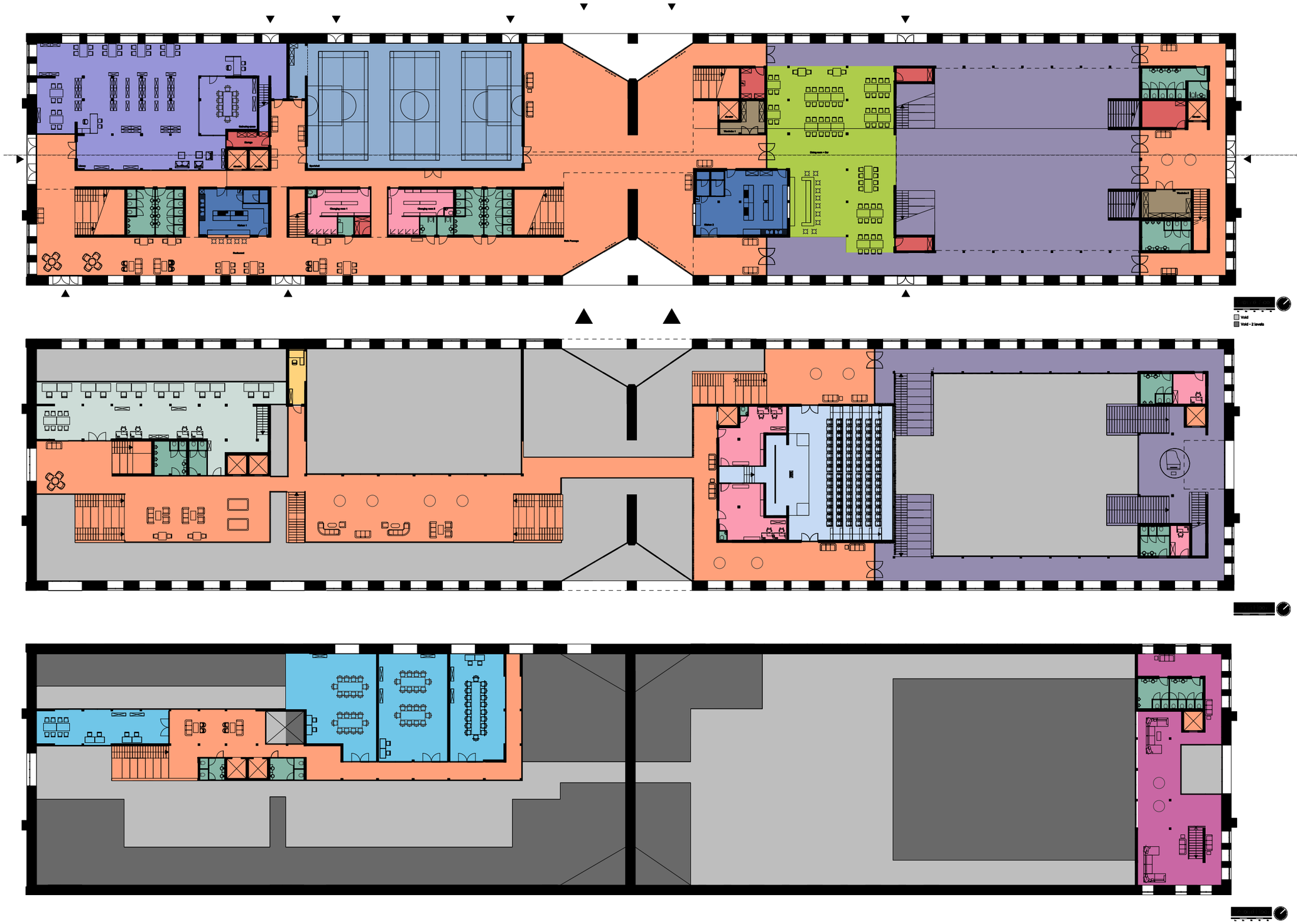
Ground floor

Sports & Study

High quality leisure + circulation space

Eventhall





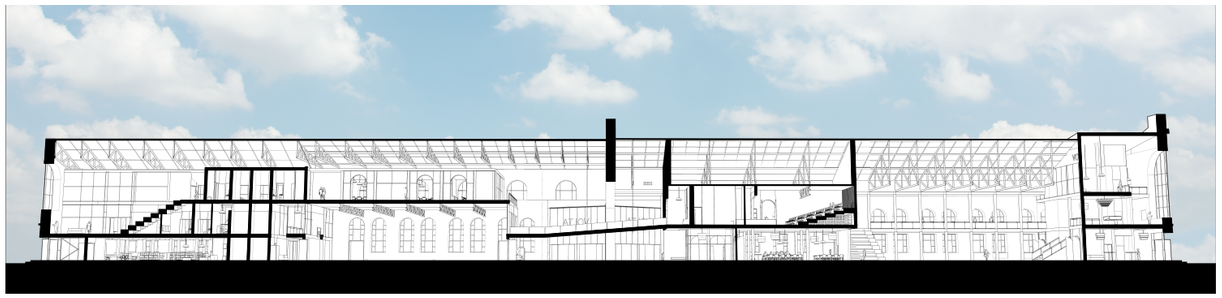
- Changing room
- Circulation space
- Sports hall overview room
- Study space
- Sanitary facility
- Mini theatre
- Sports hall
- Event hall
- Library
- Storage/Utility room
- Kitchen
- Wardrobe
- Dining room + bar
- Rentable office space
- Lounge

