



ARCHITECTURE STUDENT CONTEST

20th INTERNATIONAL EDITION, NORD ISÈRE 2025



Team 20

Student | Anthony Youssef



Instructor | Zafer Sleiman



S Y N A P S E

S I N A P S E

THE ART OF CONNECTION

LYON

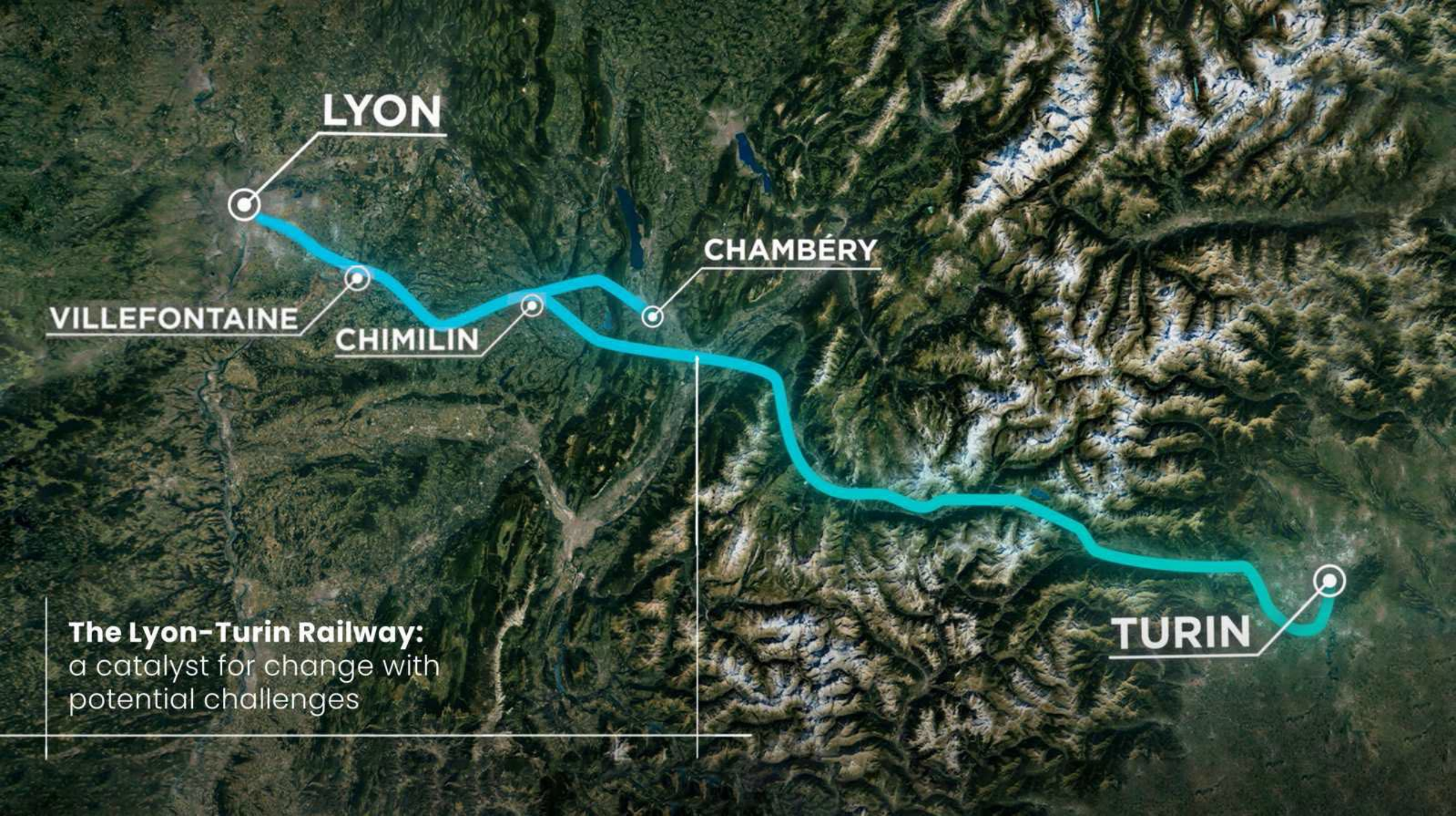
CHAMBÉRY

VILLEFONTAINE

CHIMILIN

TURIN

The Lyon-Turin Railway:
a catalyst for change with
potential challenges



LYON



Site B



VILLEFONTAINE



CHIMILIN



Site A

LYON



VILLEFONTAINE



CHIMILIN



CONSERVE

from negative impacts
(Ecological disruption, land
artificialization, loss of local identity)

embody the ideal of
"a community of communes"

Connectée par nature

"connected by nature"

CONNECT

the towns with the
surrounding environment

VILLEFONTAINE

CHIMILIN

CONSERVE

from negative impacts

(Ecological disruption, land
artificialization, loss of local identity)

embody the ideal of
"a community of communes"

"connected through nature"

CONNECT

the towns with the
surrounding environment

CONVERSE

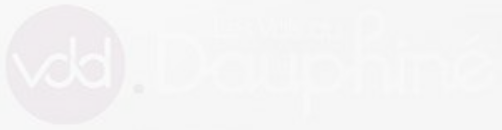
Engage local communities
and promote initiative taking

VILLEFONTAINE

CHIMILIN

CONSERVE

from negative impacts
(Ecological disruption, land
artificialization, loss of local identity)



embody the ideal of
"a community of communes"

Villefontaine

connected to nature

"connected through nature"

CONNECT

the towns with the
surrounding environment

CONVERSE

Engage local communities
and promote initiative taking

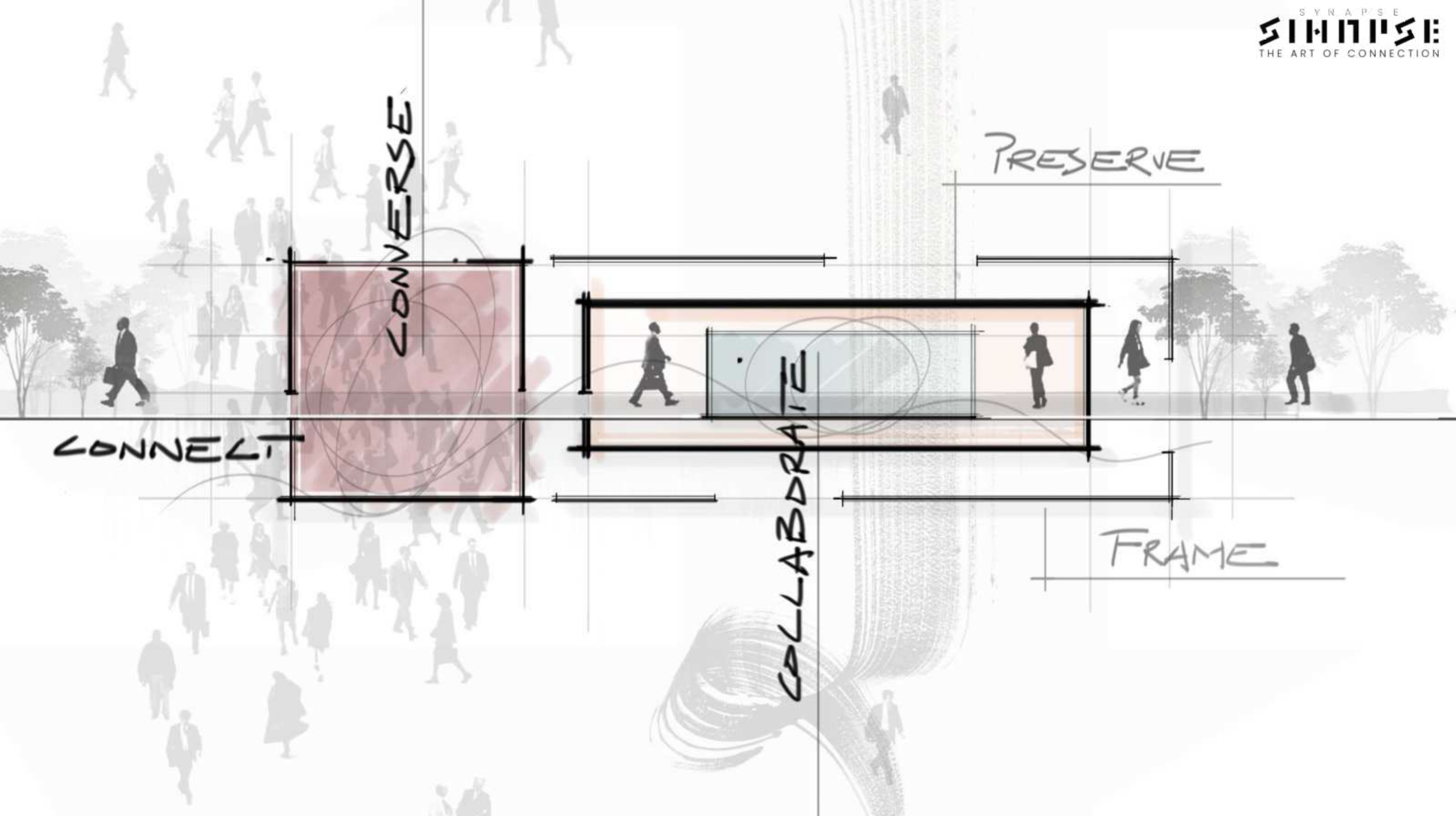
RENOVATION SITE : COMMUNE OF CHIMILIN
CONNECTING PAST AND PRESENT

CHIMILIN

VILLEFONTAINE

CONSERVE

from negative impacts
(Ecological disruption, land
artificialization, loss of local identity)



CONCEPTUAL SKETCHES

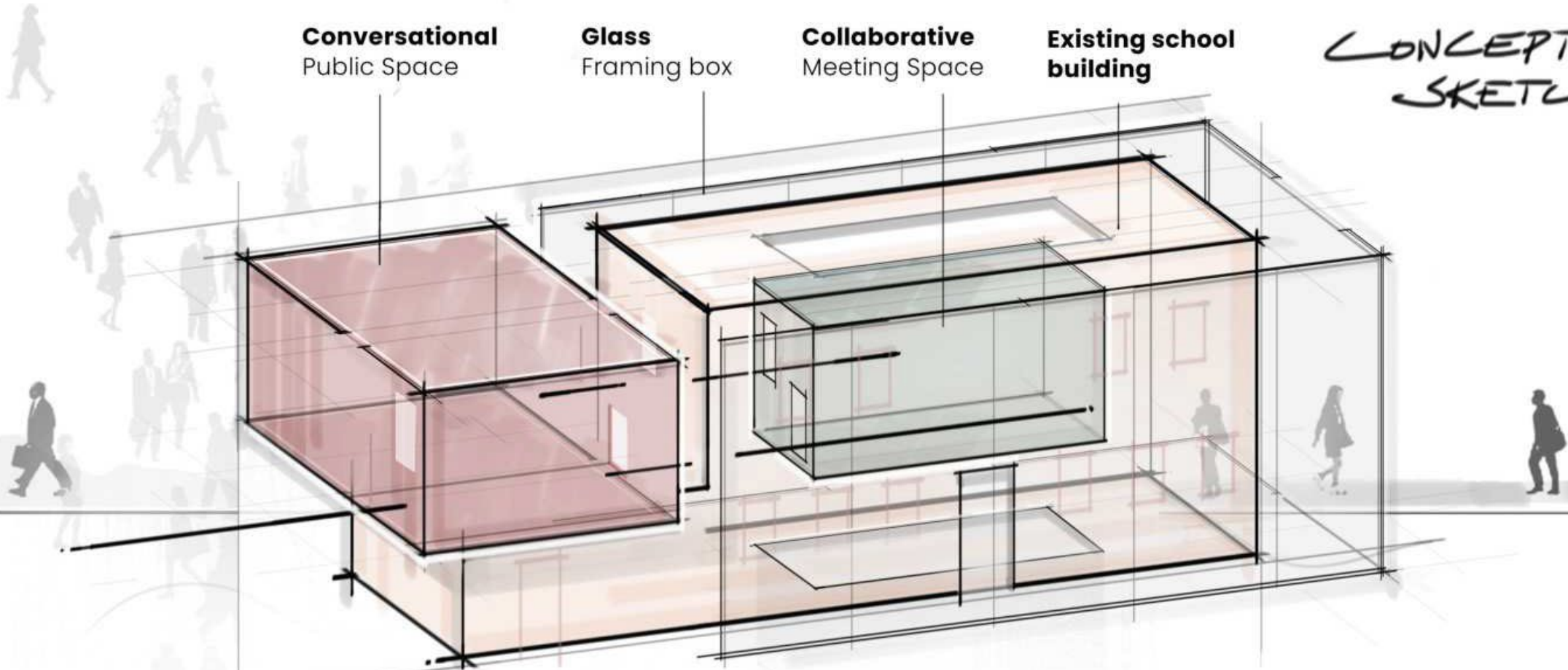
**Conversational
Public Space**

**Glass
Framing box**

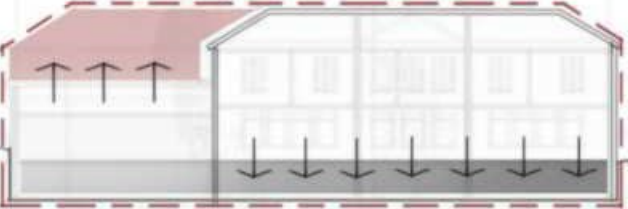
**Collaborative
Meeting Space**

**Existing school
building**

IN SECTION VIEW



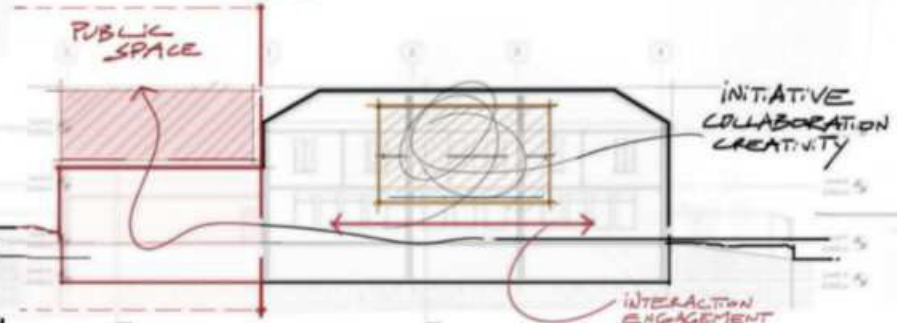
Extend through
complementarity



Functionalize
the basement level

GATHERING
LEISURE

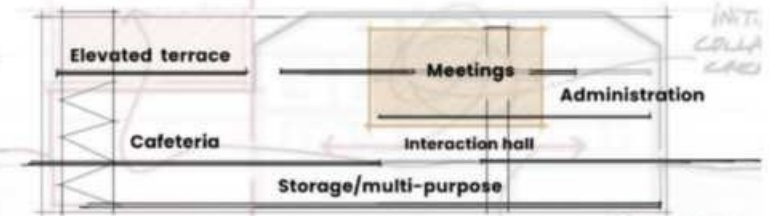
PUBLIC
SPACE



INITIATIVE
COLLABORATION
CREATIVITY

INTERACTION
ENGAGEMENT

PUBLIC
SPACE



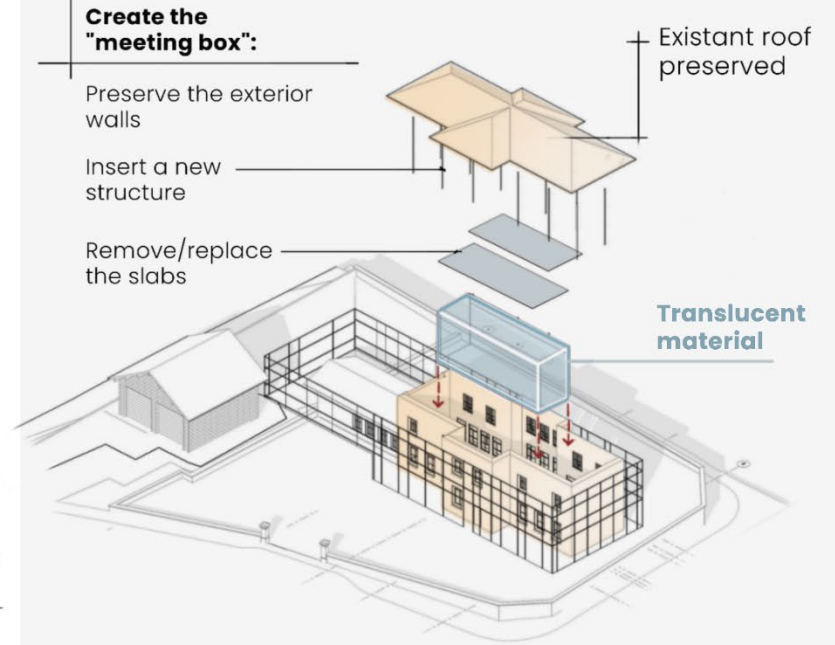
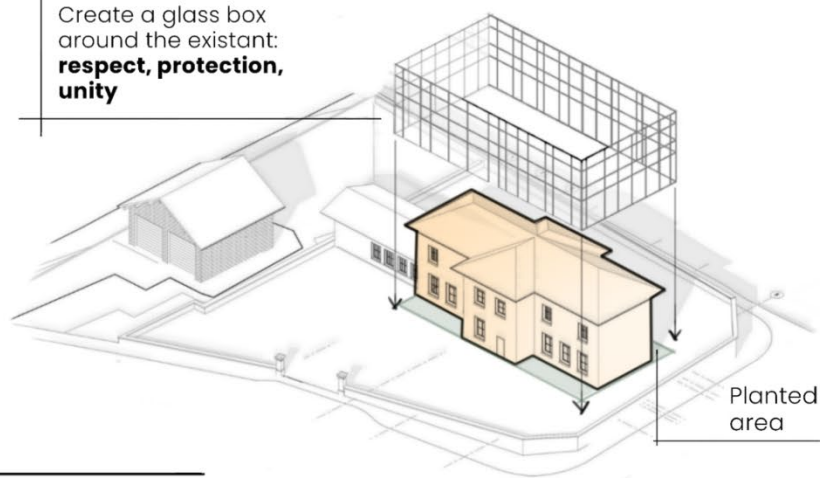
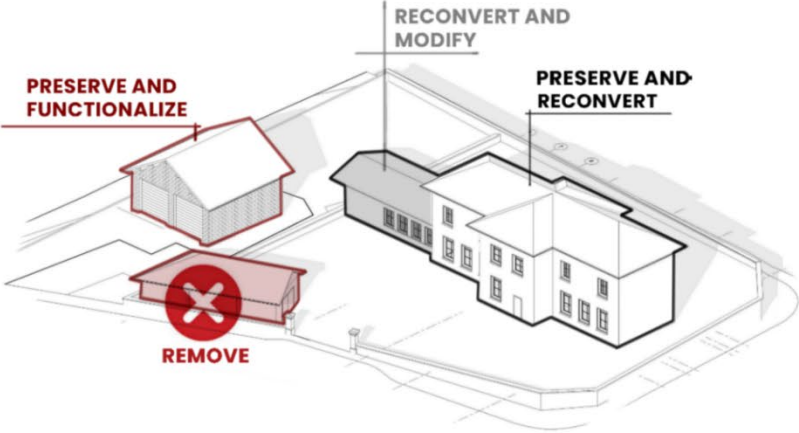
INTI.
COLLA
CREA