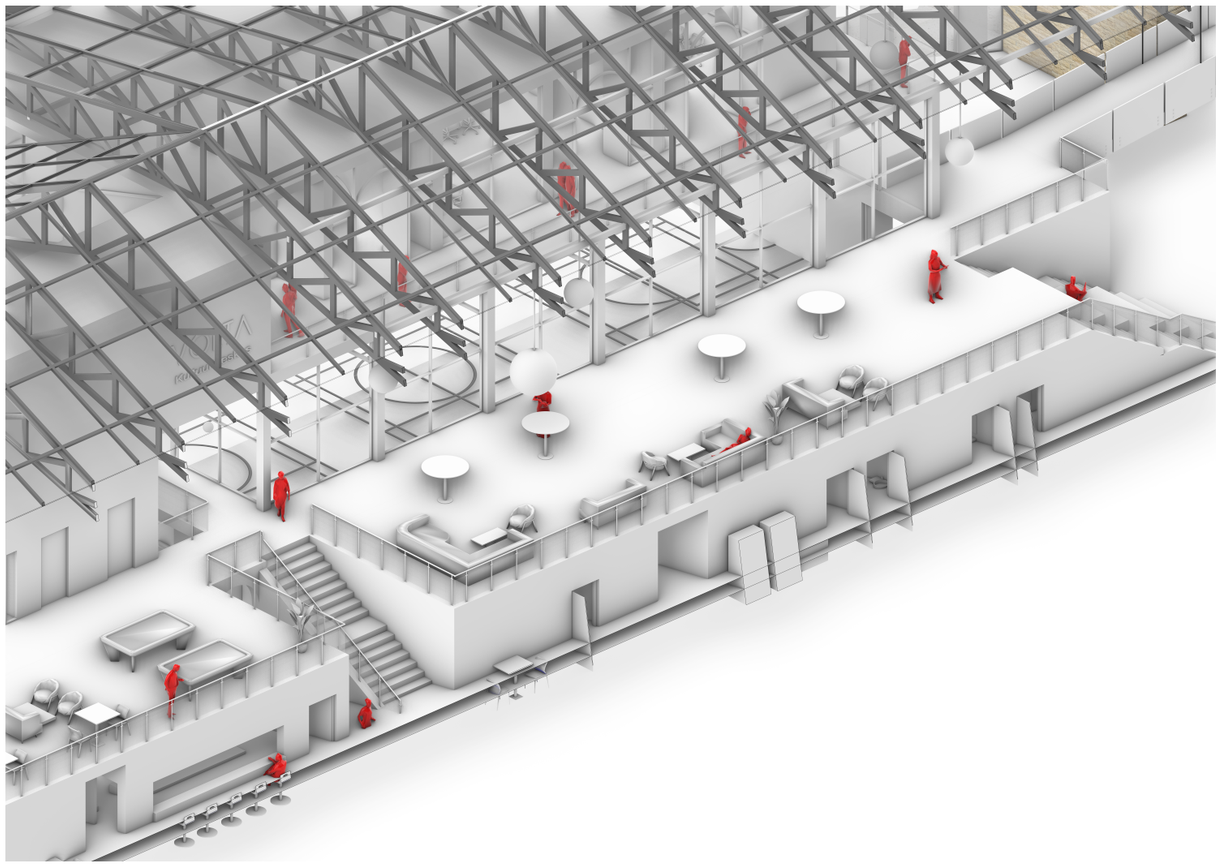
Multifunctionality

circulation space + tribune

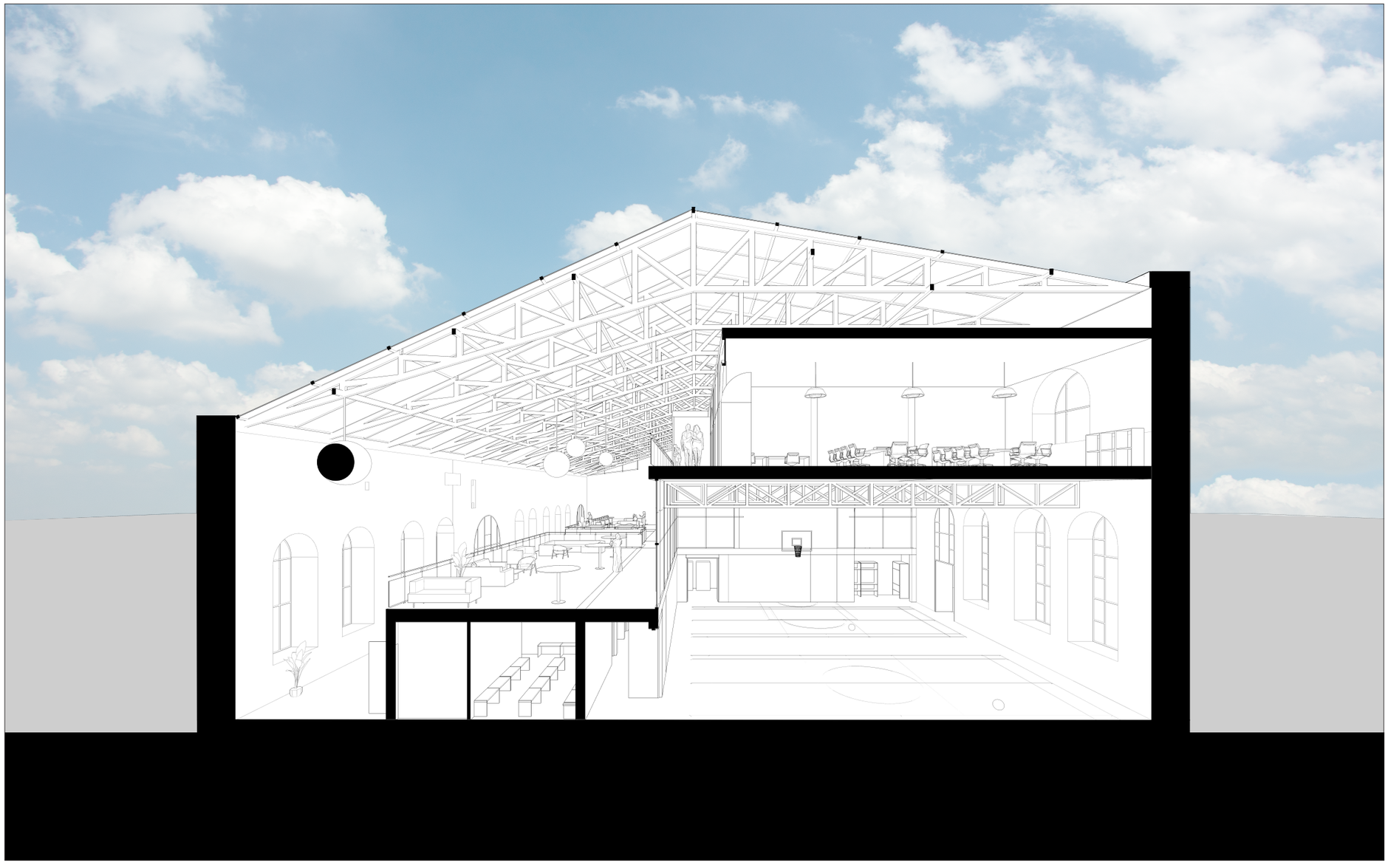
High quality leisure + circulation space

Blurring boundaries









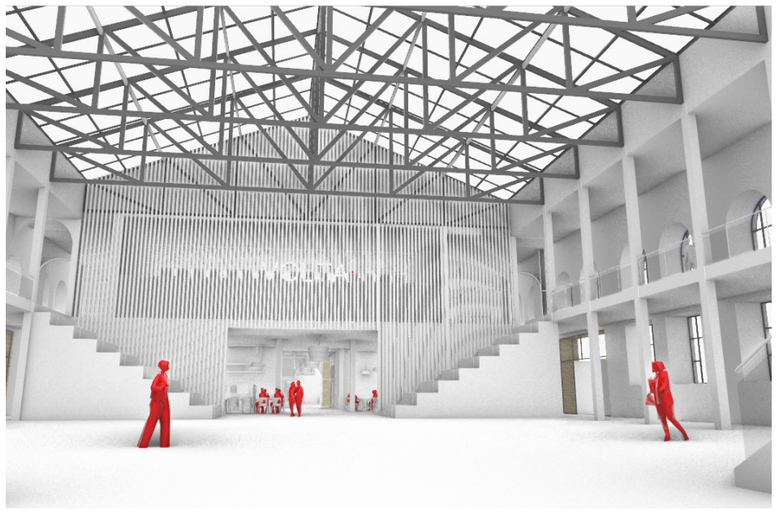
Event Hall

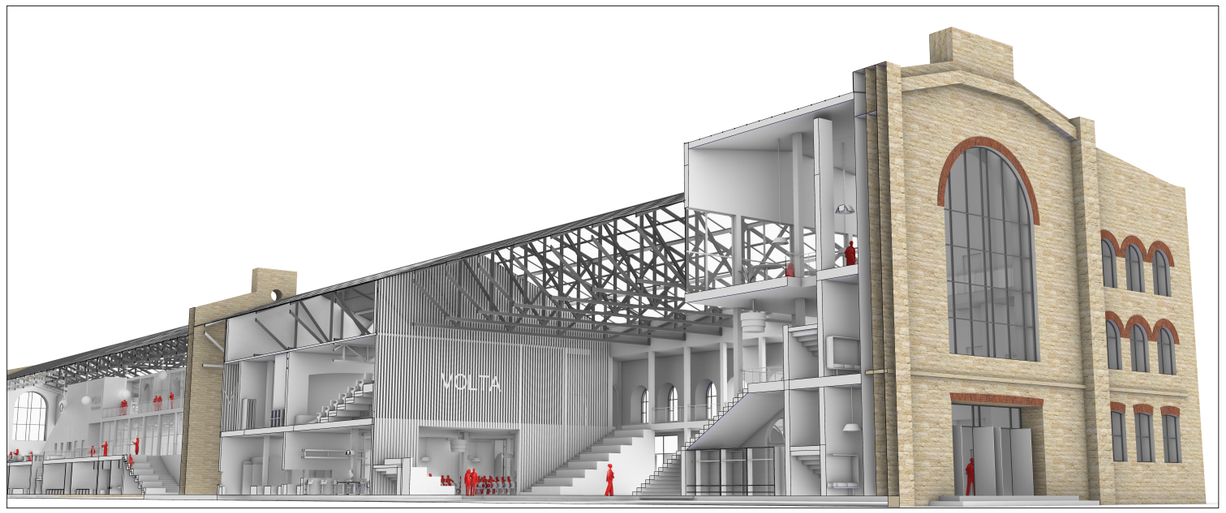
Lounges

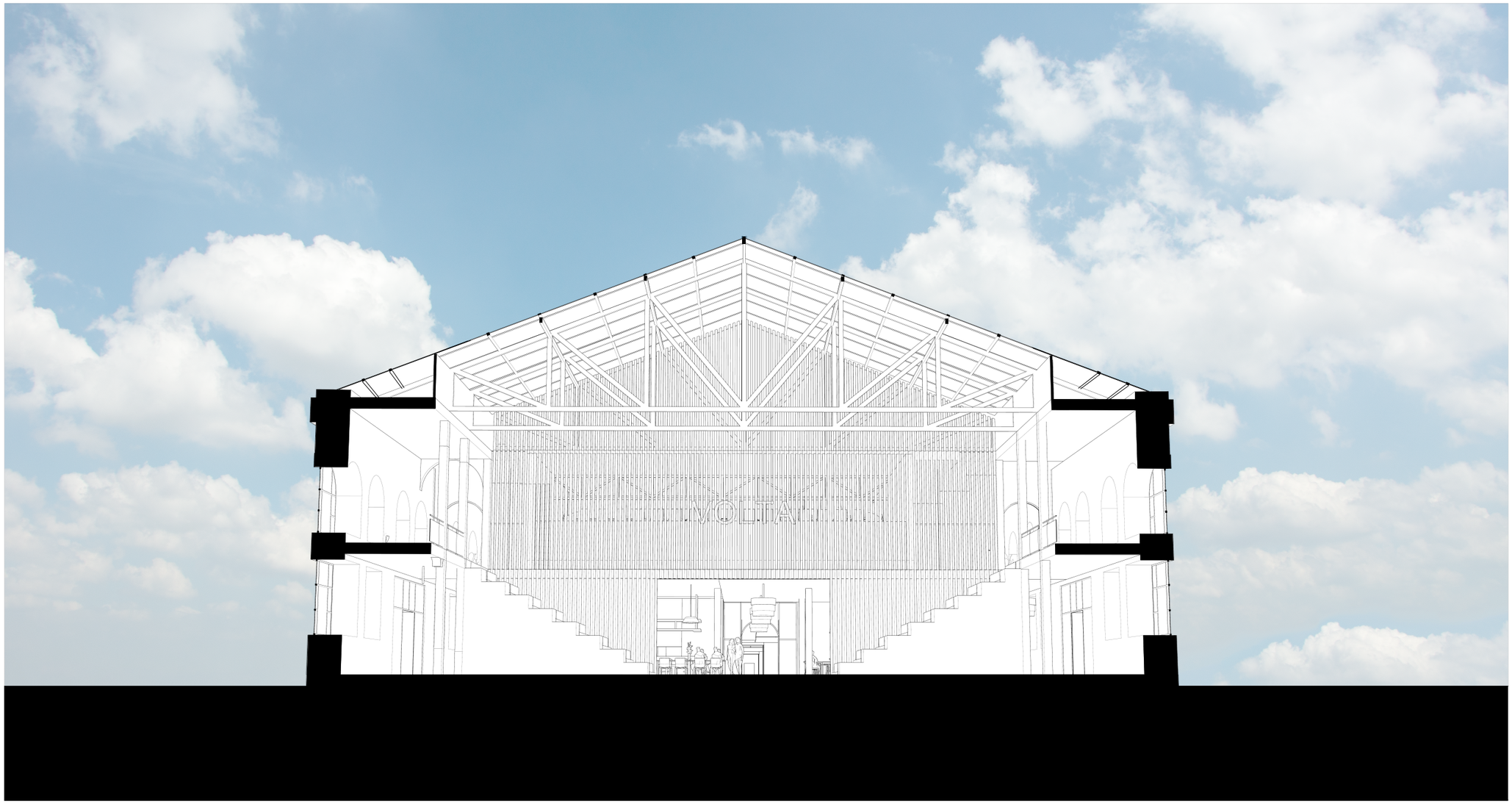
seaside view

also multifunctional

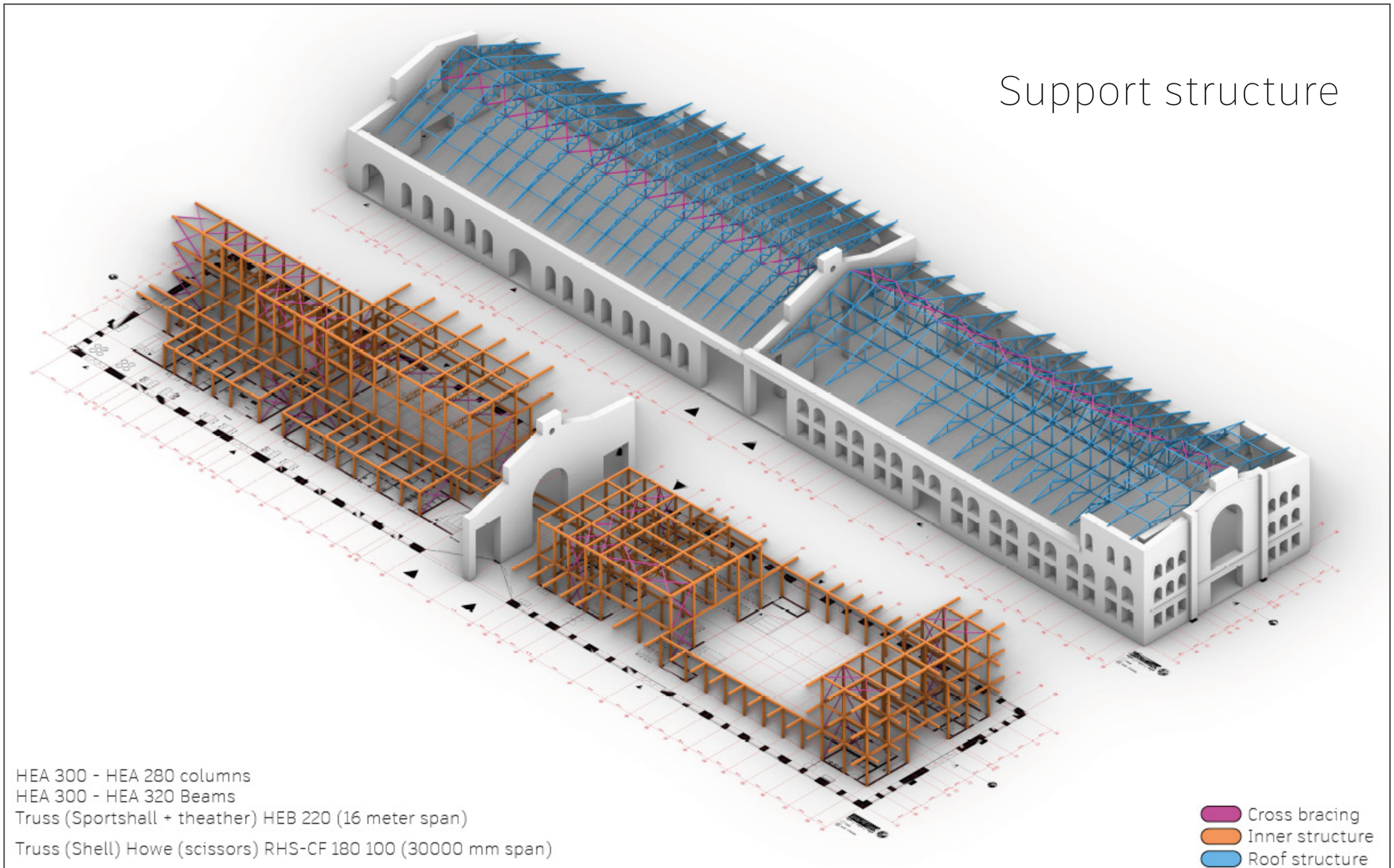







VOLTA

Support structure

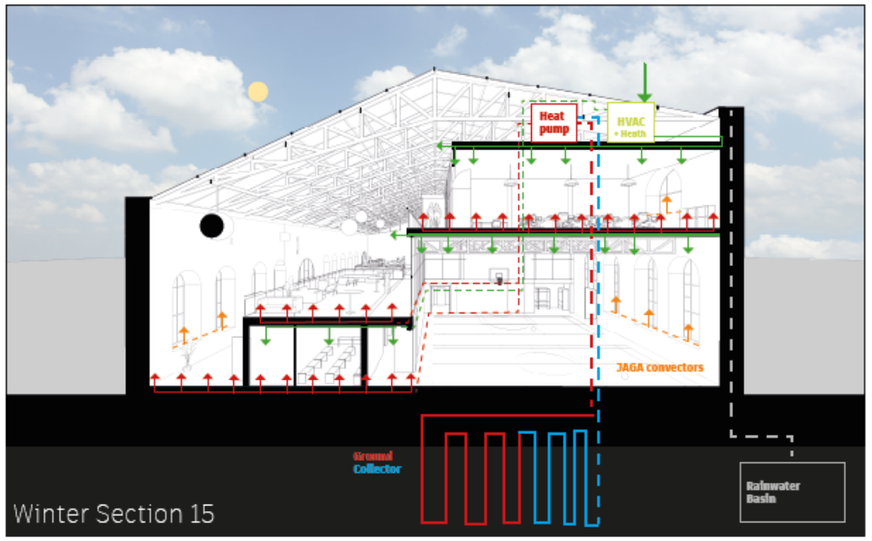