INTERACTIVE
ENGAGEMENT

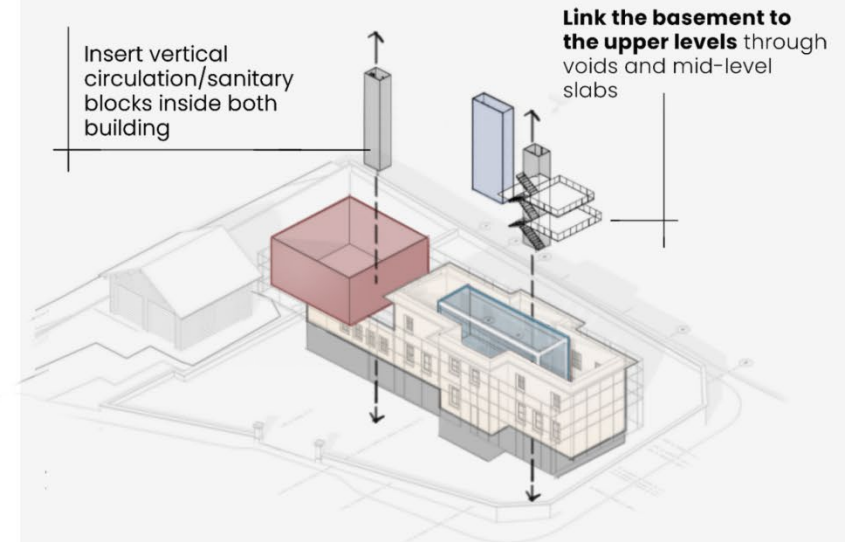
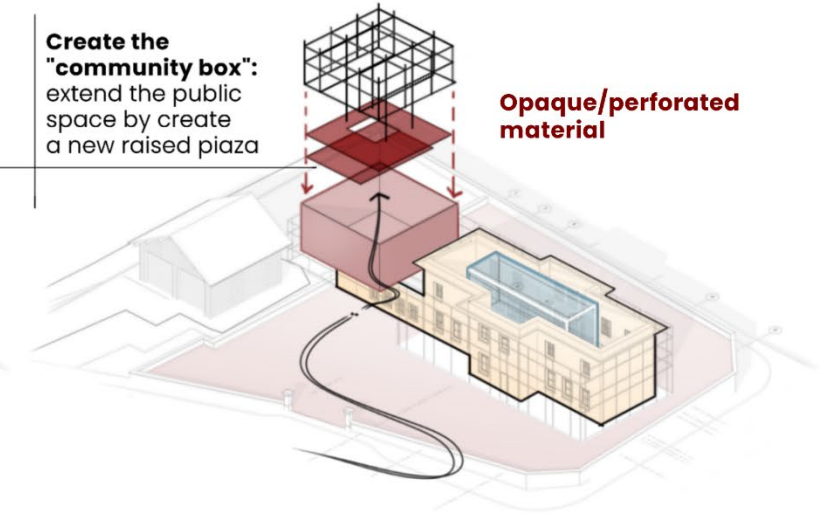
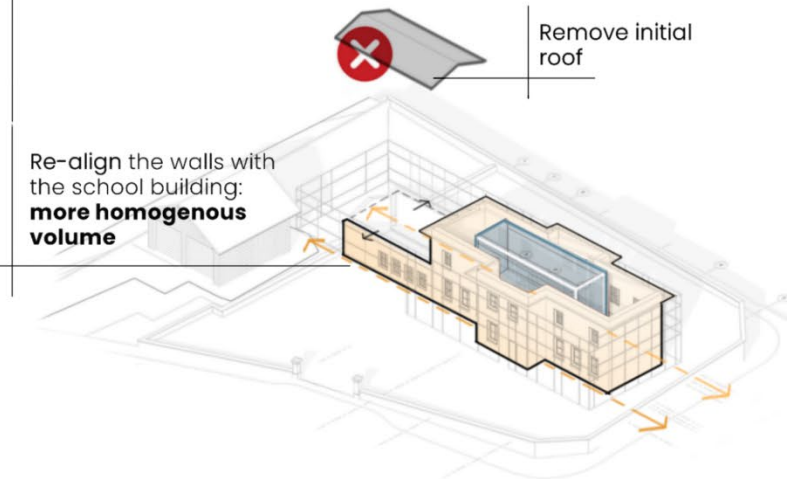
Renovation site : Chimilin

Conceptual approach

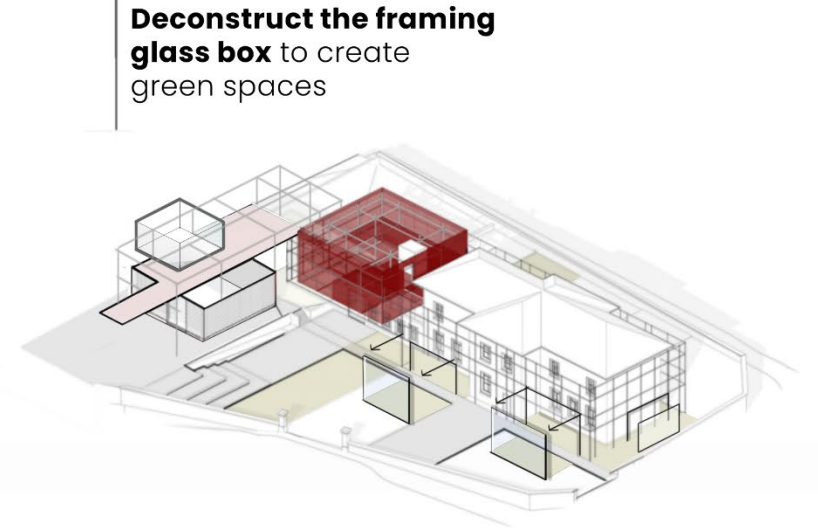
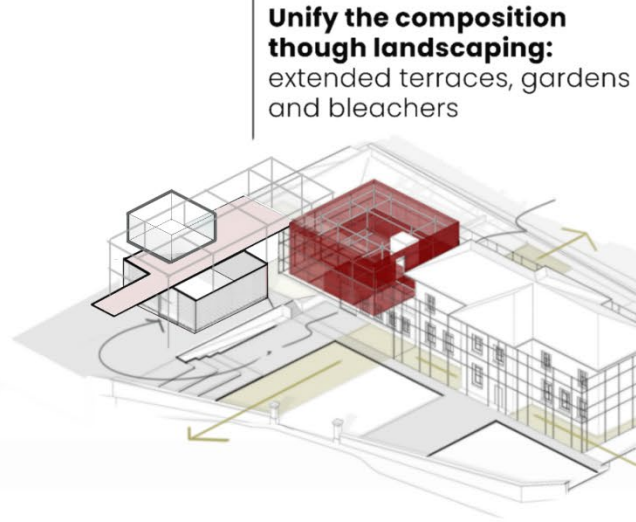
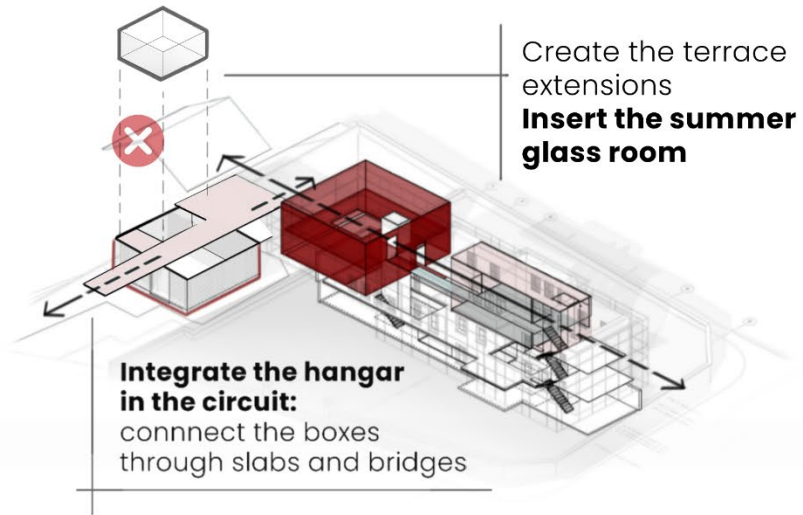
A SCHOOL BUILDING INTERVENTION



B PLAYROOM INTERVENTION



C HANGAR AND LANDSCAPING



Energy efficiency approach:

Summer box efficiency:
solar energy generation

Extension box envelope:
Rain water collection

School building envelope efficiency:
solar energy generation



Renovation site: Chimilin

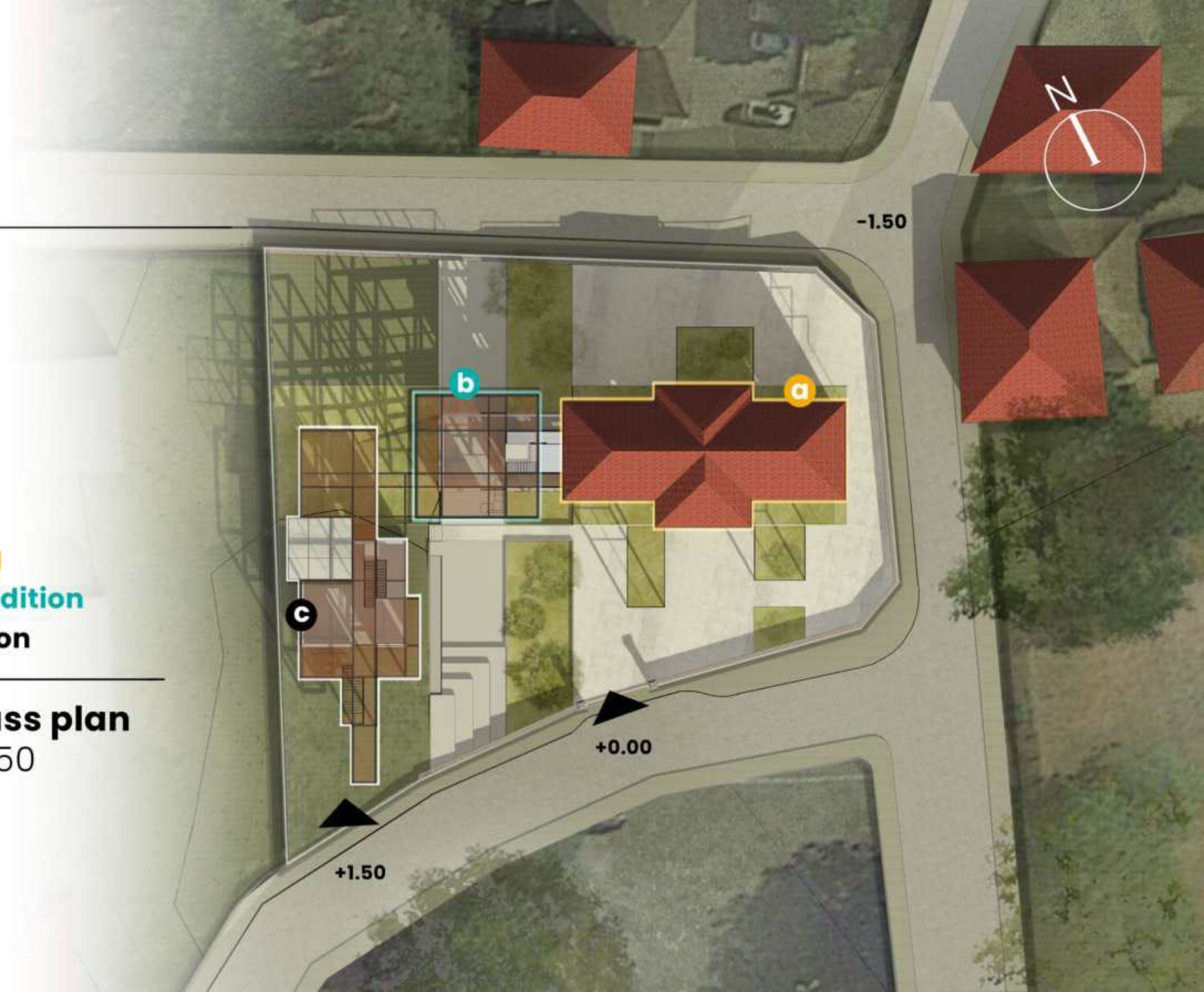
Architectural approach

Massing strategy

Integration with the surrounding buildings through mass, height and color.

- a** Renovated school building
- b** Playroom/public space addition
- c** Hangar/workshop extension

Mass plan
1/250



Renovation site: Chimilin

Architectural approach

Ground floor

Exterior strategy:

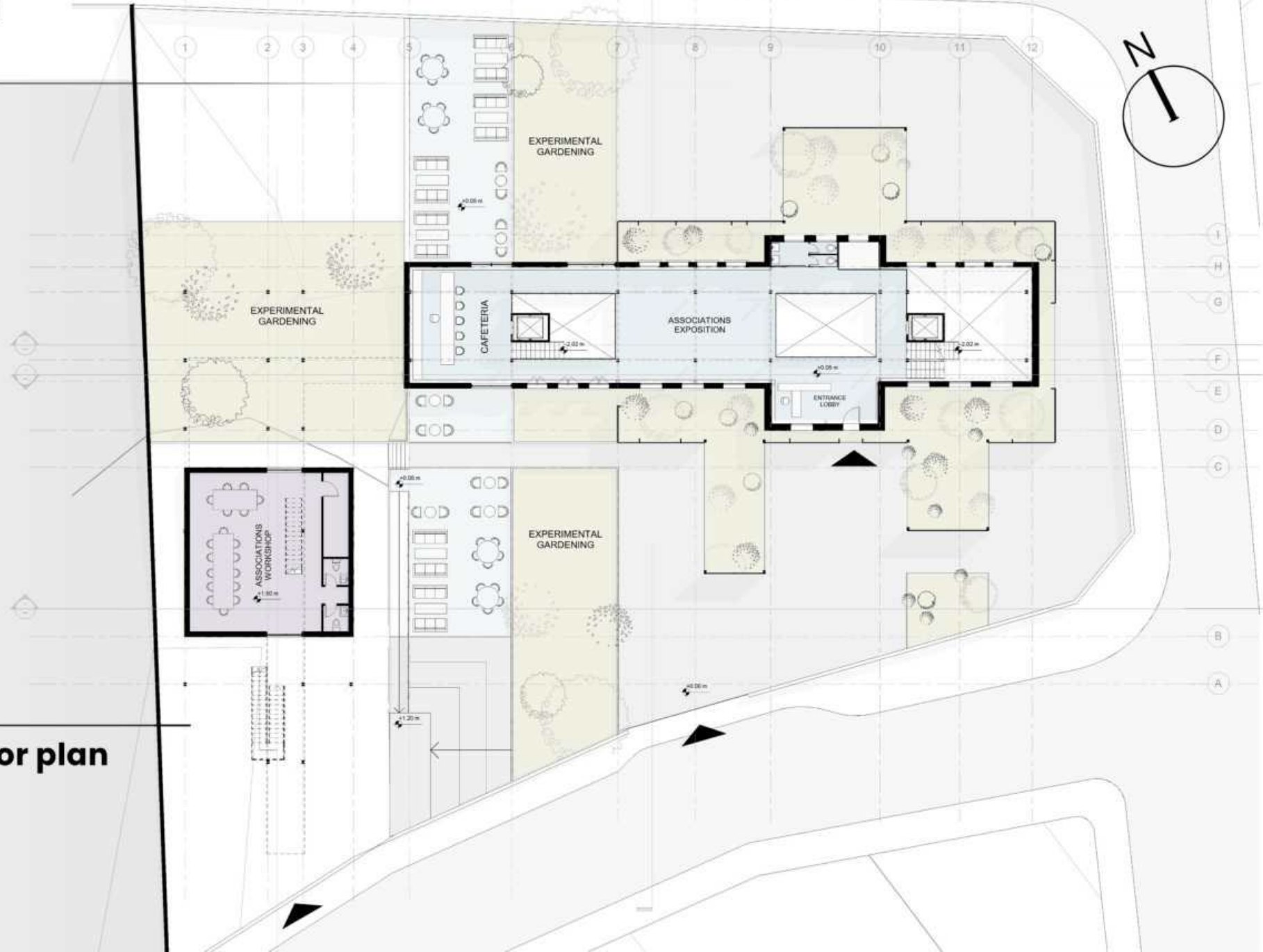
Extending the cafeteria through lateral exterior terraces.

Creating experimental gardening spaces to catalyse local initiative

Interior strategy:

Linking the ground floor with the basement through voids and visual communication

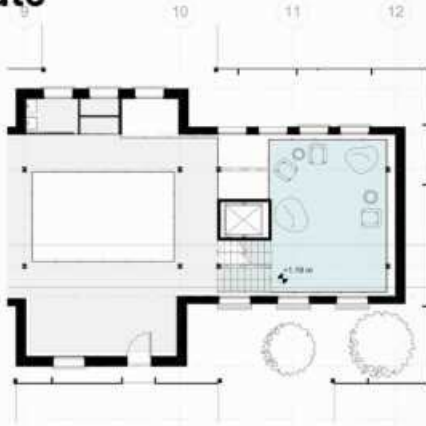
Ground floor plan
1/300



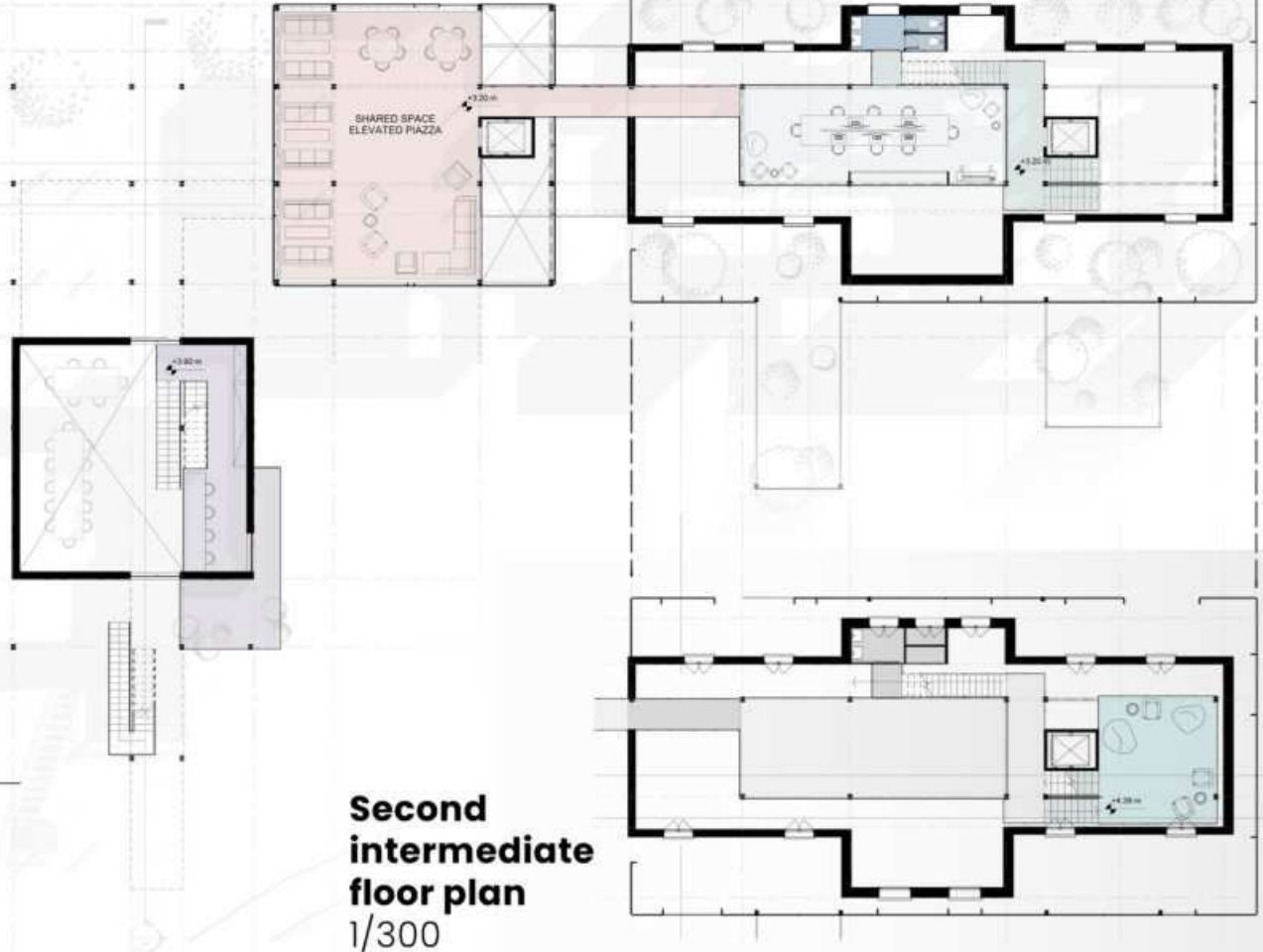
Renovation site: Chimilin

Architectural approach

First intermediate floor plan
1/300



First floor plan
1/300

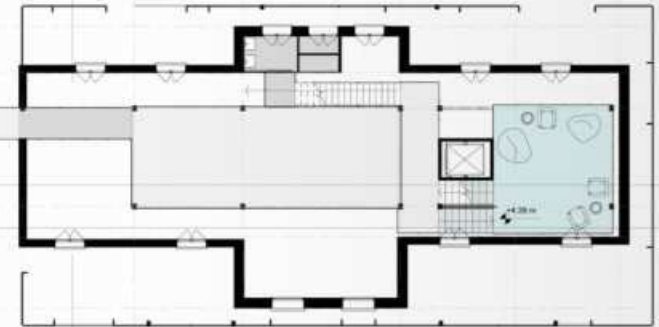


Upper floors

Connecting the upper and lower floors through intermediate level slabs.