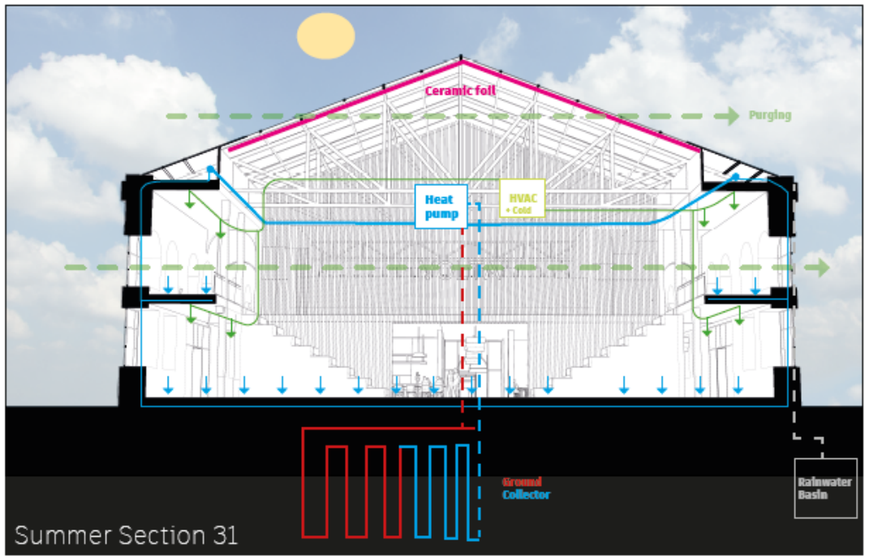
HEA 300 - HEA 280 columns
HEA 300 - HEA 320 Beams
Truss (Sportshall + theather) HEB 220 (16 meter span)

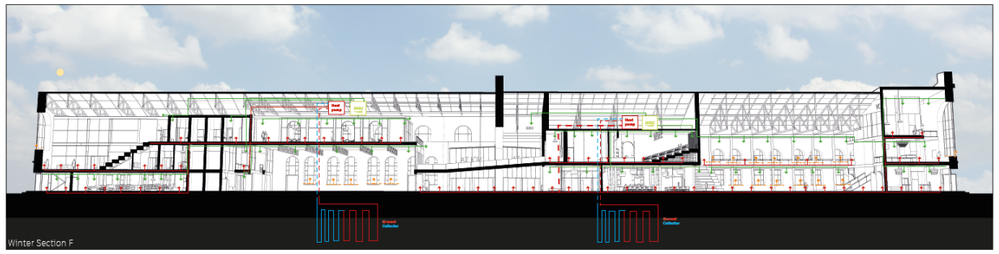
Truss (Shell) Howe (scissors) RHS-CF 180 100 (30000 mm span)

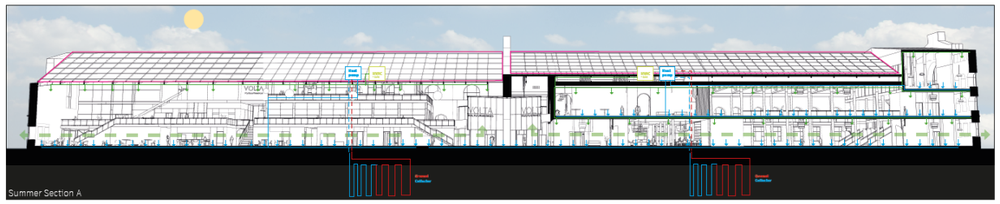
Cross bracing
Inner structure
Roof structure

Climate design

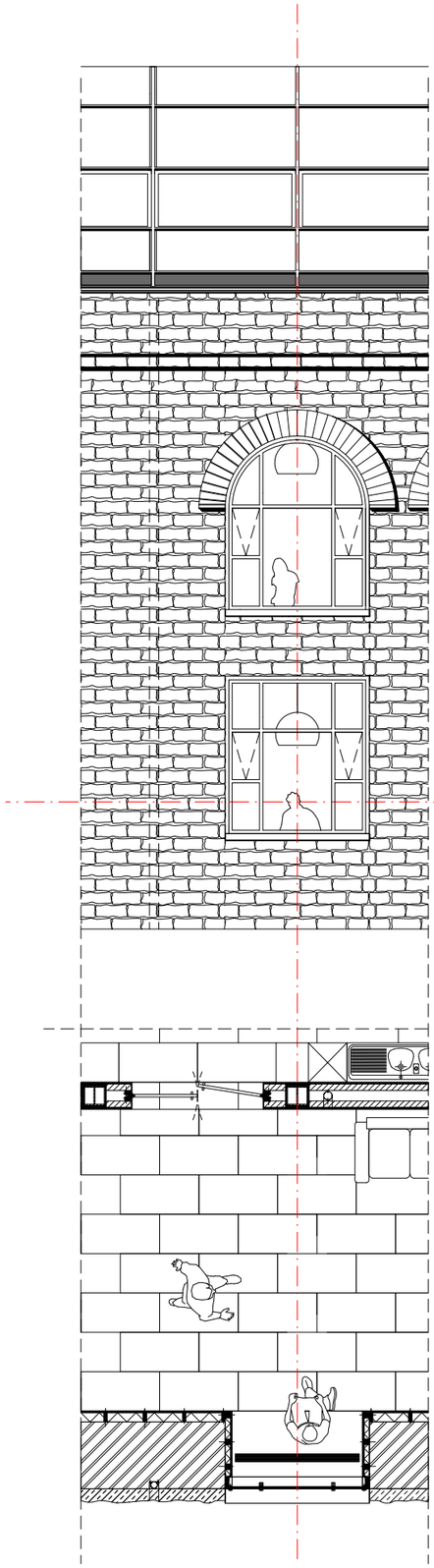


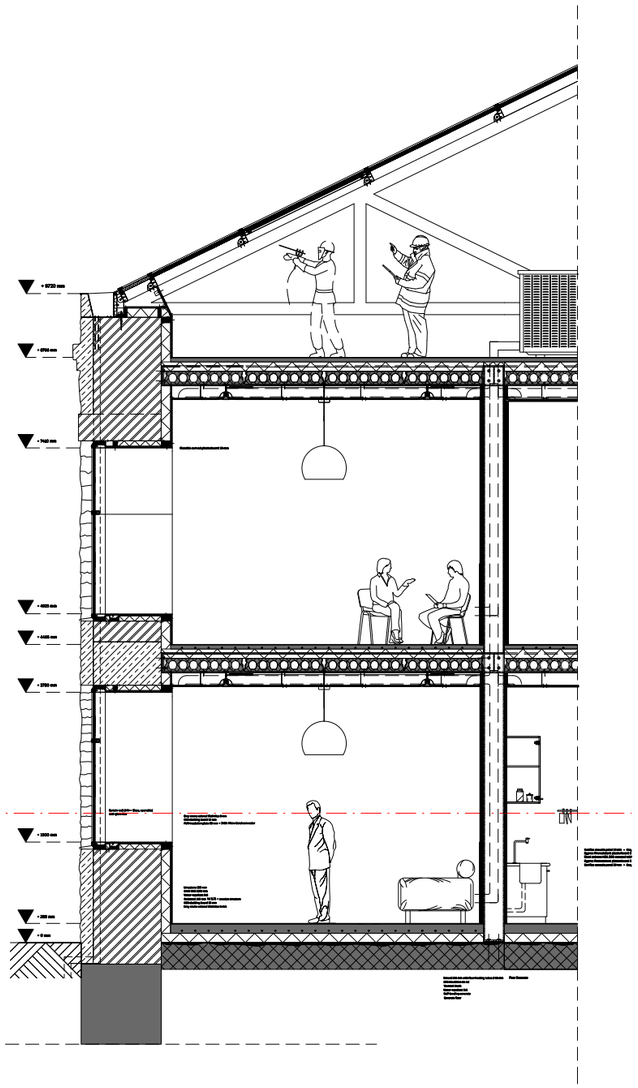






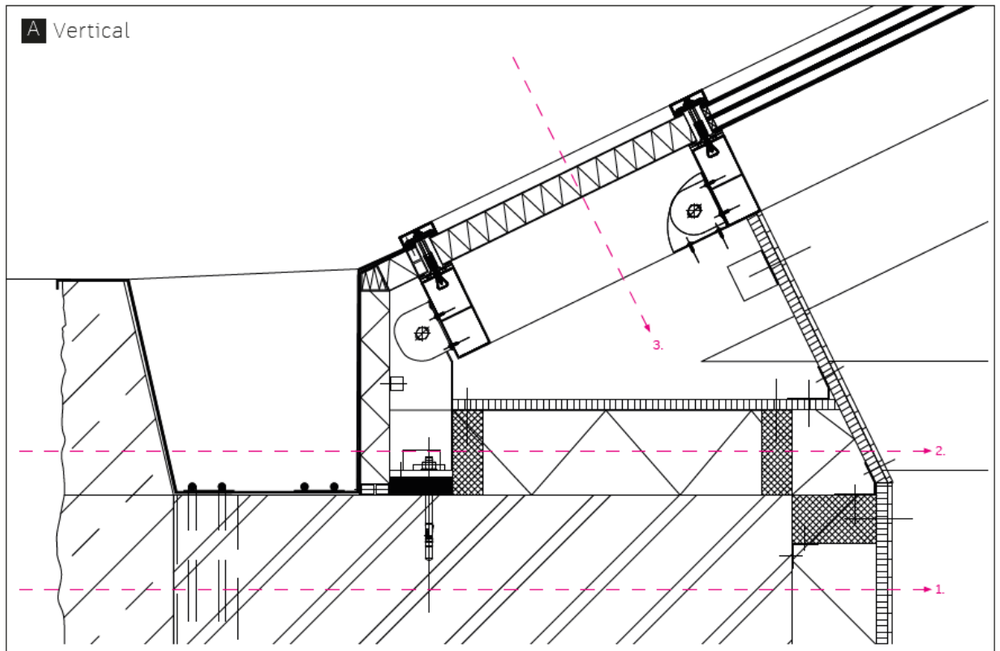
Details




+ 9720 mm
+ 6760 mm
+ 7440 mm
+ 4600 mm
+ 3400 mm
+ 2760 mm
+ 2000 mm
+ 0 mm
DN

4000 mm
1200 mm

A Vertical

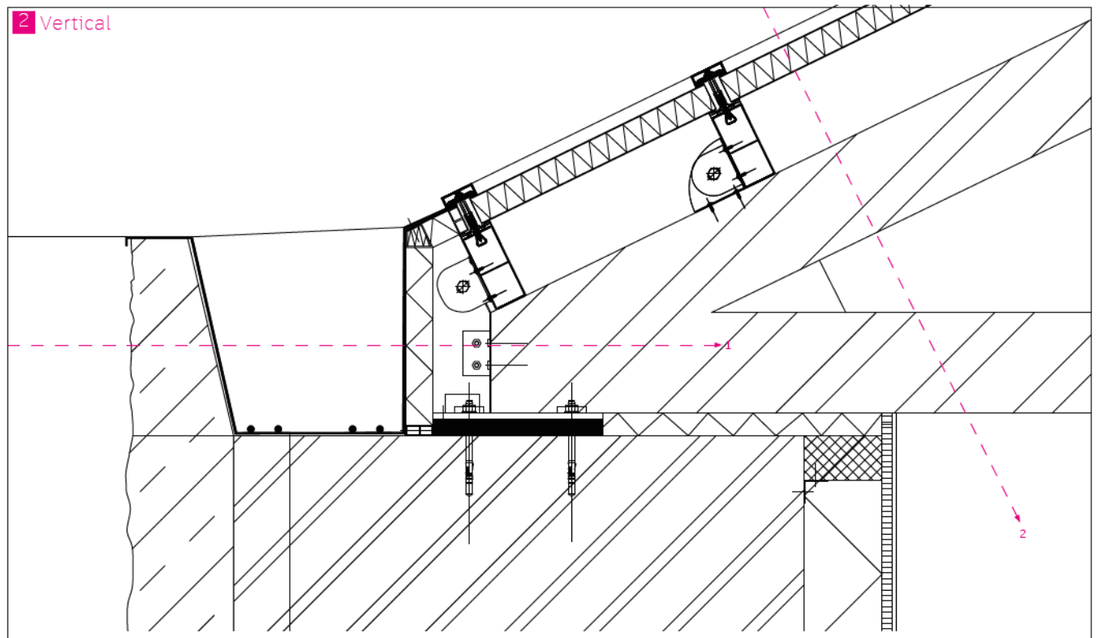


1. Limestone 180 mm
   Brick wall 1020 mm + Rainwater pipe Ø 100 mm + Self-regulating heating cable from ETHERMA Ø 12 mm connected with VOSS eisfrei spacers
   Waterproof membrane
   Rockwool 140 mm insulation + wooden frame 140 x 80 mm (Hardwood)
   OSB board 18 mm
   Grey and cream ceramic tiles 8 mm (adhered)

2. Newly laid limestone 100 - 200 mm
   Zinc-aluminium alloy gutter by VMZINC 3 mm - welded every meter + Self regulating heating cable from ETHERMA connected with VOSS eisfrei spacers
   Waterproof membrane clamped into aluminium profile
   GRP sandwich panel with VIP insulation core (2 mm - 40 mm - 2 mm) connected with composite screws
   Steel framework for curtain wall roofing 100 mm (adjustable parts) + Thermal break plate 30 mm FABREEKA
   Hardwood beams 140 x 50 mm coupled with steel brackets
   Rockwool 140 mm insulation
   OSB board 18 mm connected with steel brackets
   Grey and cream ceramic tiles 8 mm (adhered)

3. Aluminium roof profile for curtain wall roofs 250 mm + triple glass 40 mm or sandwichpanels (GRP Glass Reinforced Plasic + VIP Vacuum Insulation Panel)
   Ceramic Window Film
   Steel flange welded to main support structure (adjustable bracket)