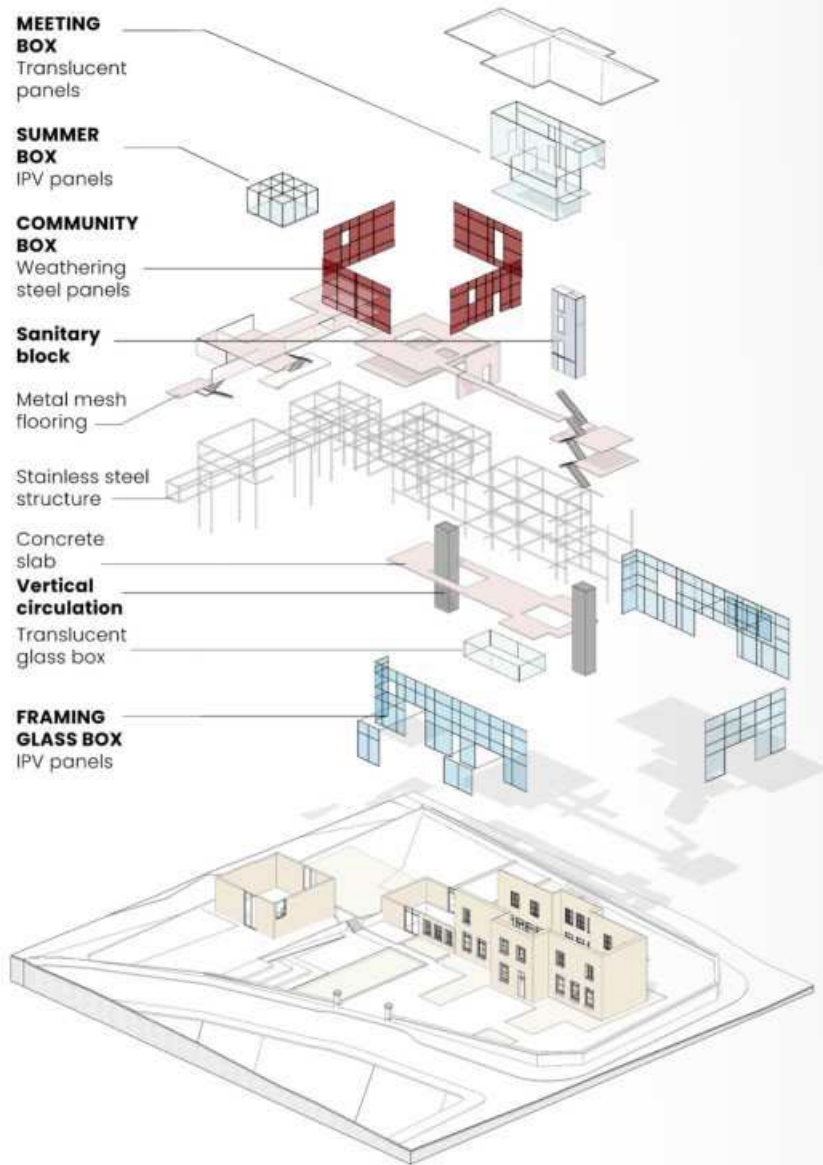
Connecting the interior meeting box with the exterior commun space box through bridges.

Second intermediate floor plan
1/300



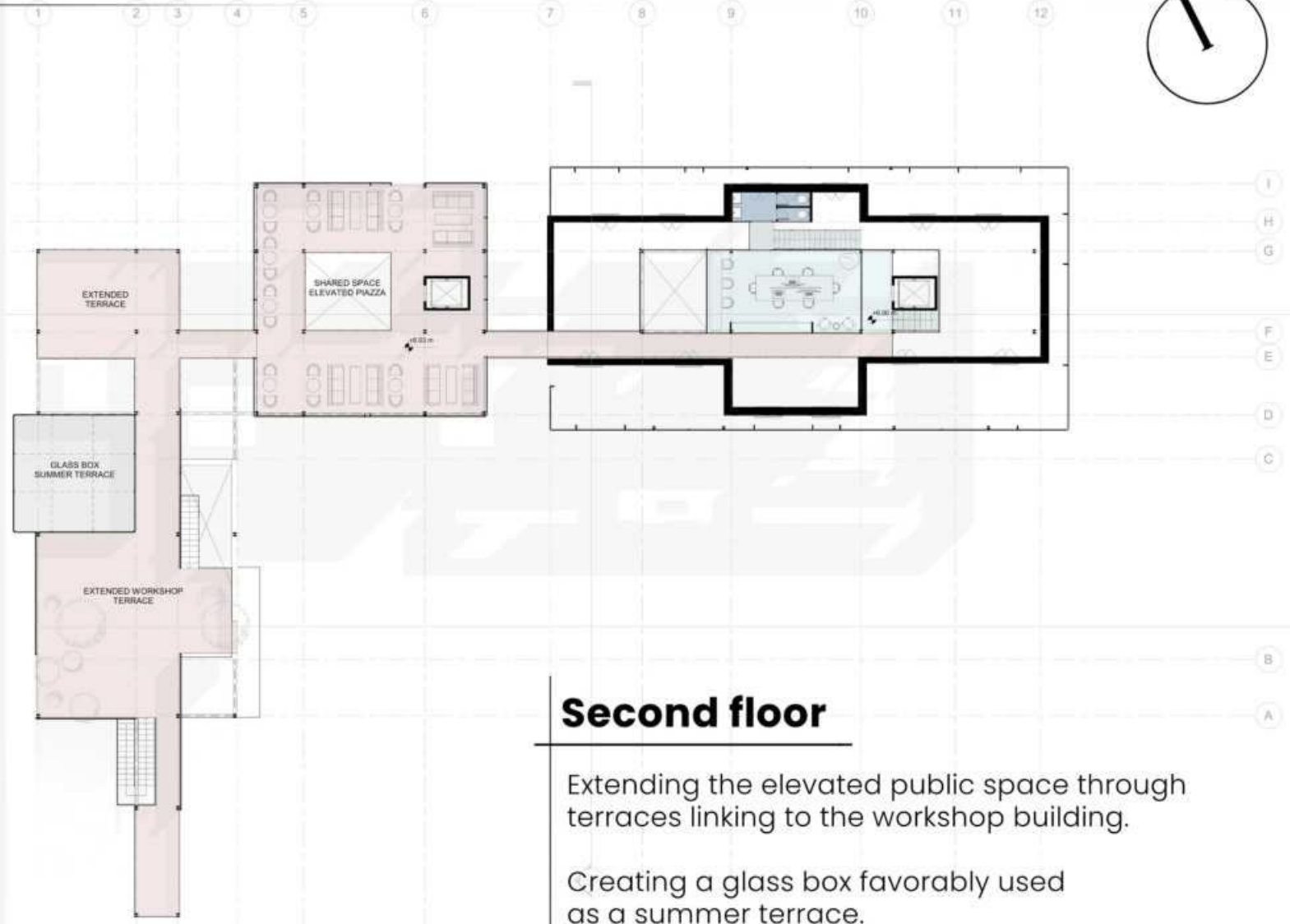
Renovation site: Chimilin

Architectural approach



Second floor plan

1/300

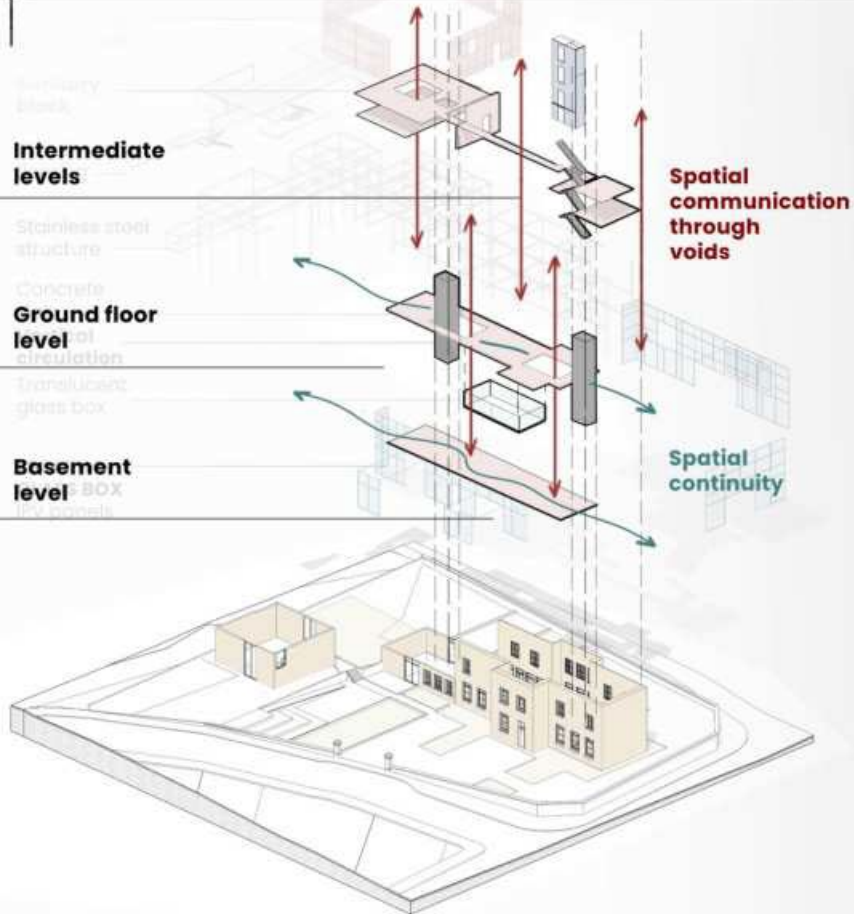


Renovation site: Chimilin

Architectural approach

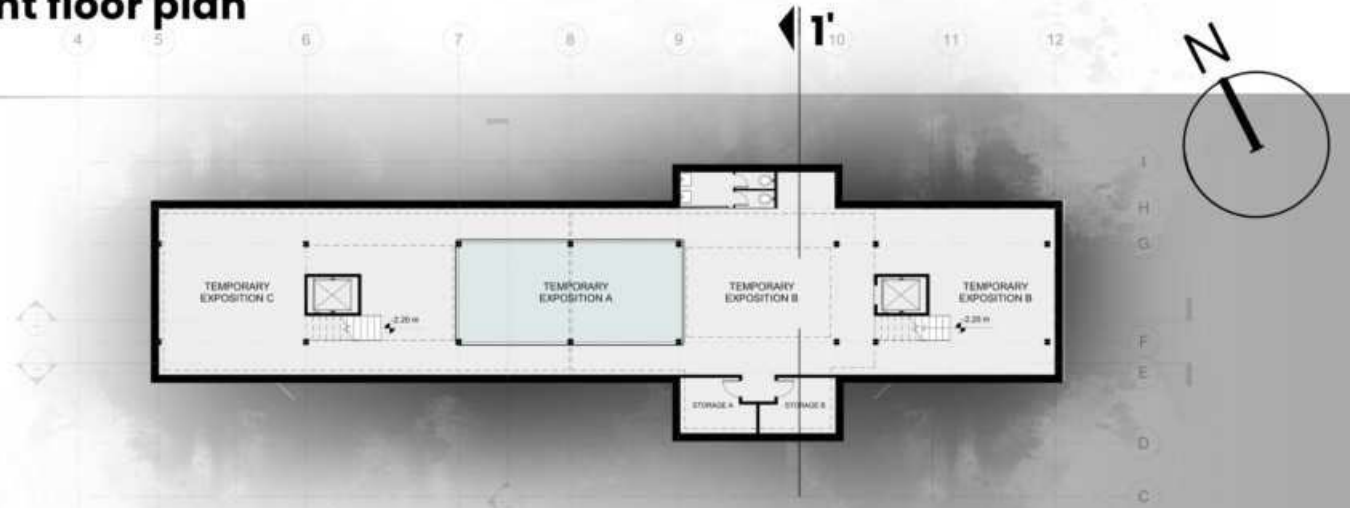
Basement floor

Temporary expositions for local communities. The exposition box can be completely opened to create a single exposition space.



Basement floor plan

1/300



3D section 1'

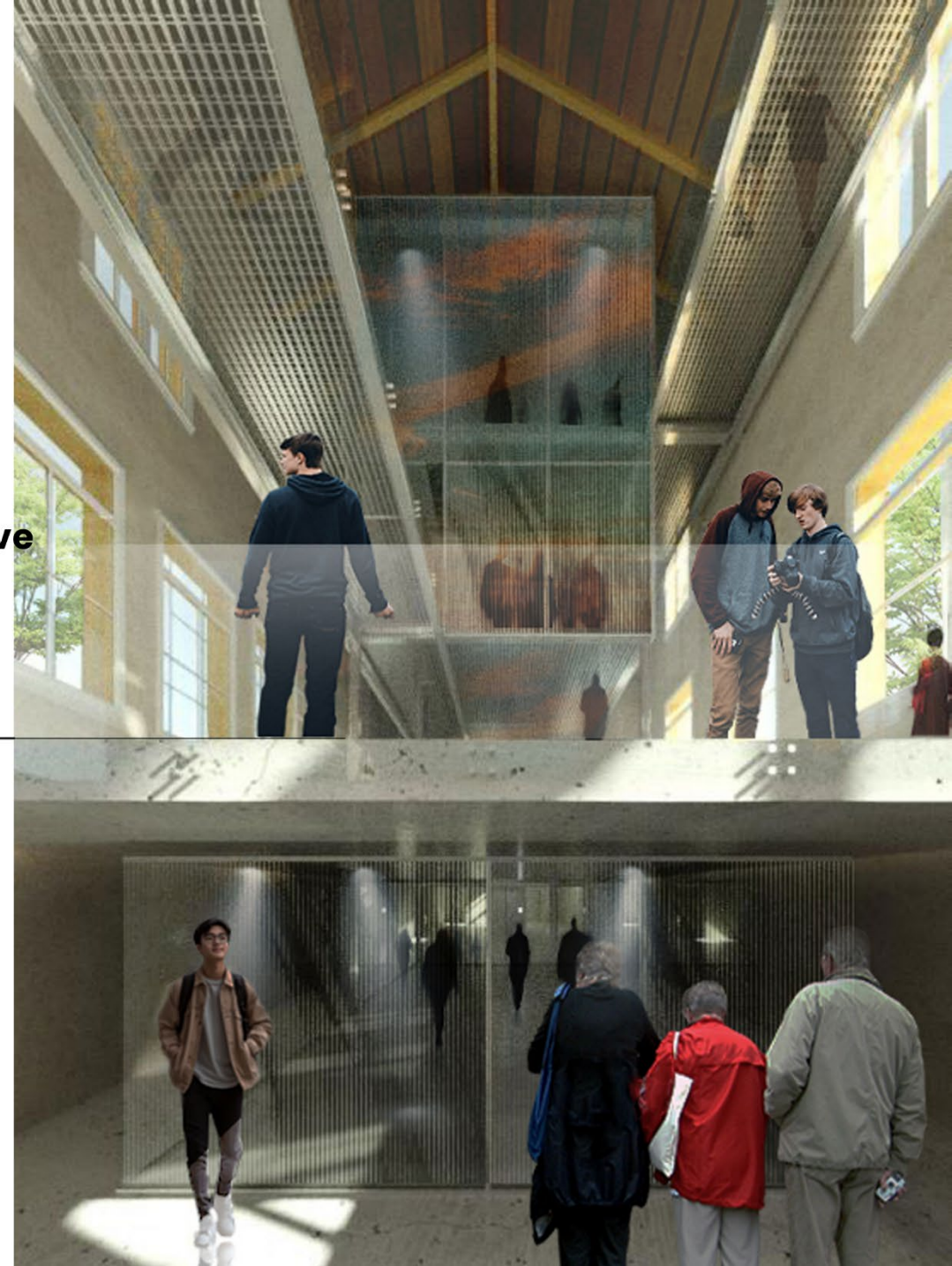
Spatial and visual communication



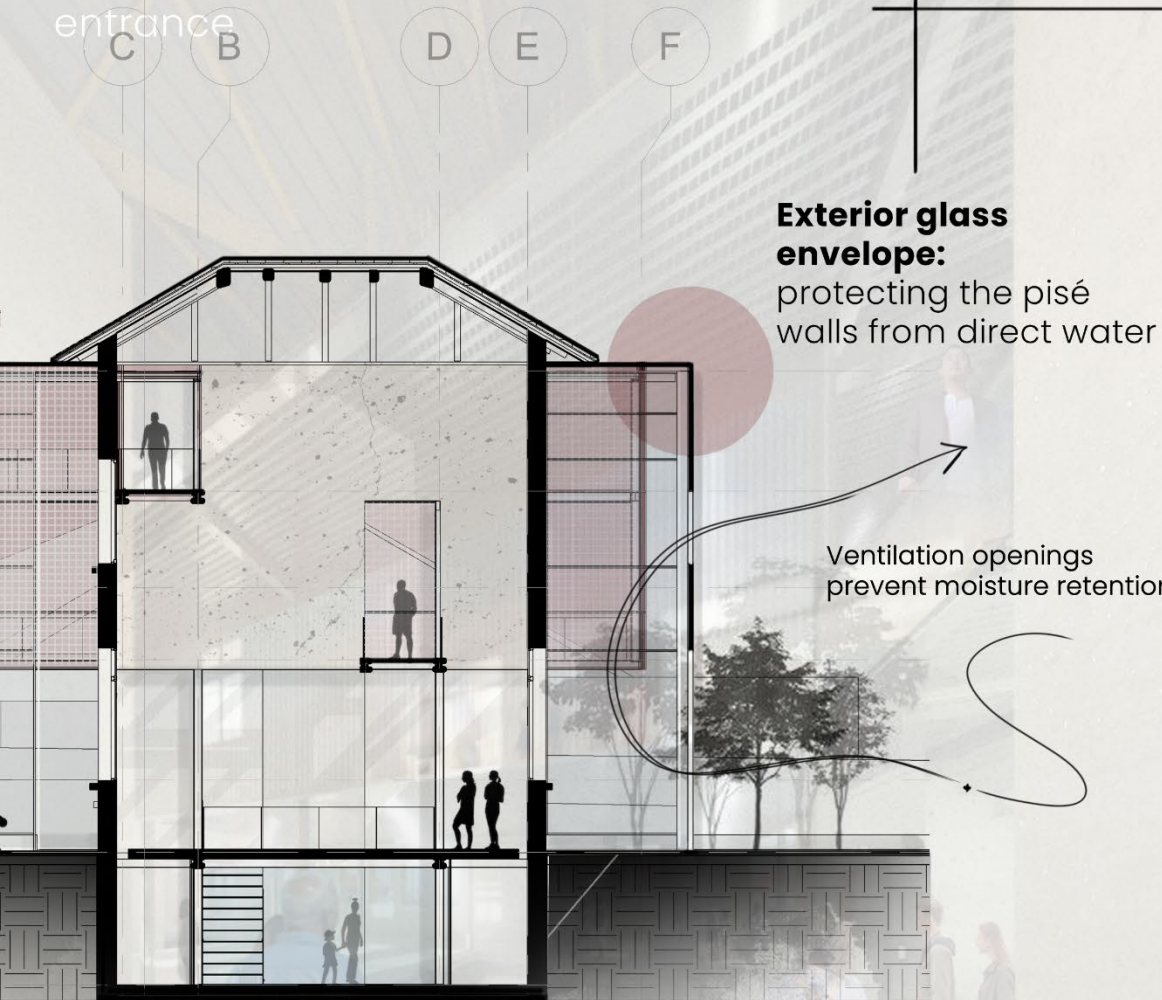
**Perspective
view 1:**
view from
entrance