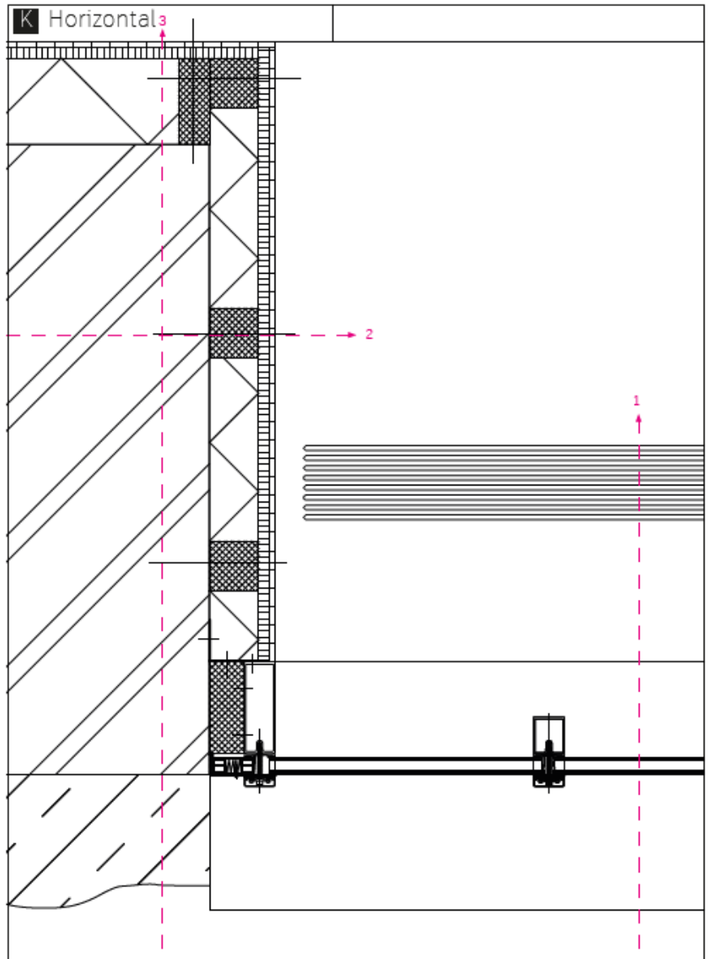
2 Vertical



1. Newly laid limestone 100 - 200 mm
   Zinc-aluminium alloy gutter by VMZINC 3 mm - welded every meter + Self regulating heating cable from ETHERMA connected with VOSS eisfrei spacers
   Waterproof membrane clamped into aluminium profile
   GRP sandwich panel with VIP insulation core (2 mm - 40 mm - 2 mm) connected with composite screws
   Steel framework for curtain wall roofing 100 mm (adjustable parts)
   Steel Flanches that connect the curtain wall with the steel truss + Thermal break plate 30 mm FABREEKA
   Steel truss 180 x 100 RHS 180 x 100 (Howe Truss)

2 Aluminium roof profile for curtain wall roofs 250 mm + sandwichpanels (GRP Glass Reinforced Plasic + VIP Vacuum Insulation Panel)
   Ceramic Window Film
   Steel flange welded to main support structure (Howe Truss) (adjustable bracket)

K Horizontal

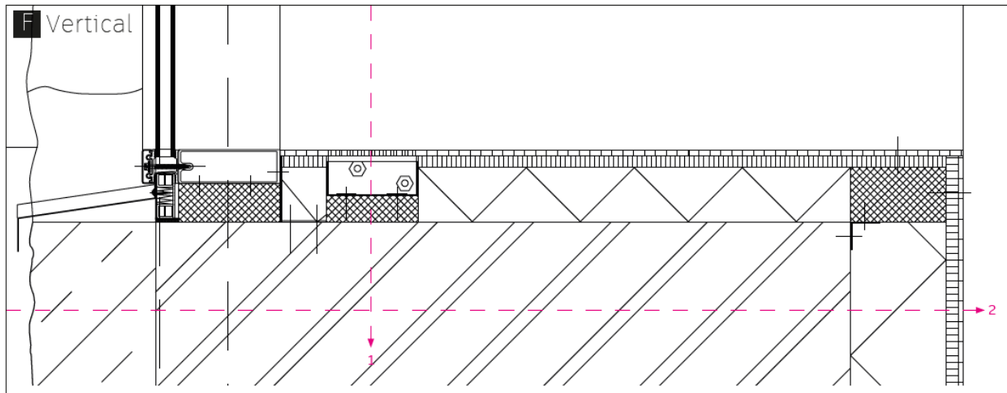


1. Limestone 180 mm + Aluminium window flashing 220 mm
   Curtain wall element (openable) with HR++ glass 200 mm connected with hardwood frame 56 x 150 mm
   Ceramic Window Film

2. Brick wall
   Waterproof membrane
   Hardwood framework 80 x 80 mm + PIR insulation plates + steel brackets
   OSB board
   Grey and cream ceramic tiles 8 mm (adhered)

3. Limestone 180 mm
   Brick wall 2010 mm
   waterproof membrane
   Hardwood framework 140 x 50 mm + Rockwool insulation 140 mm + steel brackets
   OSB board 16 mm
   Grey and cream ceramic tiles 8 mm (adhered)

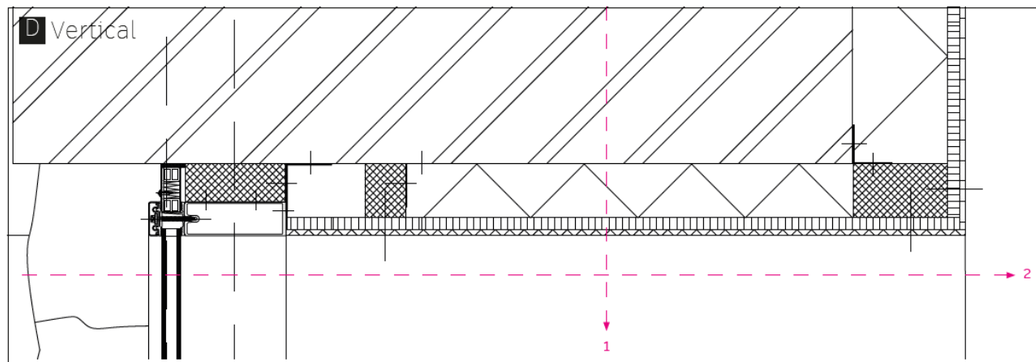
F Vertical



1 Grey and cream ceramic tiles 8 mm (adhered) + openings for convector
  OSB board 18 mm
  Hidden convector 60 mm JAGA Micro Canal convector + PUR insulation boards 80 mm + Hardwood 80 x 140 mm
  Hardwood 40 x 135 mm + steel brackets
  Waterproof membrane
  Brick Wall

2. Limestone 180 mm + Aluminium window flashing
   Brick Wall 1020 mm
   Waterproof membrane
   Hardwood framework 140 mm x 80 mm + steel brackets + Rockwool insulation 140 mm
   OSB board 18 mm
   Grey and cream ceramic tiles 8 mm (adhered)

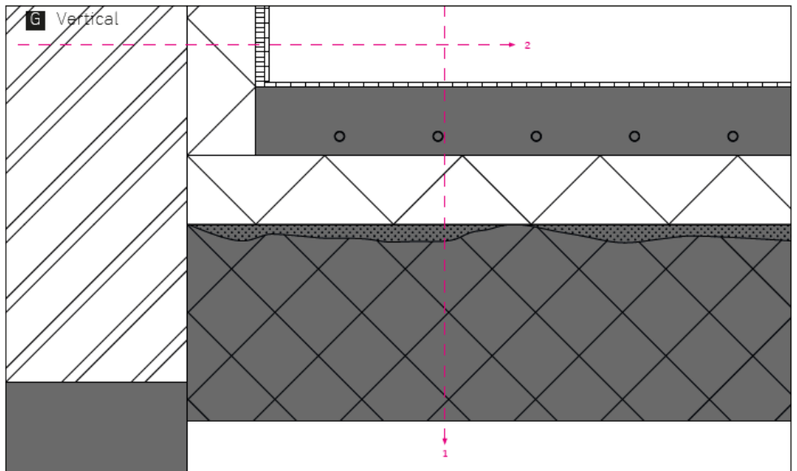
D Vertical



1. Brick wall + arched window
   Waterproof membrane clamped into aliminium profile
   Bent Hardwood 80 x 60 mm / 140 x 60 mm framework connected with steel brackets + Spray foam insulation PUR 80 mm
   Flexable curved plasterboard 18 mm
   Plasterwork that follows the arched window 8 mm