**Perspective
view 2:**
view from
basement
level



Perspective
view 1:
view from
entrance



Exterior glass envelope:
protecting the pisé
walls from direct water

Ventilation openings
prevent moisture retention

Preserved load-bearing walls restoration:



Repairing cracks in Pisé wall

1 Wall preparation:

- Removing loose material and dampening surface
- Using **Weber.cal NHL + sand (2:1 ratio)** as a filler

Natural Hydraulic Lime
(For High-Moisture Areas or Exterior Protection)

2 Base Coating (Gobetis):

- Mixing **Weber.cal NHL 3.5 with coarse sand (1:2.5)**
- Applying a thin scratch coat

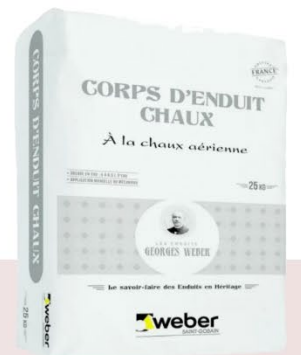
Natural Hydraulic Lime
(NHL 3.5 moderate strength, good breathability)

3 Finish Coat:

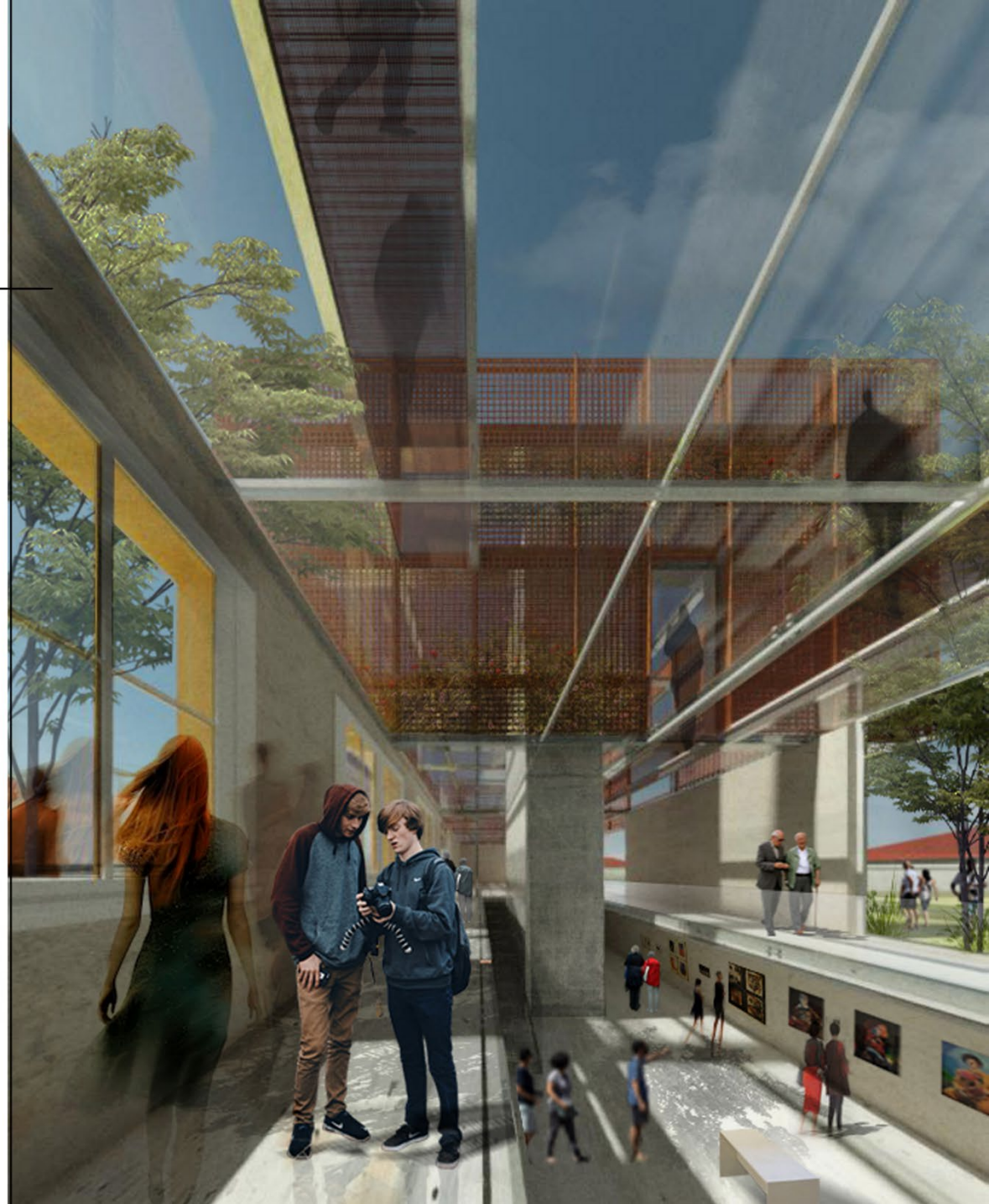
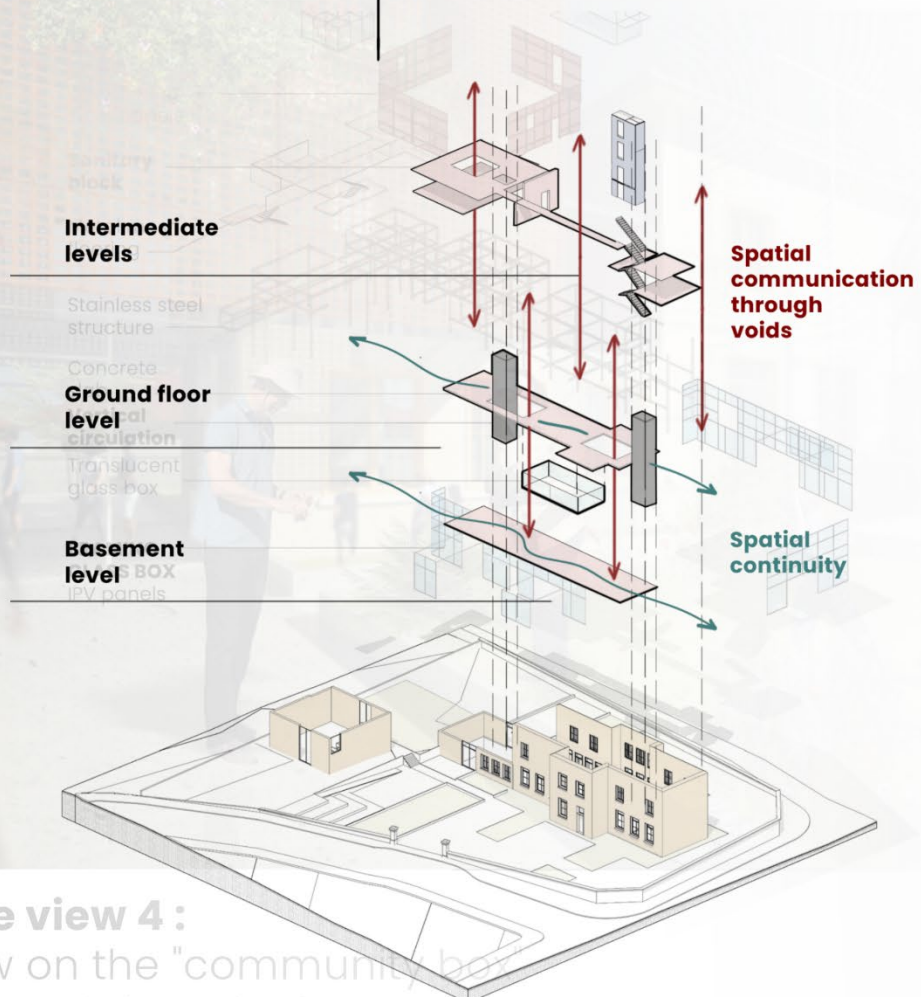
- Using **Weber.pat Chaux Aérienne**
for traditional finish

Non-hydraulic lime
(For fine finishing and conservation)

Requires professional maintenance
by local craftsmen of the region



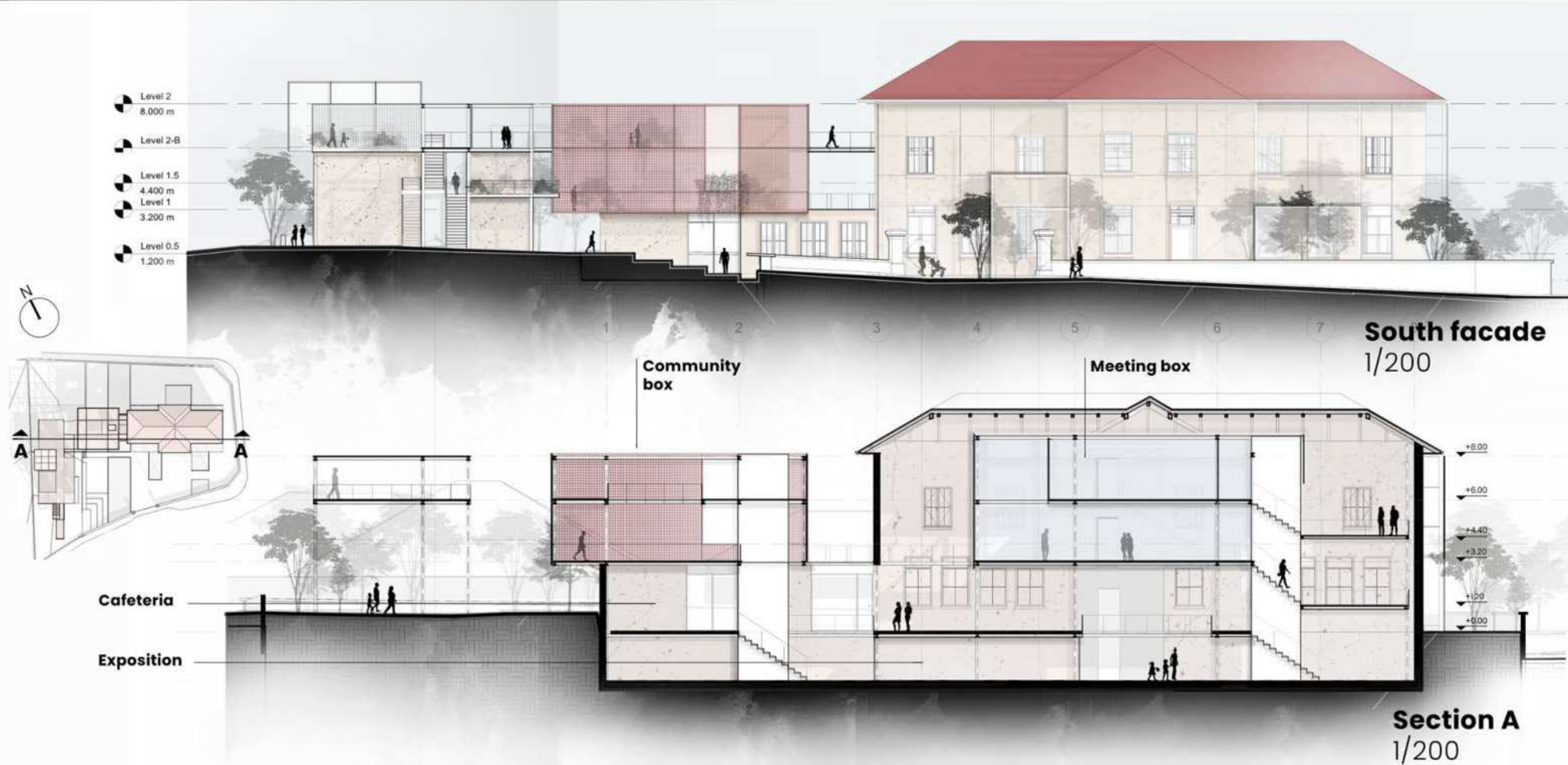
Perspective view 5:
interior view on the
community box
from ground floor level



Perspective view 4 :
Exterior view on the "community box"
and experimental gardening space

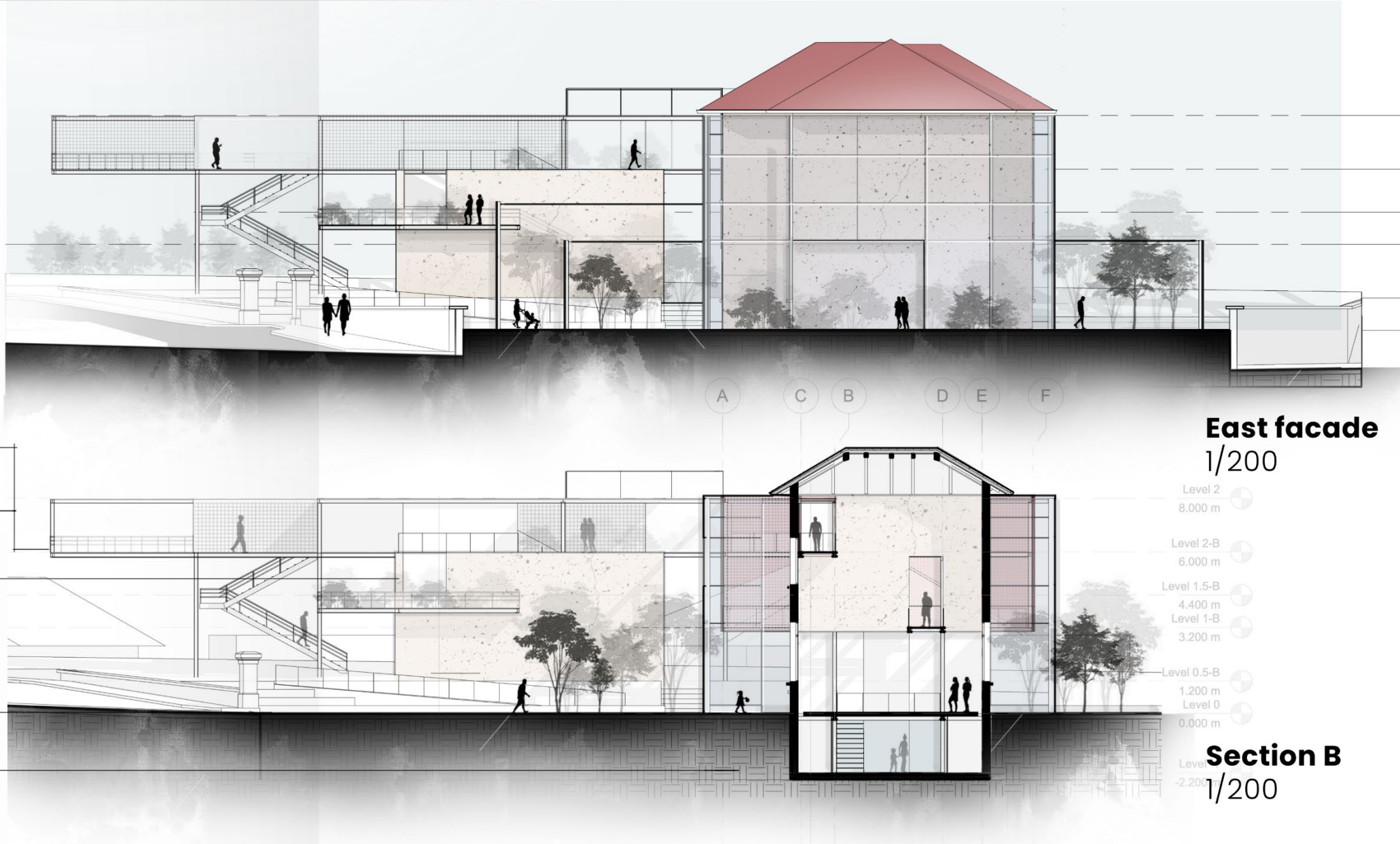
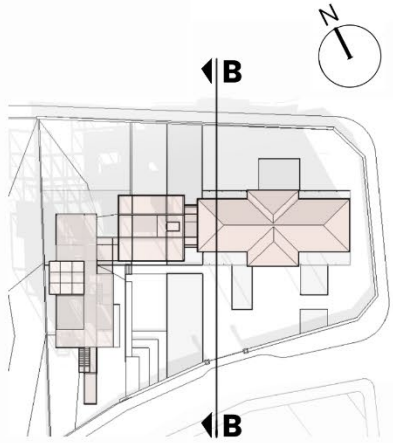
Renovation site: Chimilin

Architectural approach



Renovation site: Chimilin

Architectural approach



Workshop
terrace
extension

Community
box extension

Associations
workshop

Ground floor
exposition

Basement
exposition

East facade
1/200

- Level 2 8.000 m
- Level 2-B 6.000 m
- Level 1.5-B 4.400 m
- Level 1-B 3.200 m
- Level 0.5-B 1.200 m
- Level 0 0.000 m

Section B
1/200

Perspective view 3 :

Exterior view on the glass envelope and landscaping strategy



Adaptive landscaping: Chimilin-native plants



Acer campestre

Medium size, supports insects and provides warm hues



Corylus avellana

Provides edible nuts and has native hedge potential



Viburnum lantana

Hardy shrub, pollinator-friendly (birds, bees and butterflies)



Lonicera periclymenum

Provides beautiful scent and supports birds/insects



Rosmarinus officinalis

Aromatic, pest-repellent and evergreen plant with minimal watering needs



Energy & Carbon



Materials & Resources



Water, Biodiversity & Local Value Creation





Experimental gardening:

echoing the recent intervention on **the galo-roman site in Vernai**, valley of Rhône, where the creation of an experimental garden helps in:

— **Perserving** the site's agricultural memory

— **Initiating** intergenerational exchanges

— **Encouraging** biodiversity and environmental protection

Perspective view 4 :

Exterior view on the "community box" and experimental gardening space

Renovation site: Chimilin

Architectural approach

CONTRAST

1 Create contrast with the school building:
Weathering steel panels/
corten steel mesh



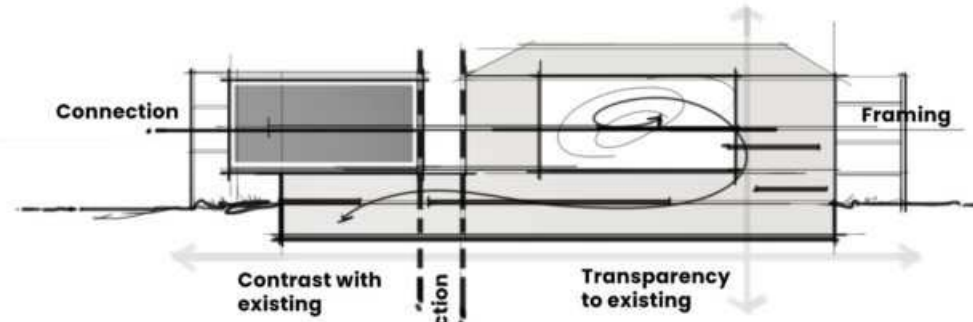
Water collection
through facade
envelope

2

Preserve visibility inside existing building:
Translucent glass with acoustic insulation
Expanded metal mesh

3

Glass envelope:
Integrated PV cells for
energy generation



OPACITY

TRANSPARENCY

Weathering steel

Made from **post-consumer recycled steel** and is **100% recyclable itself**



RECYCLED

Low carbon concrete

Industrial cement combined with mineral compounds, **carbon footprint reduced by up to 70%**.