2. Curtain wall element (openable) with HR++ glass 200 mm connected with hardwood frame 56 x 150 mm
   Ceramic Window Film

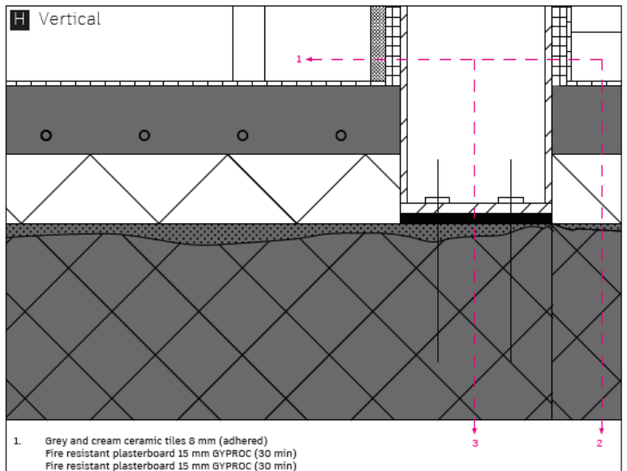
G Vertical



1 Grey and cream ceramic tiles 8 mm (adhered)
Screed / concrete floor with conduits for underfloor heating 140 mm + Ø 20 mm
XPS insulation 140 mm
Self-levelling polymer concrete compound MAPEI
concrete underfloor (existing)

2 Limestone 180 mm
Brick Wall 1020 mm
Hardwood frame 50 x 140 mm + Rockwool insulation 140 mm
OSB board + steel brackets
Grey and cream ceramic tiles 8 mm (adhered)

H Vertical

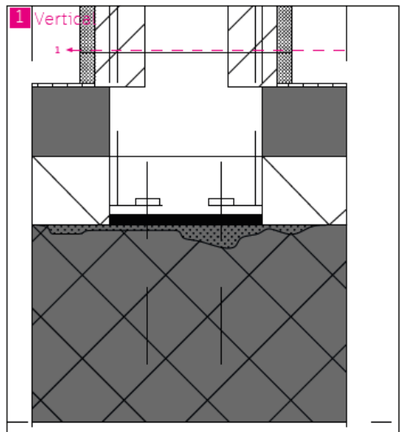


1. Grey and cream ceramic tiles 8 mm (adhered)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Steal beam HEA 300 290 mm + Ventilation pipes Ø 125 mm
Fire resistant plasterboard 15 mm GYPROC (30 min)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Acoustic Panel 30 mm SONIFLEX (adhered)

2. Grey and cream ceramic tiles 8 mm (adhered)
Screed / concrete floor 140 mm
XPS insulation 140 mm
Self-levelling polymer concrete compound MAPEI
concrete underfloor (existing)

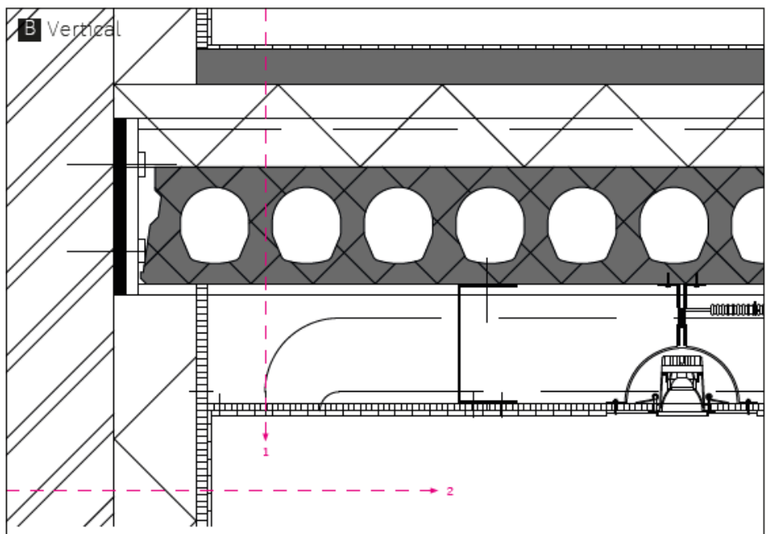
3. Steal beam HEA 300
Steel Flange 20 mm
Thermal Break Plate 30 mm FABREEKA for beams
Self-levelling polymer concrete compound MAPEI
concrete underfloor (existing)

I Vertical



1. Acoustic Panel 30 mm SONIFLEX (adhered)
Aerated concrete blocks 100 mm YTONG
Open space + steel wall tie connections + ventilation pipes Ø 125 mm
Aerated concrete blocks 100 mm YTONG
Acoustic Panel 30 mm SONIFLEX (adhered)

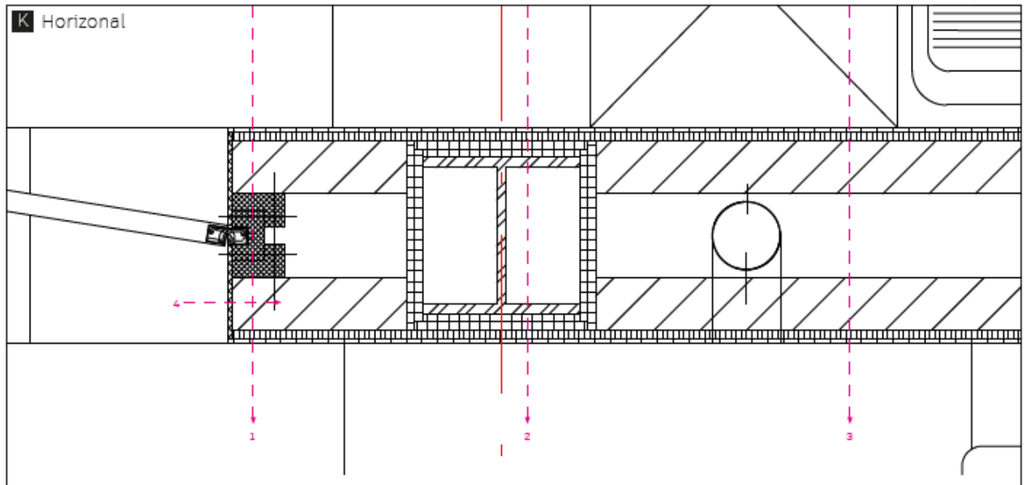
B Vertical



1. Grey and cream ceramic tiles 8 mm (adhered)
Concrete layer - screed 60 mm
XPS insulation 140 mm - 65 mm
Hollow core slab floor 200 mm - inside steel beams HEA 300 - 290 mm
Steel brackets 200 mm + (ventilation) pipes + Light fixtures and fittings
OSB board 18 mm
Fiber Glass ceiling tiles 12 mm (adhered)

2 Brick wall 1020 mm
Rockwool 140 mm insulation +hardwood timber framing 140 mm + Thermal Break Plate 30 mm FABREEKA for beams
OSB board 18 mm
Grey and cream ceramic tiles 8 mm (adhered)