LOW CARBON

Low Carbon Steel Wire Mesh

Using recycled steel, preserving visual relationships across stories



RECYCLED



LOW CARBON

Low embodied carbon glass



Combining high recycled glass content and renewable energy.



RECYCLED



LOW CARBON

PRIVA-LITE®

glassolutions
SAINT-GOBAIN

Active glass switchable between opaque/transparent for **high acoustic insulation**, used as **rear projection screen**.



PRIVACY



CREATIVITY



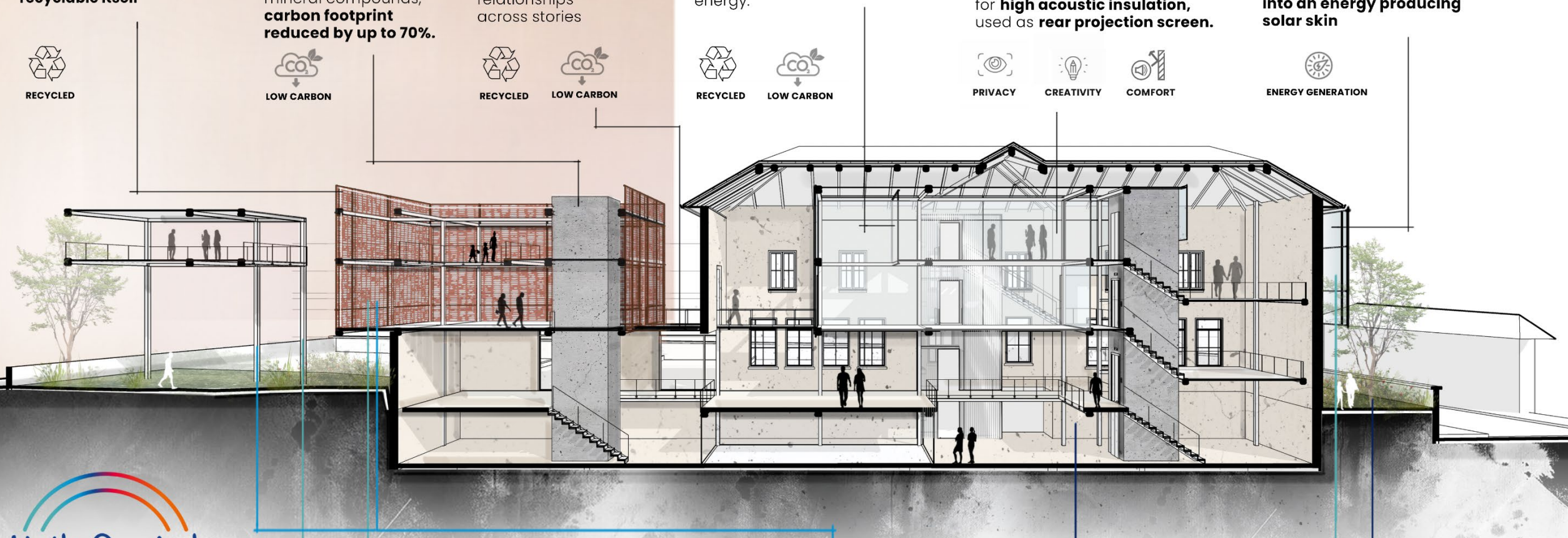
COMFORT

Integrated photovoltaics transparent solar panels

Solar building envelope made with BIPV, **turning a passive building into an energy producing solar skin**



ENERGY GENERATION



Energy & Carbon

Materials & Resources

Water, Biodiversity & Local Value Creation

Weathering steel

Made from **post-consumer recycled steel** and is **100% recyclable itself**



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Low carbon concrete

Industrial cement combined with mineral compounds, **carbon footprint reduced by up to 70%**.



LOW CARBON



Saint-Gobain partnership with Yongfeng

Low Carbon Steel Wire Mesh

Using **recycled steel**, preserving visual relationships across stories.



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PRIVACY



CREATIVITY



COMFORT



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ENERGY GENERATION



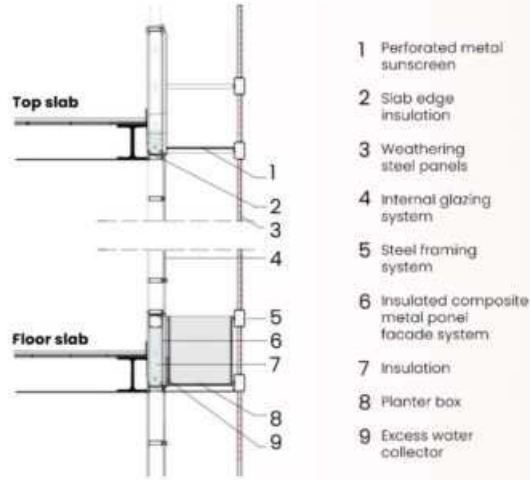
for insulation panels



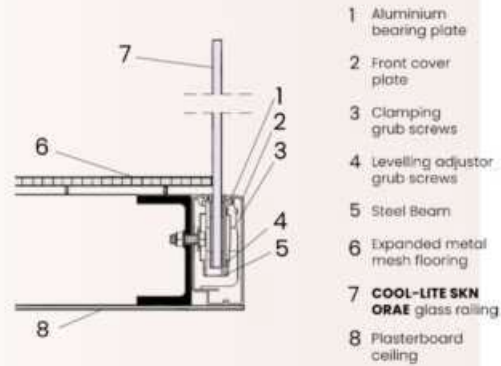
for structural framing

Architectural Detailing

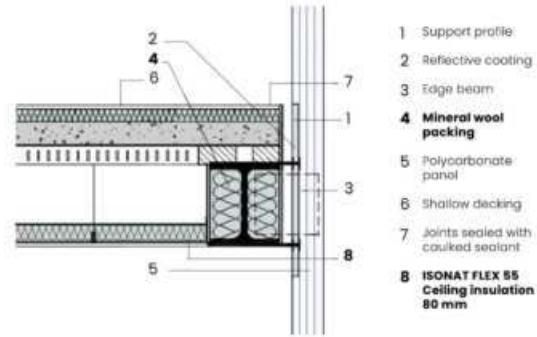
A- Weathering steel envelope



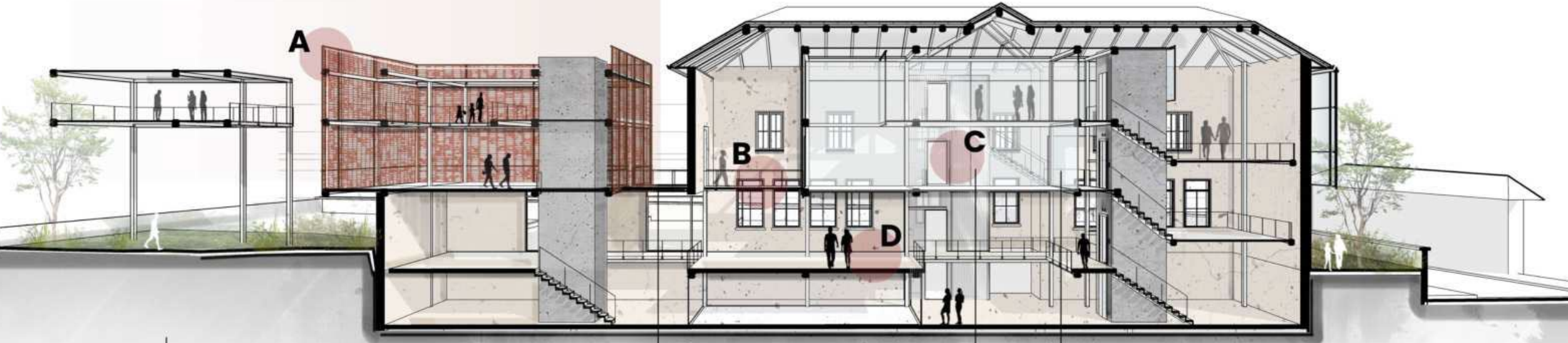
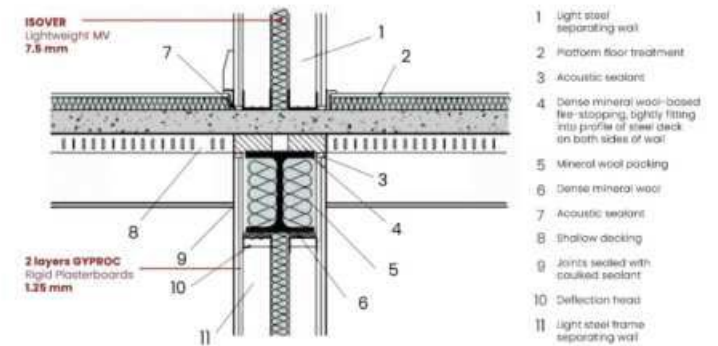
B- Expanded metal mesh deck and glass railing



C- Composite slab/polycarbonate panels fixation



D- Composite slab/interior panels



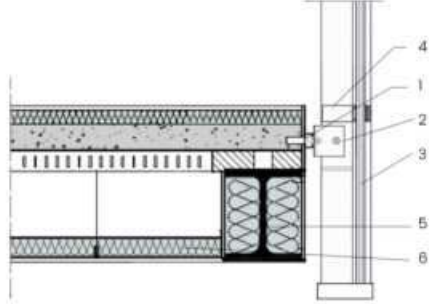
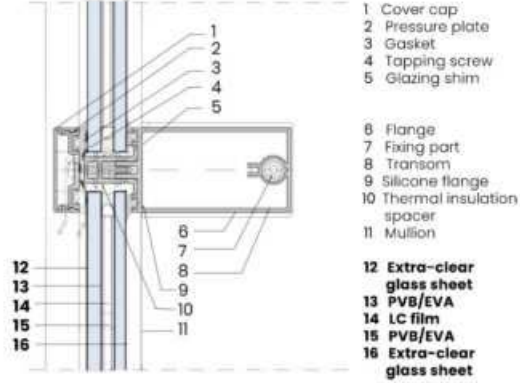
Circulation/ Intermediate levels
Expanded metal mesh
with glass railing

Sanitary block treatment:
Polycarbonate panels

Inhabited spaces:
Composite concrete-steel
slab/steel structure

Architectural Detailing

E - PRIVA-LITE active glass panels



Controlable remotely,
used as rear projection
surface for meetings,
immersive experiences..



PRIVACY

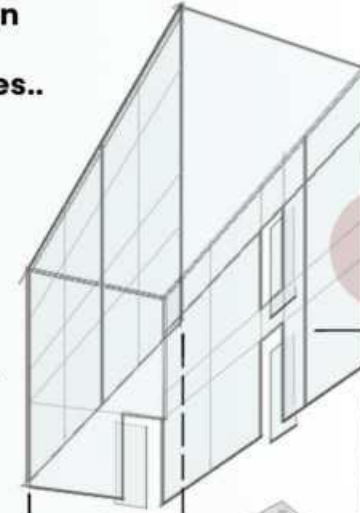


CREATIVITY

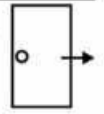


COMFORT

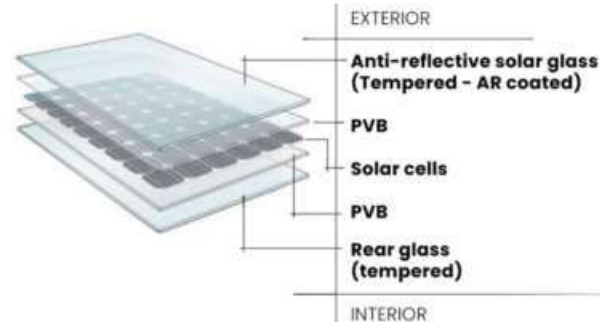
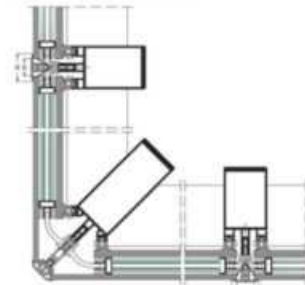
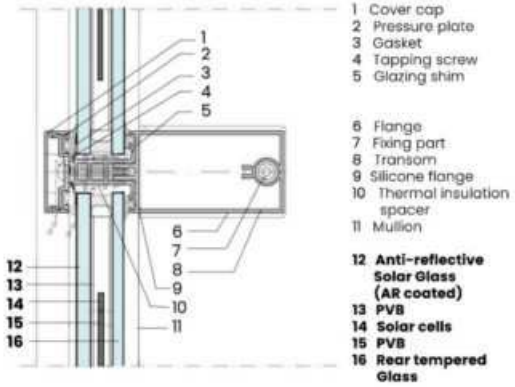
Meeting box



Sliding glass door system



F - BIPV Solar facade



Stainless steel columns

Steel tension cables

F

Seamless stamped low carbon concrete

Turning the façade to a profitable source of energy



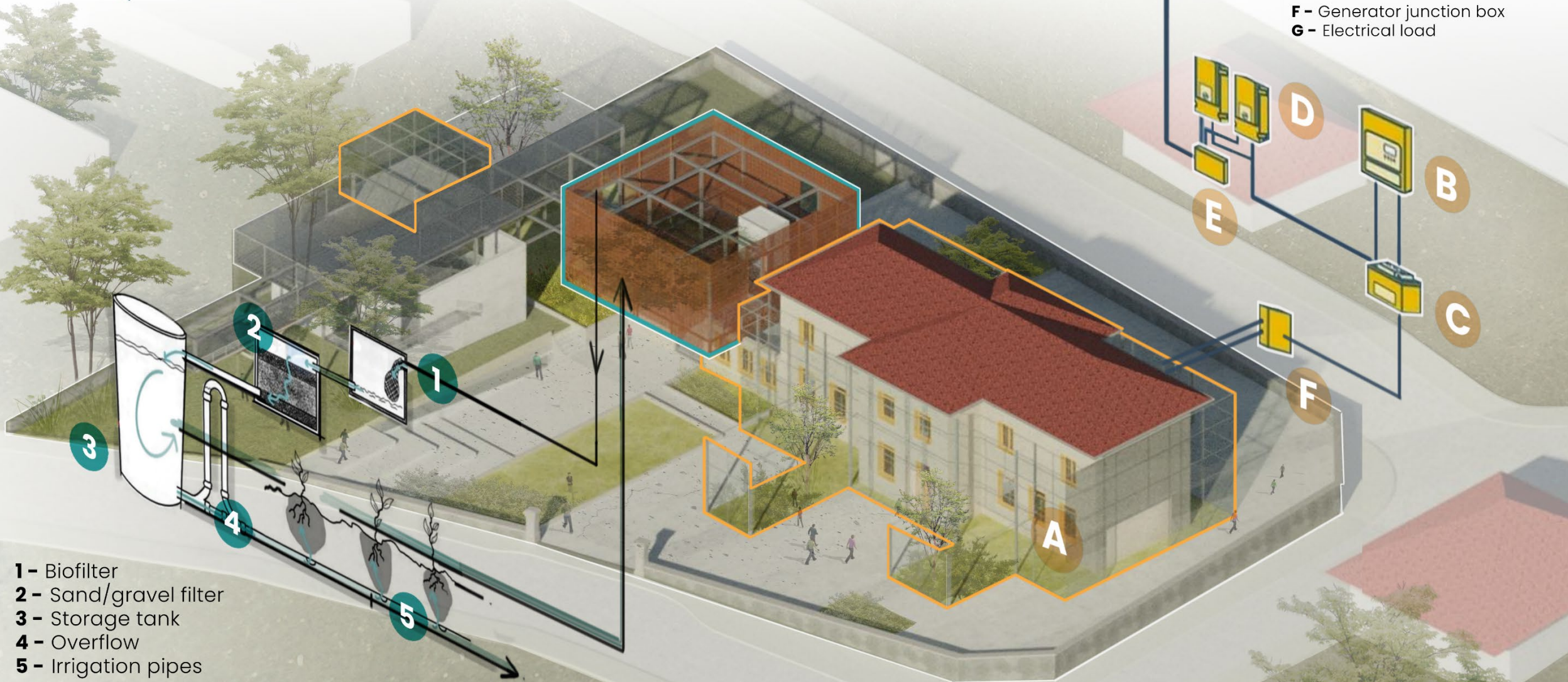
ENERGY GENERATION



Water harvesting system



Solar harvesting system

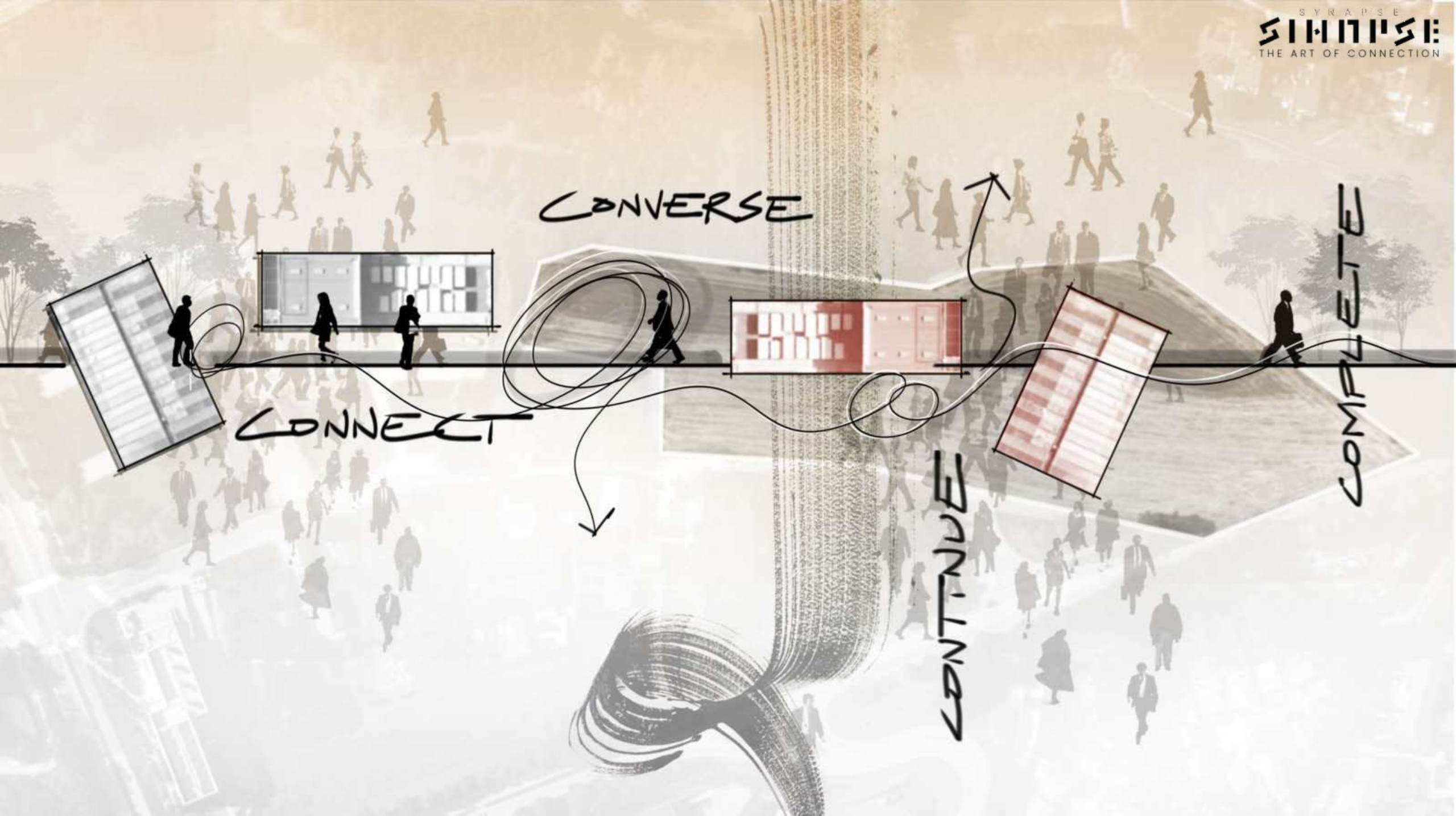


- 1 - Biofilter
- 2 - Sand/gravel filter
- 3 - Storage tank
- 4 - Overflow
- 5 - Irrigation pipes

- A - Solar module
- B - Solar charge controller
- C - Battery
- D - Sine wave inverter
- E - Switch box
- F - Generator junction box
- G - Electrical load

The background is a light-colored architectural sketch. It features silhouettes of people walking, a building with a grid facade, and various lines and shapes representing urban planning. The words 'CONVERSE', 'CONNECT', 'CONTINUE', and 'COMPLETE' are written in a hand-drawn, sketchy font. 'CONVERSE' is at the top, 'CONNECT' is on the left, 'CONTINUE' is at the bottom, and 'COMPLETE' is on the right. A central vertical line with a circular arrow around it runs through the middle. The main title is centered over the sketch.

INTERVENTION SITE : COMMUNE OF
VILLEFONTAINE
CONNECTING PRESENT AND FUTURE



CONVERSE

CONNECT

COMPLETE

CONTINUE

Connecting circulation vector emerging from the existing building

Les grands ateliers: starting point of the intervention project.

Wood boiler : project initiator and key element in its trajectory.

WOOD BOILER

SURPRISE

SURPRISE

① INITIATE

② EXTEND

"DISTRIBUTION TUBE"

③ CONNECT

④ LEVEL CHANGE

⑤ CONNECT

⑥ LEVEL CHANGE

⑦ EXTEND

SECTION-A-

Preserving the terrain's profile & integrating nature inside the project

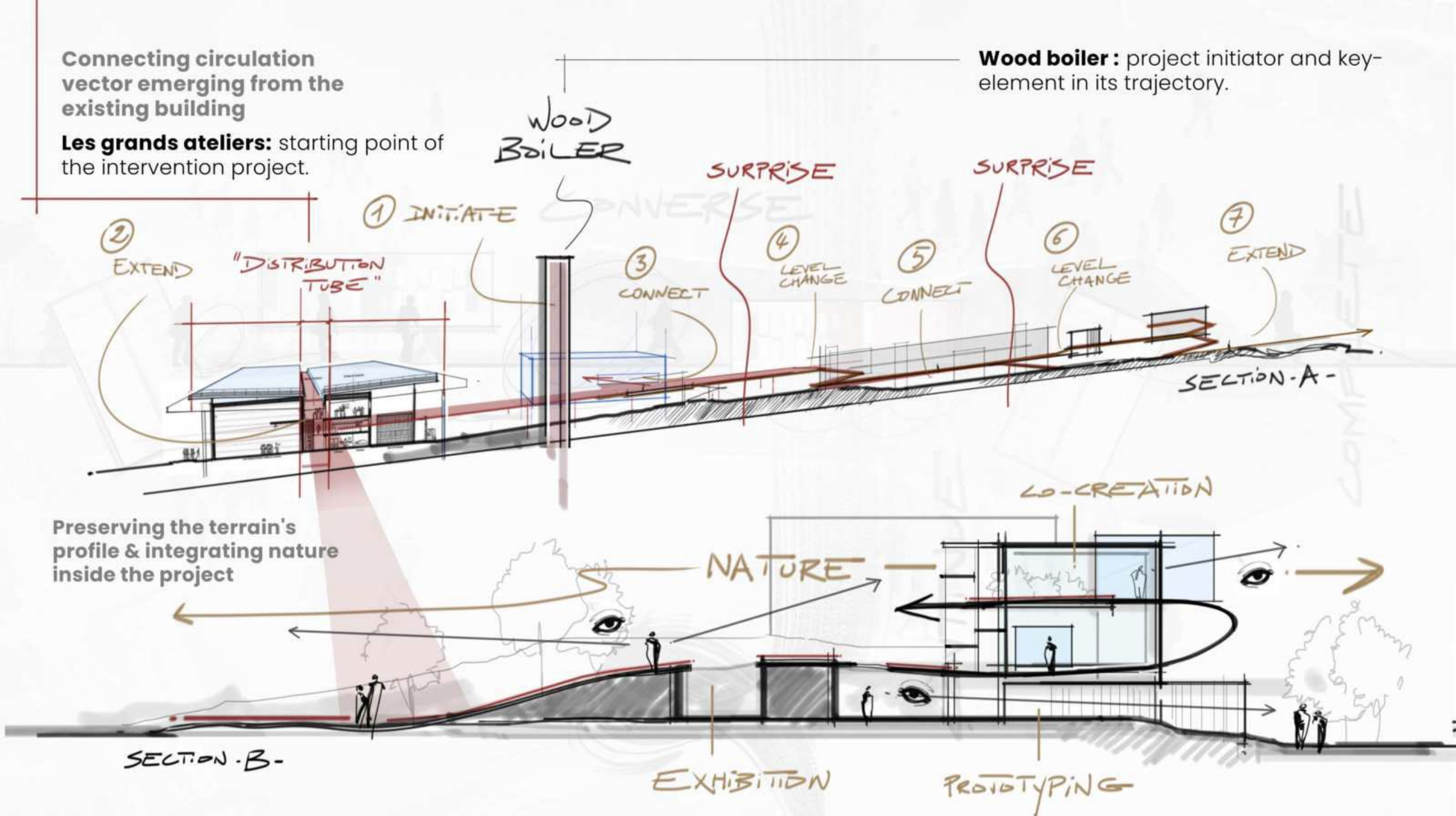
LO-CREATION

NATURE

SECTION-B-

EXHIBITION

PROTOTYPING

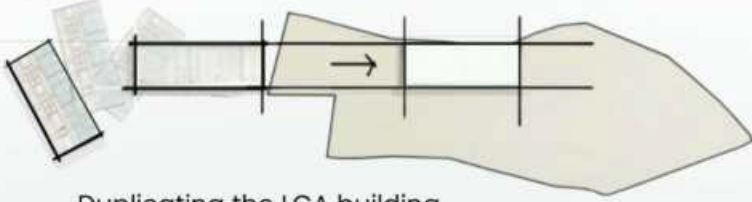


Intervention site: Villefontaine

Conceptual approach

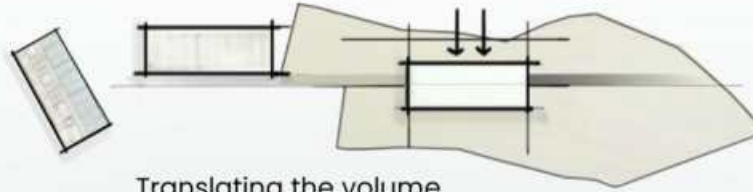
Extending the distribution tube to create a pedestrian connection throughout the project

1 Duplicate and align



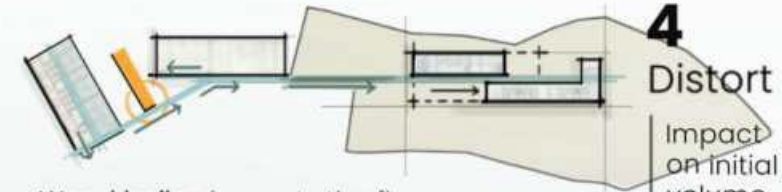
Duplicating the LGA building and aligning it to the ASTUS building

2 Adjust to terrain



Translating the volume down to fit the terrain better

3 Initiate, impact and extend

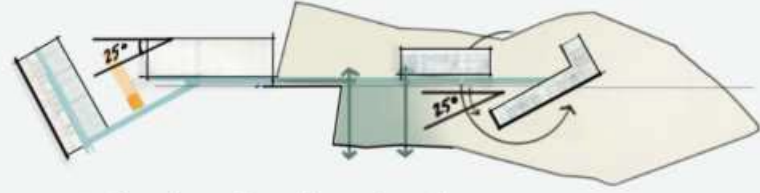


Wood boiler: impacts the floor and forces the bridge's diversion

4 Distort

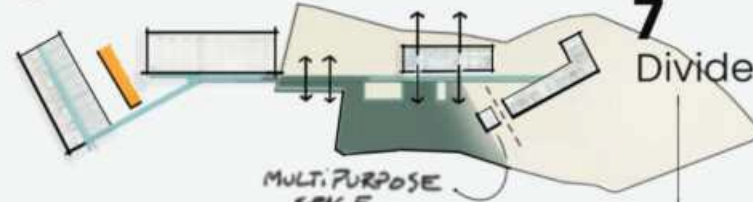
Impact on initial volume

5 Rotate as existant



Following the directing lines of the existant

6 Connect and extend

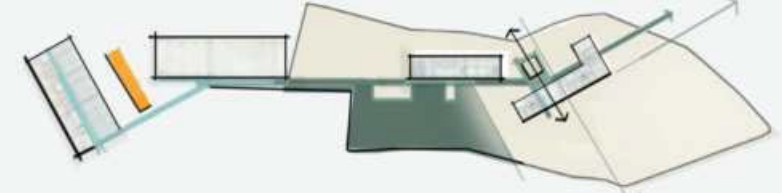


Volume and bridge blend in with the terrain morphology

7 Divide

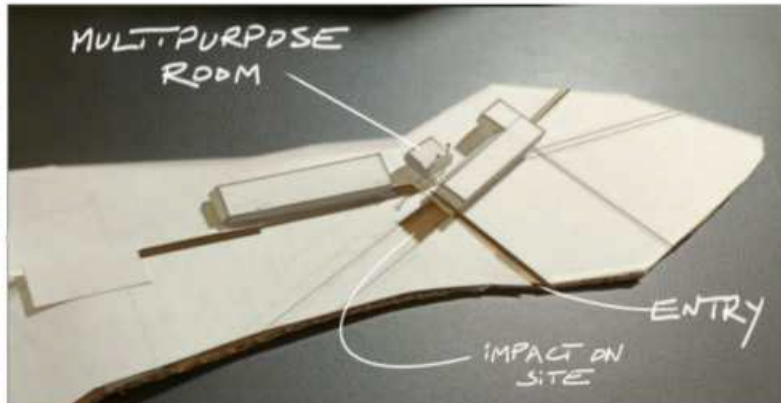
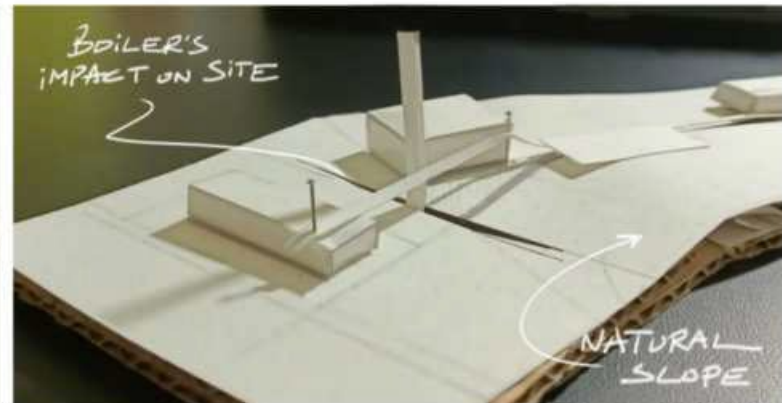
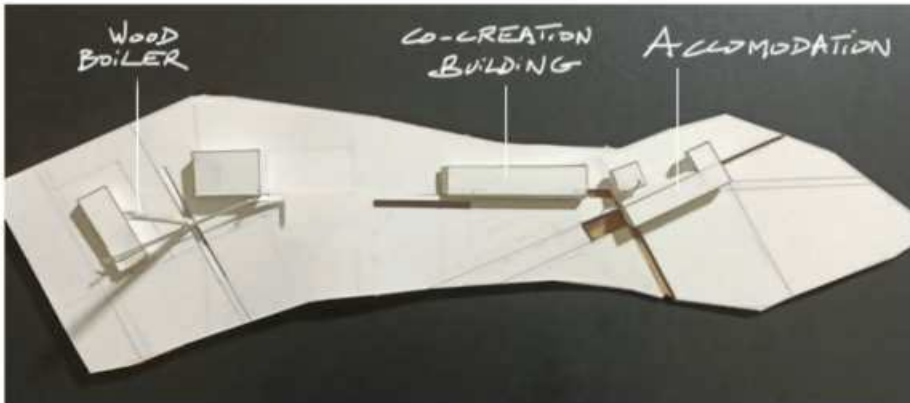
Creating the mutlipurpose volume

8 Replace and connect



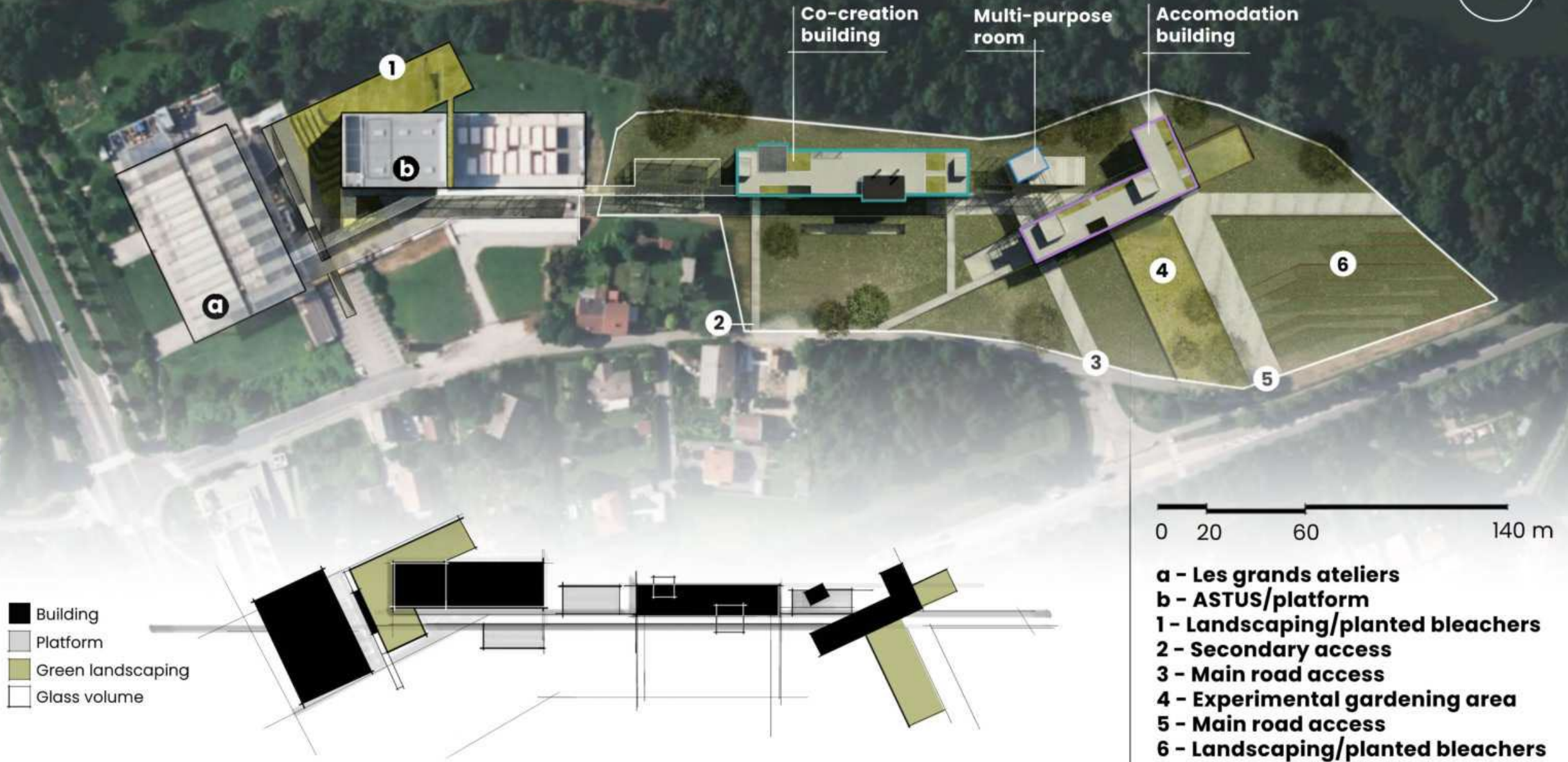
Repositioning the multipurpose space in dialogue with both volumes

Study model



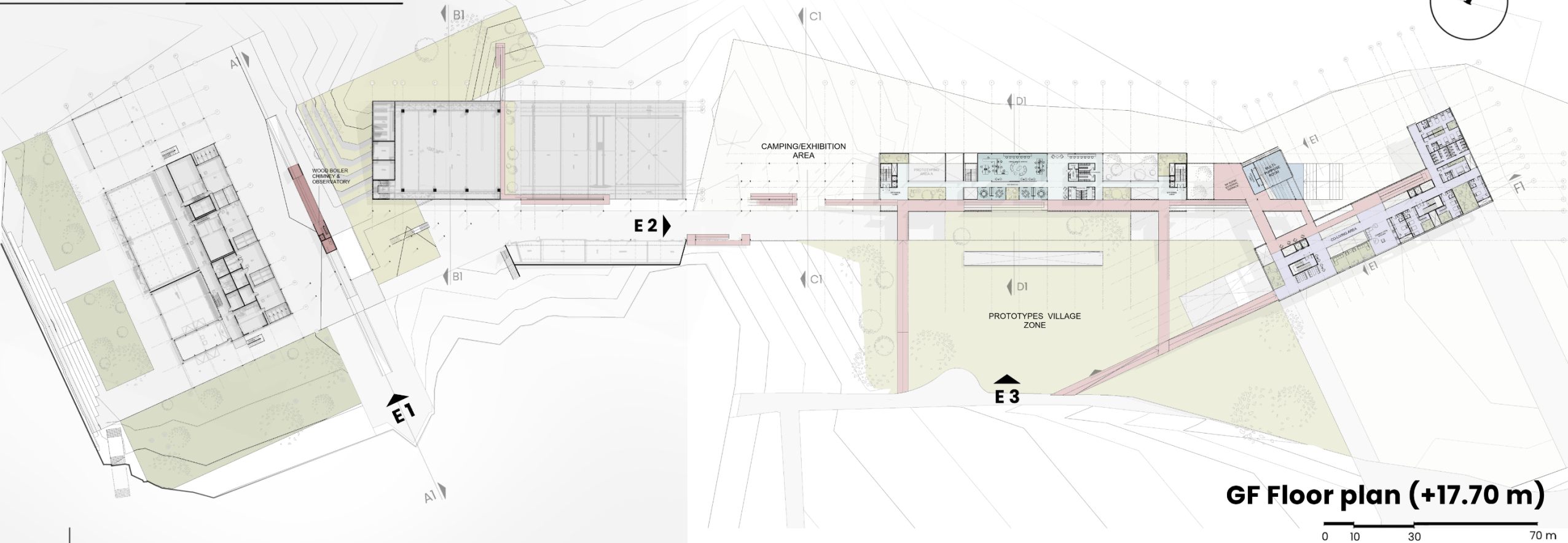
Intervention site: Villefontaine

Massing plan



Intervention site: Villefontaine

Architectural approach



Ground floor strategy:

Creating the boiler's volume in dialogue with Les grands ateliers and ASTUS buildings.