K Horizonal



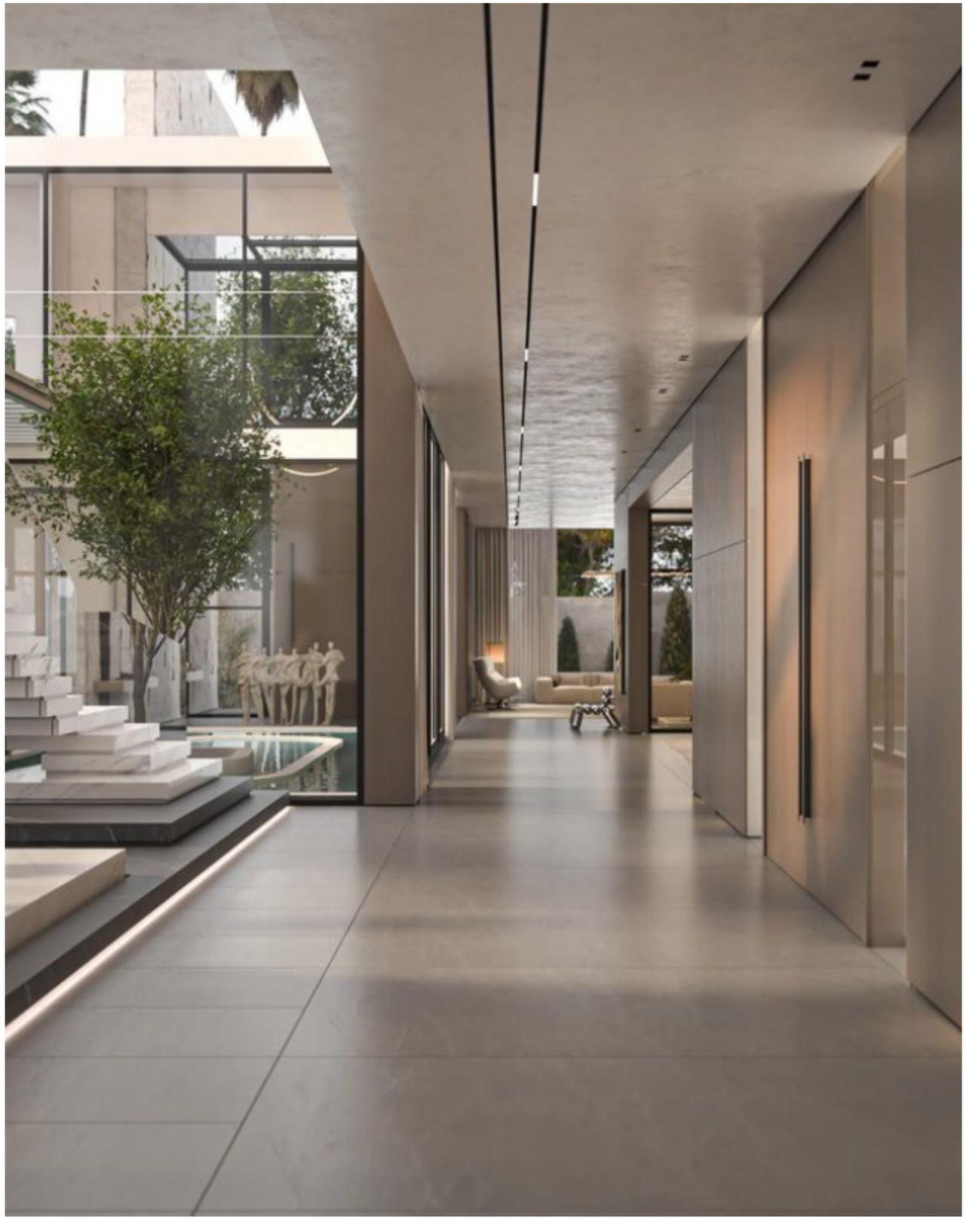
1. Grey and cream ceramic tiles 8 mm (adhered)
OSB board 18 mm
Aerated concrete blocks 100 mm YTONG
Hardwood system with hidden hinges 160 mm
Aerated concrete blocks 100 mm YTONG
OSB board 18 mm
Grey and cream ceramic tiles 8 mm (adhered)

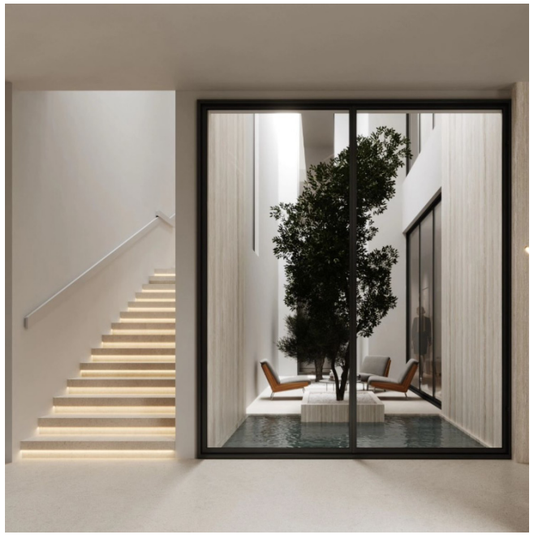
2. Grey and cream ceramic tiles 8 mm (adhered)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Steal beam HEA 300 290 mm + Ventilation pipes Ø 125 mm
Fire resistant plasterboard 15 mm GYPROC (30 min)
Fire resistant plasterboard 15 mm GYPROC (30 min)
Grey and cream ceramic tiles 8 mm (adhered)

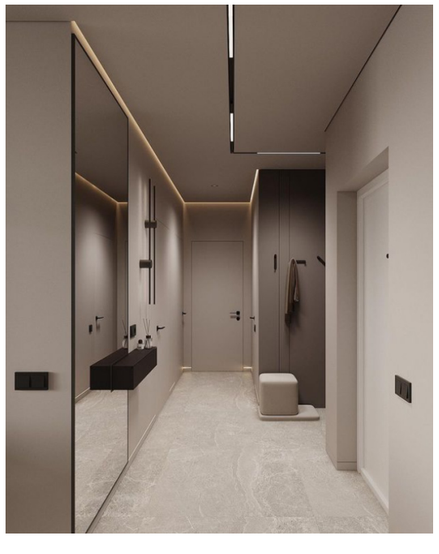
3. Grey and cream ceramic tiles 8 mm (adhered)
OSB board 18 mm
Aerated concrete blocks 100 mm YTONG
Open space + steel wall tie connections + ventilation pipes Ø 125 mm
Aerated concrete blocks 100 mm YTONG
OSB board 18 mm
Grey and cream ceramic tiles 8 mm (adhered)

4. Plasterwork 8 mm
Aerated concrete blocks 100 mm YTONG

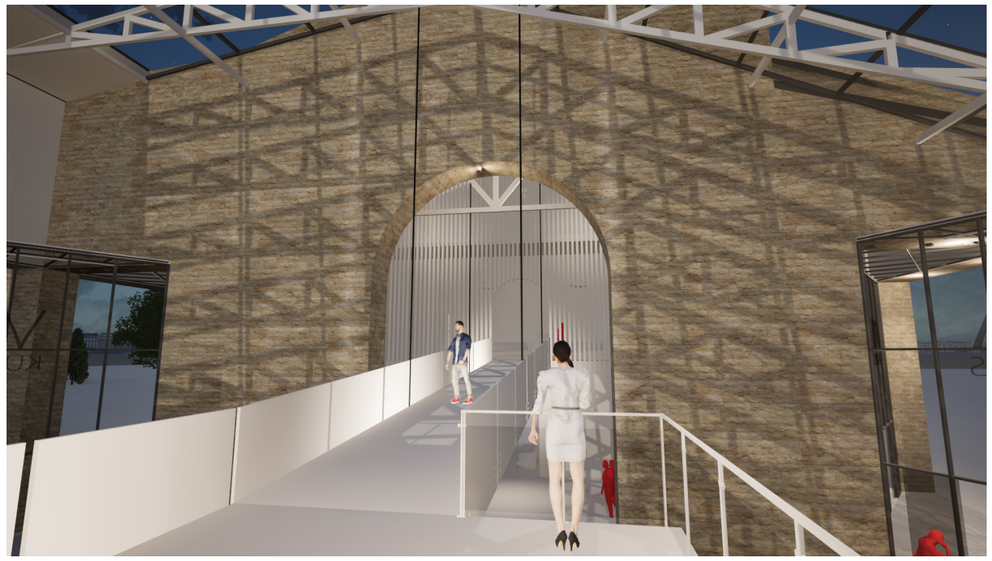


















The end