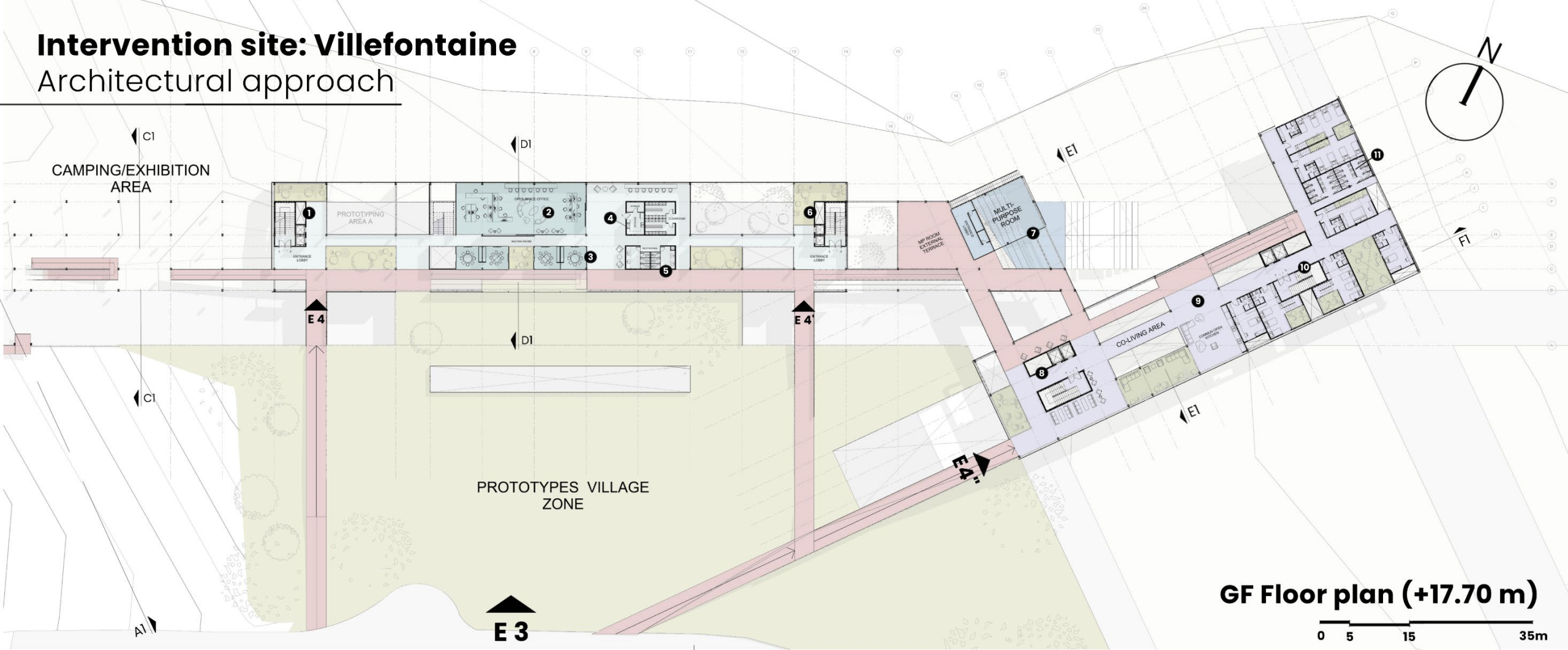
Linking the intervention terrain's upper level to the building through integration of green spaces and connecting ramps.

- | | |
|---|---|
|  Wood boiler chimney/observatory |  Open/private meeting spaces |
|  Connecting horizontal circulation |  Multi-purpose room |
|  Co-creation building |  Accomodation building |

- E1** : LGA parking access
E2 : ASTUS access to project
E3 : secondary project access

Intervention site: Villefontaine

Architectural approach



GF Floor plan (+17.70 m)

0 5 15 35m

- 1 - Vertical circulation block (fire safe)
- 2 - Open space office
- 3 - (To the left) Meeting rooms
- 4 - (To the right) Kitchen, storage, cloakrooms
- 5 - Restrooms
- 6 - Vertical circulation block (fire safe)
- 7 - Multi-purpose room with exterior bleachers

- 8 - Vertical circulation block (fire safe)
- 9 - Co-living leisure area
- 10 - Vertical circulation block (fire safe)
- 11 - Restrooms

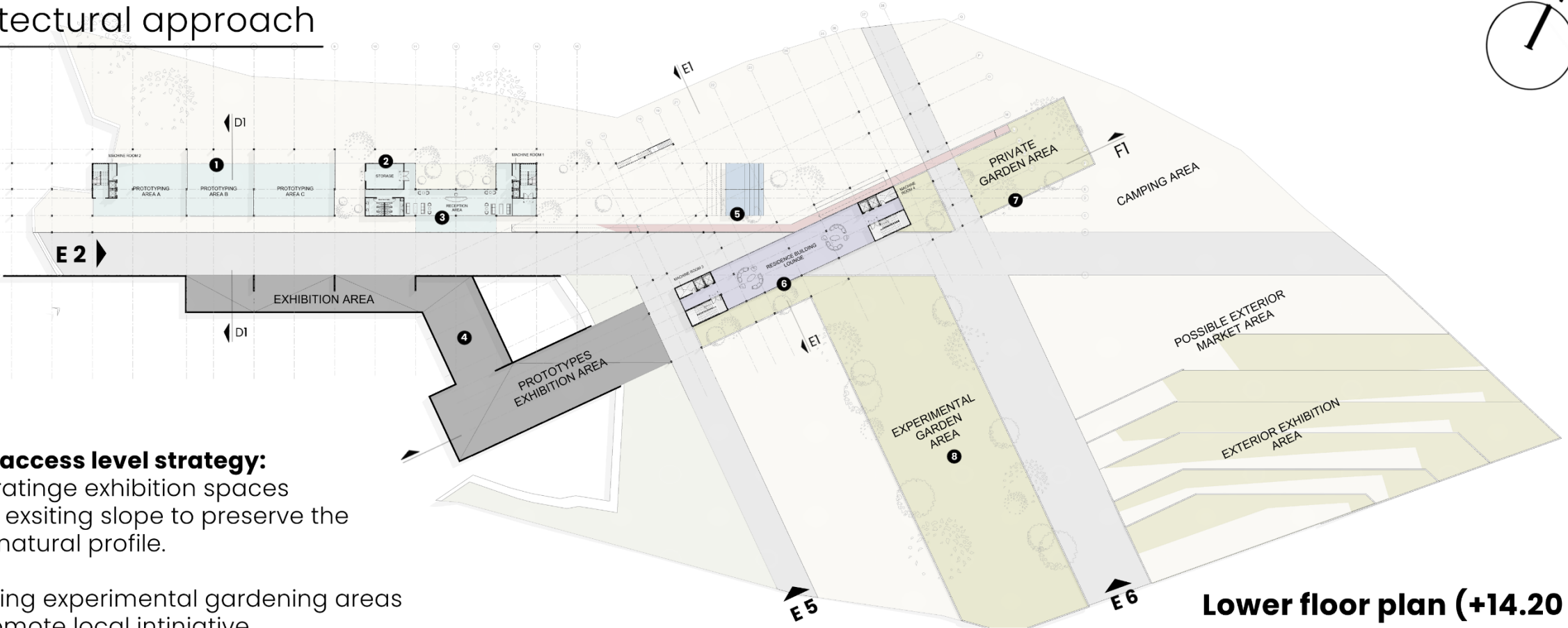
- Wood boiler chimney/observatory
- Connecting horizontal circulation
- Open/private meeting spaces
- Multi-purpose room
- Co-creation building
- Accomodation building

E 3 : secondary project access
E 4 : co-creation building entrance 1

E 4' : co-creation building entrance 2
E 4'' : accomodation building upper entrance

Intervention site: Villefontaine

Architectural approach

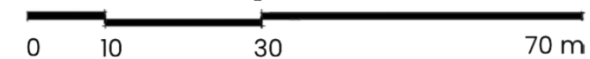


Main access level strategy:

Integrating exhibition spaces in the existing slope to preserve the site's natural profile.

Creating experimental gardening areas to promote local initiative.

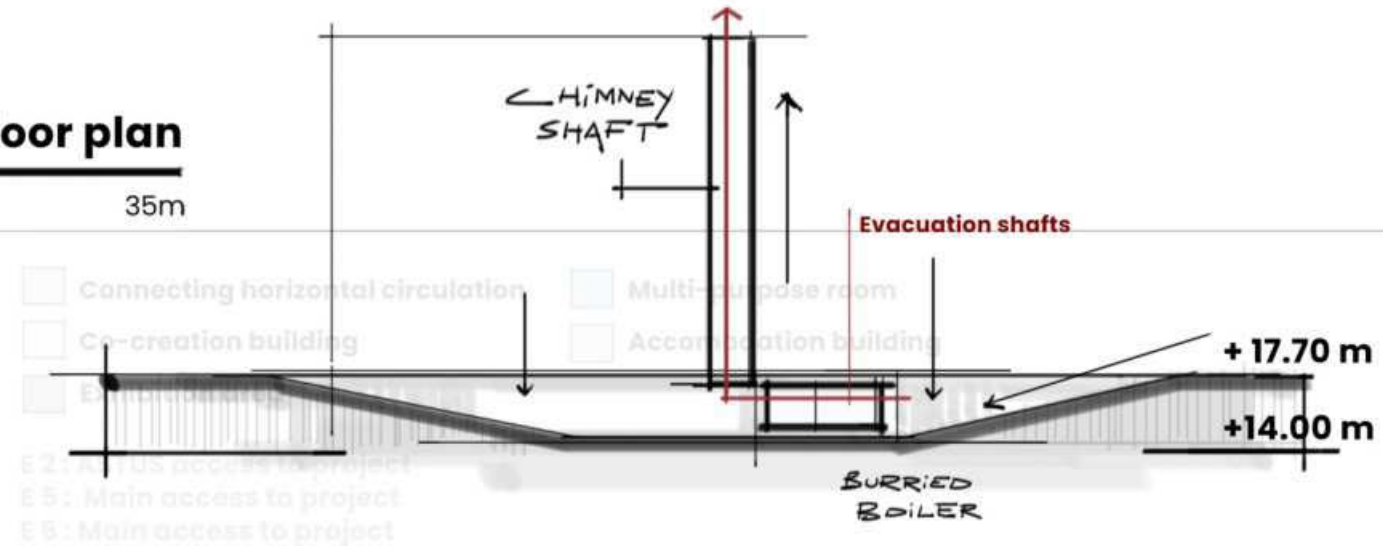
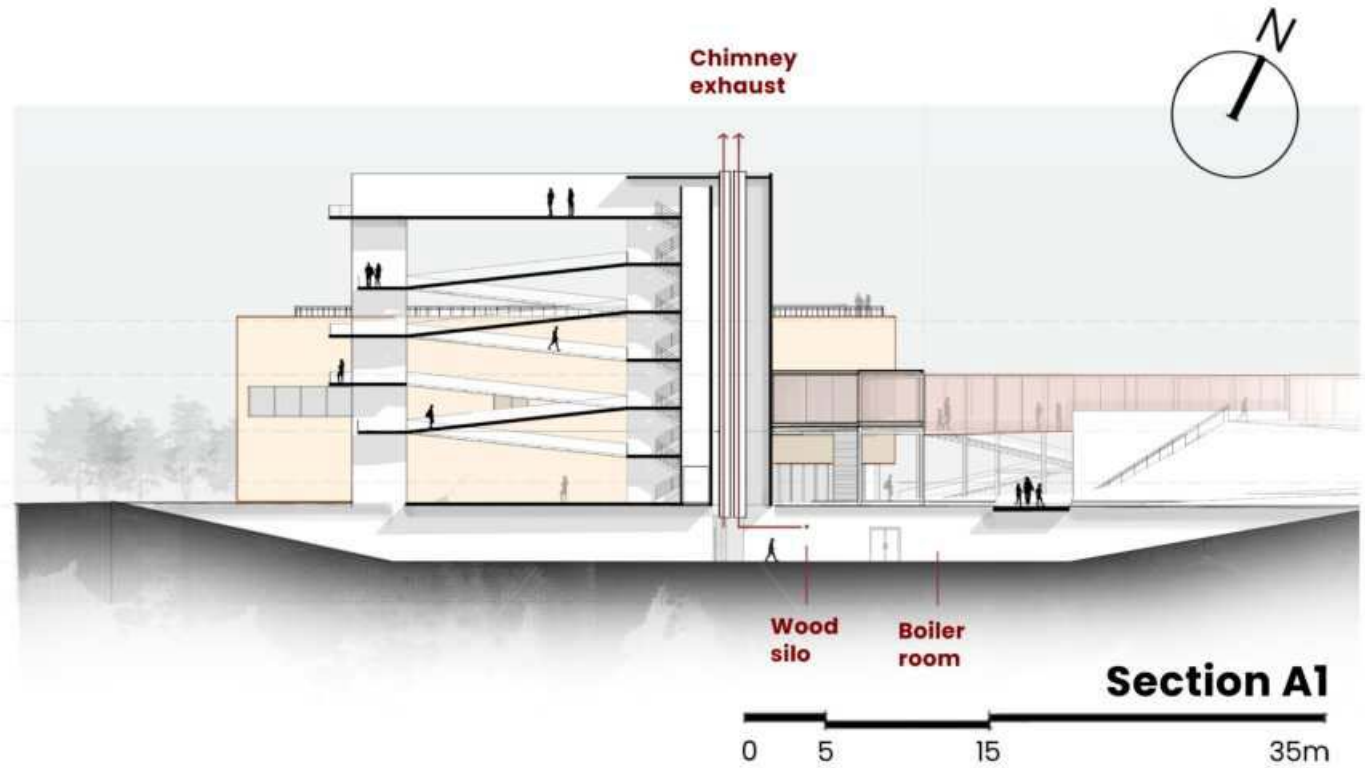
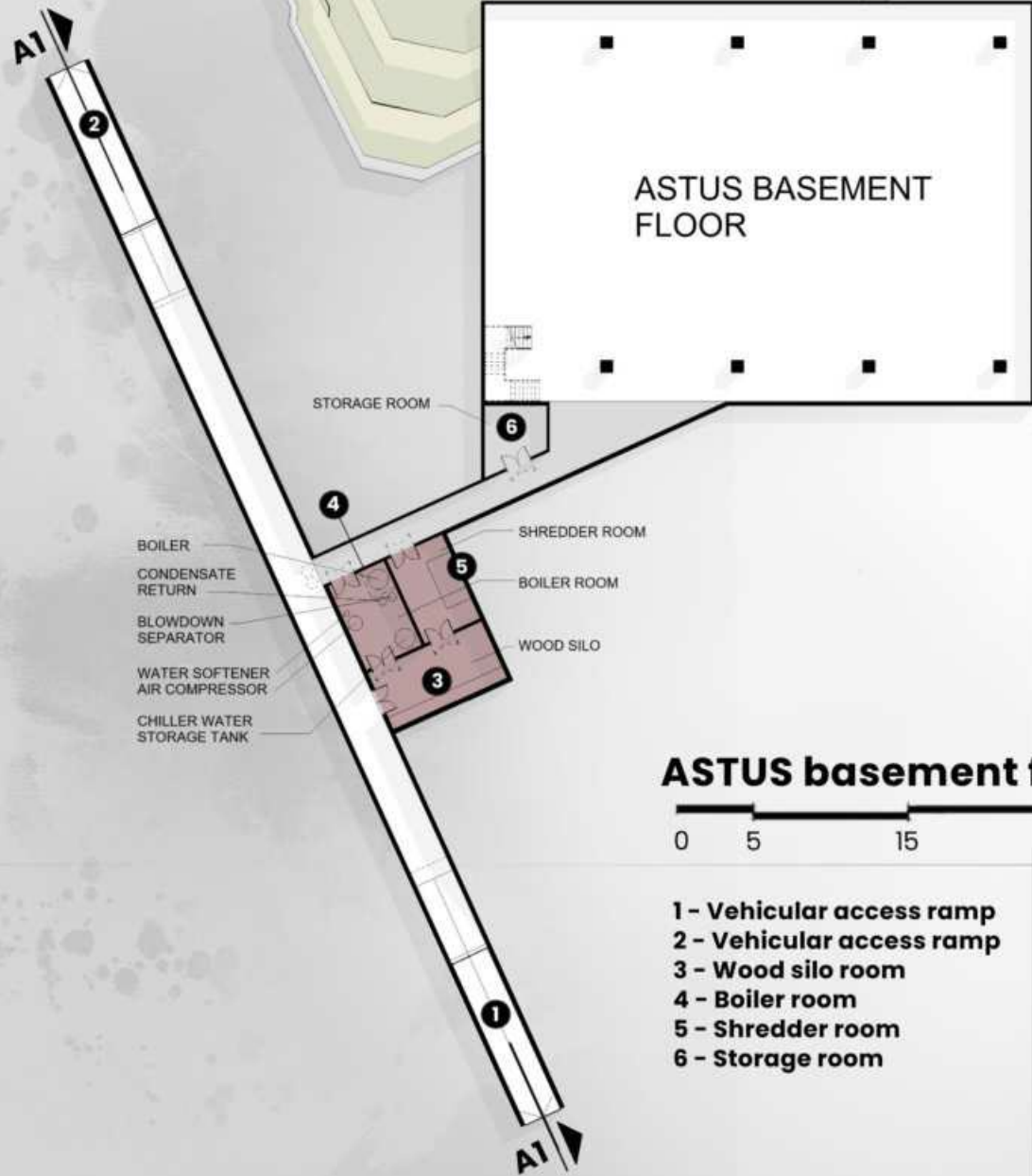
Lower floor plan (+14.20 m)



- 1 - Prototyping area
- 2 - Storage space
- 3 - Co-creation building reception area
- 4 - Small scale prototypes exhibition space
- 5 - Exterior bleachers
- 6 - Accommodation building reception area
- 7 - Residents private garden
- 8 - Experimental garden area

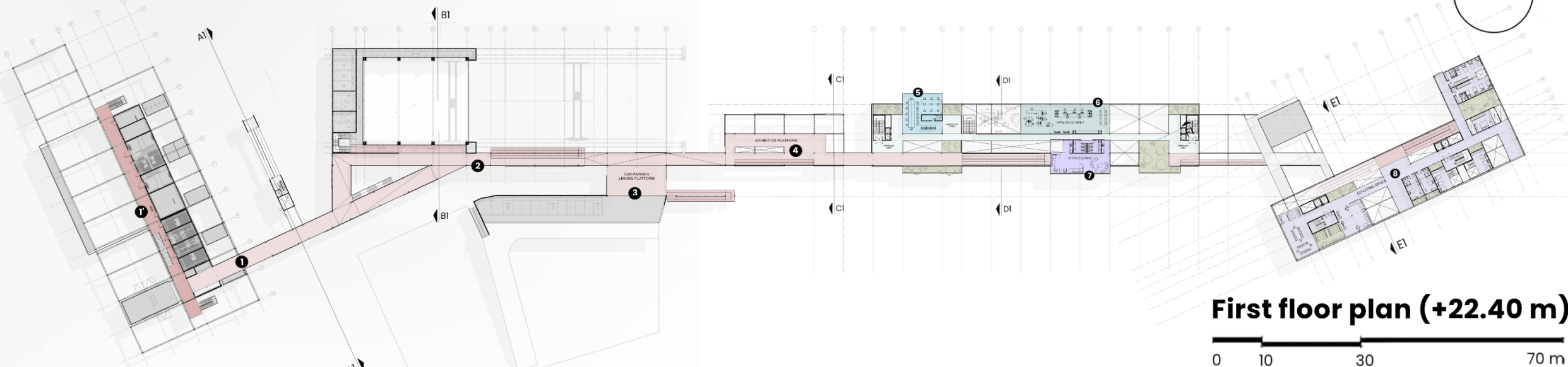
- Connecting horizontal circulation
- Multi-purpose room
- Co-creation building
- Accommodation building
- Exhibition area

- E 2 : ASTUS access to project**
- E 5 : Main access to project**
- E 6 : Main access to project**

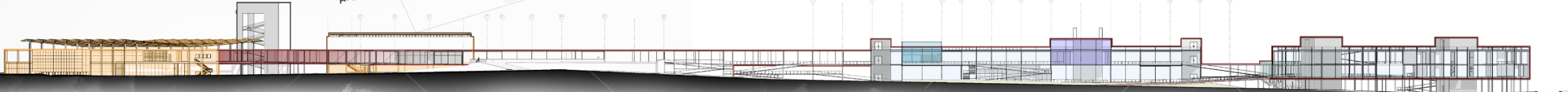
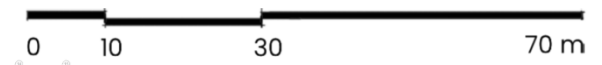


Intervention site: Villefontaine

Architectural approach



First floor plan (+22.40 m)



Elevation 1



First floor strategy:

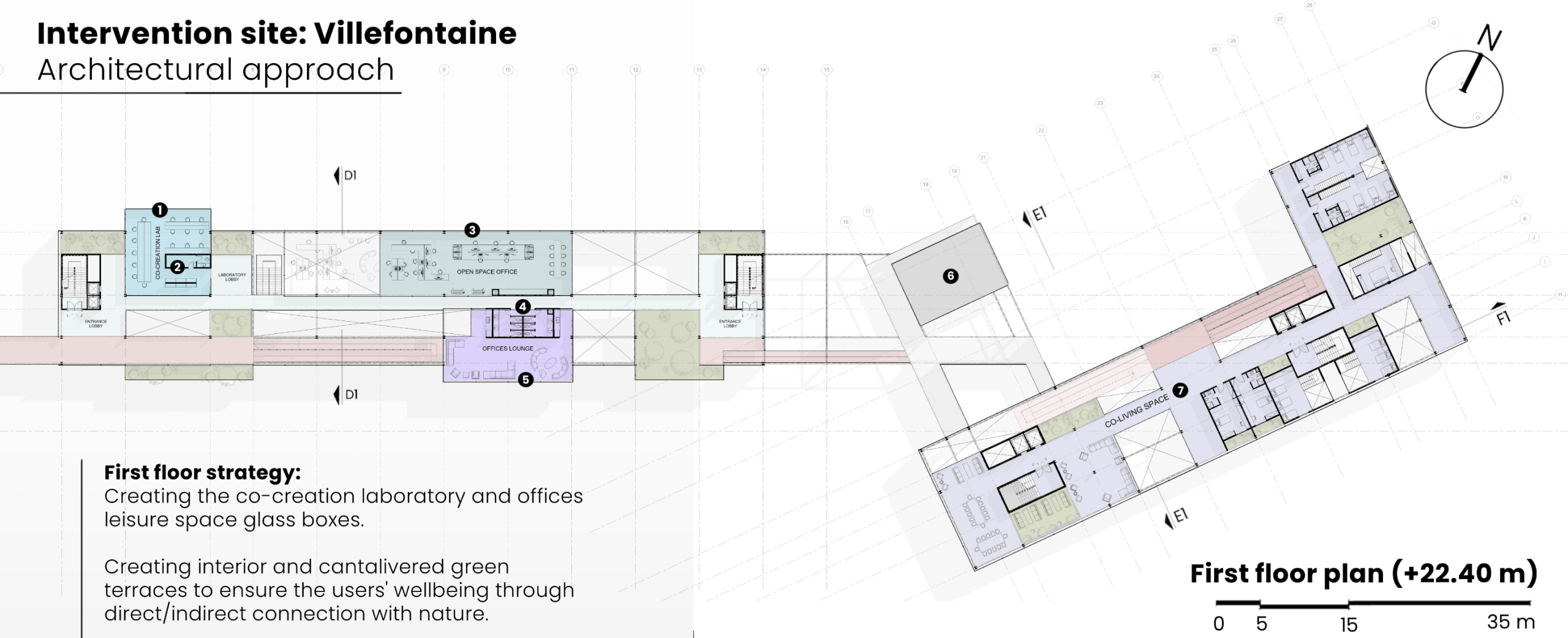
connecting the existing distribution tube through horizontal circulation and creating linking platforms between existing/implemented functions.

- 1' - Les grands ateliers distribution tube
- 1 - Distribution tube extension
- 2 - Linking platform to observation ramp
- 3 - Linking platform to car parking
- 4 - Raised exhibition platforms
- 5 - Co-creation laboratory
- 6 - Open space office
- 7 - Offices leisure space
- 8 - Co-living leisure space

- Connecting horizontal circulation
- Co-creation laboratory
- Open space office
- Multi-purpose room
- Accomodation building

Intervention site: Villefontaine

Architectural approach



First floor strategy:

Creating the co-creation laboratory and offices leisure space glass boxes.

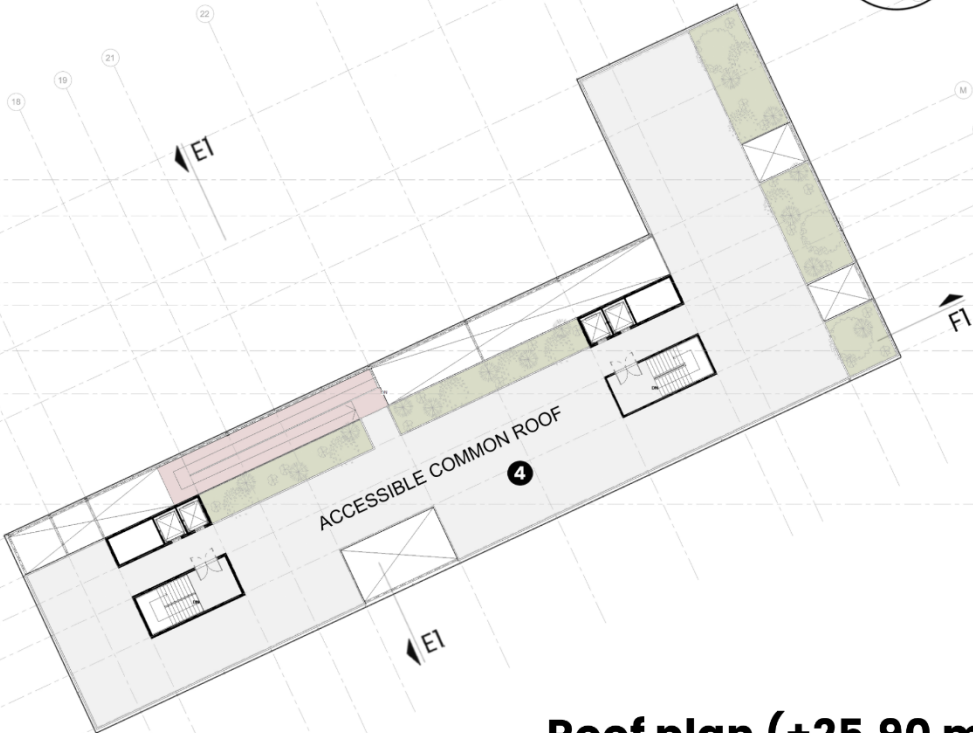
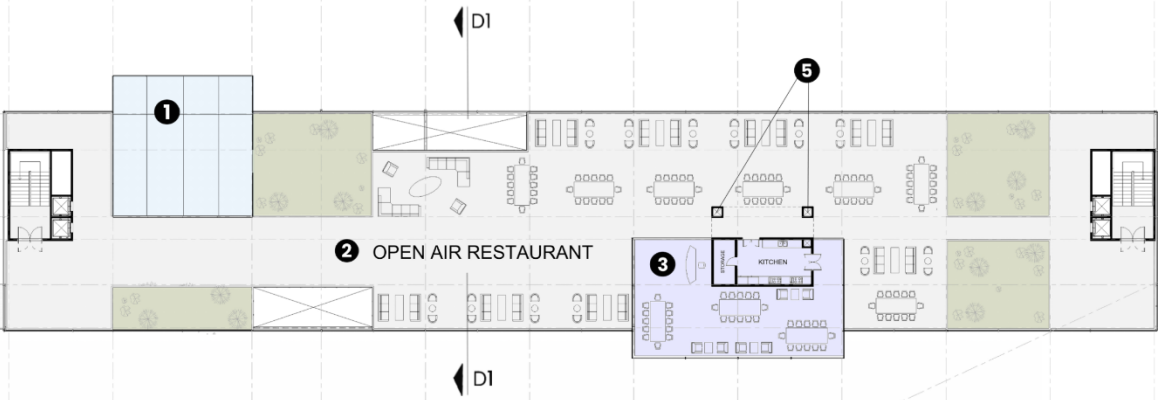
Creating interior and cantalivered green terraces to ensure the users' wellbeing through direct/indirect connection with nature.

- 1 - Co-creation laboratory
- 2 - Laboratory storage/restroom
- 3 - Open space office
- 4 - Restrooms
- 5 - Offices leisure space
- 6 - Multi-purpose room
- 7 - Co-living leisure space

- Connecting horizontal circulation
- Co-creation laboratory
- Open space office
- Multi-purpose room
- Accomodation building

Intervention site: Villefontaine

Architectural approach



Roof strategy:

Extending the green spaces to the roof level and creating accessible leisure spaces for users and visitors.

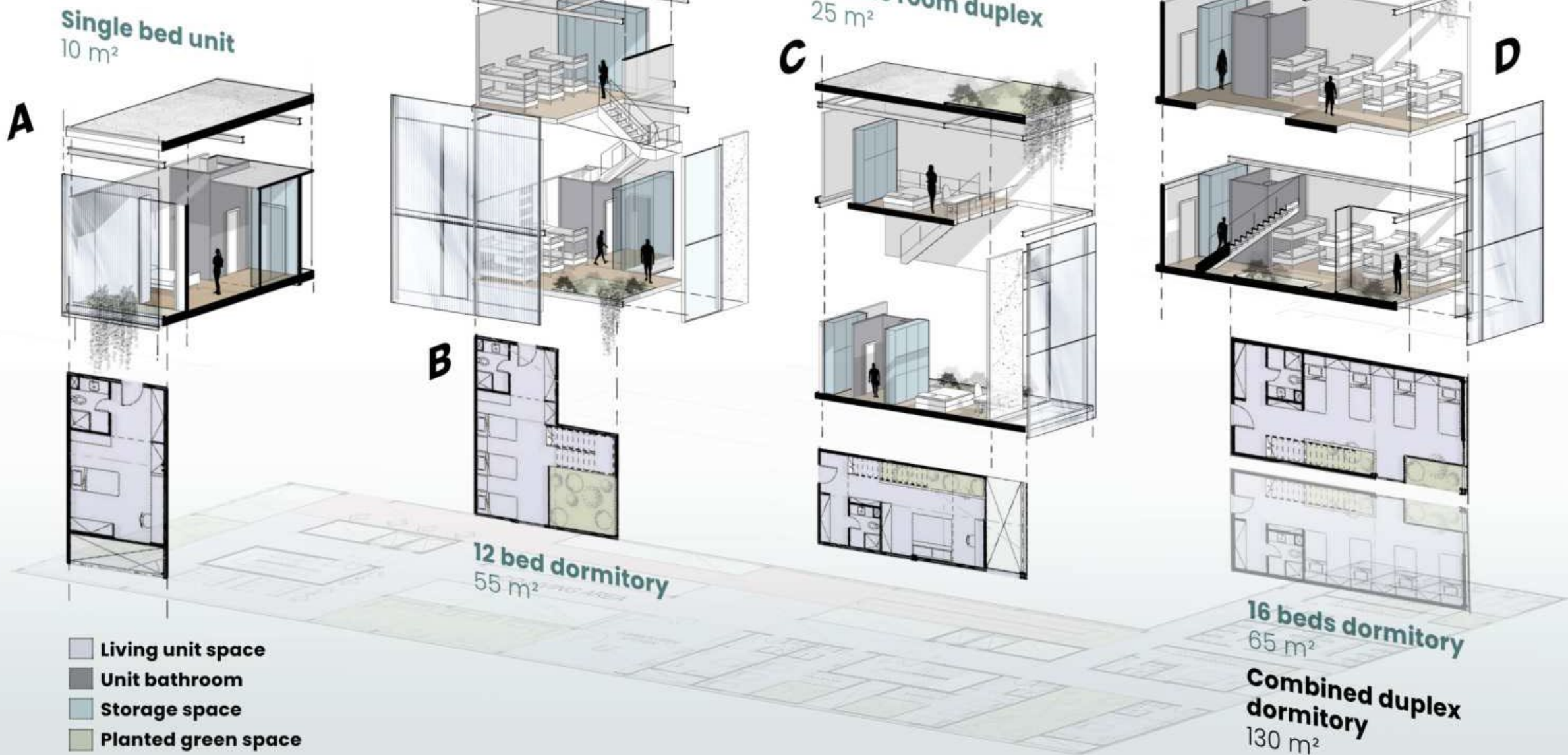
- 1 - Co-creation laboratory
- 2 - Open air rooftop restaurant
- 3 - Indoor restaurant
- 4 - Accomodation building accessible roof
- 5 - Technical shafts evacuation

Horizontal circulation

Roof top indoor restaurant

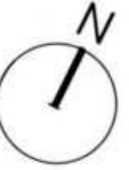
Intervention site: Villefontaine

Living units and duplexes



Intervention site: Villefontaine

Living units and duplexes



- Single bed unit
- 12 bed dormitory
- Double room duplex
- 16 beds dormitory
- Planted area
- Co-living space





Perspective view 1:

pedestrian ramp access to the accomodation building

Access to exhibition spaces

Ground level access to accomodation building



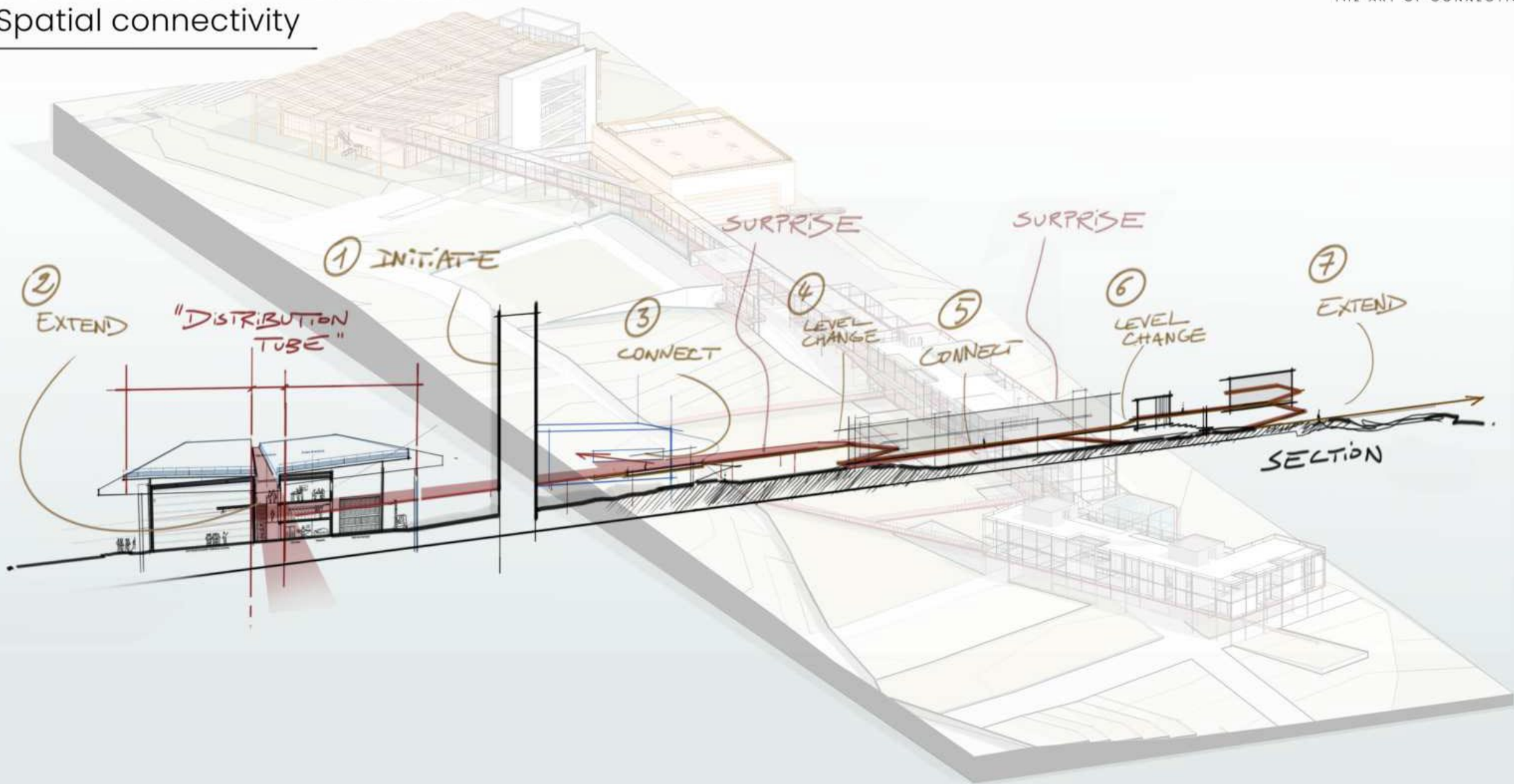
Perspective view 2:
exterior view on the
accomodation building

Experimental
gardening area

Residents private
garden

Intervention site: Villefontaine

Spatial connectivity



1 INITIATION

Les Grands Ateliers

Wood boiler implementation:

connection of the existing buildings through the extended pedestrian "tube" and preservation/creation of visual breakthroughs as dialogue

Observation

Distribution

Circulation

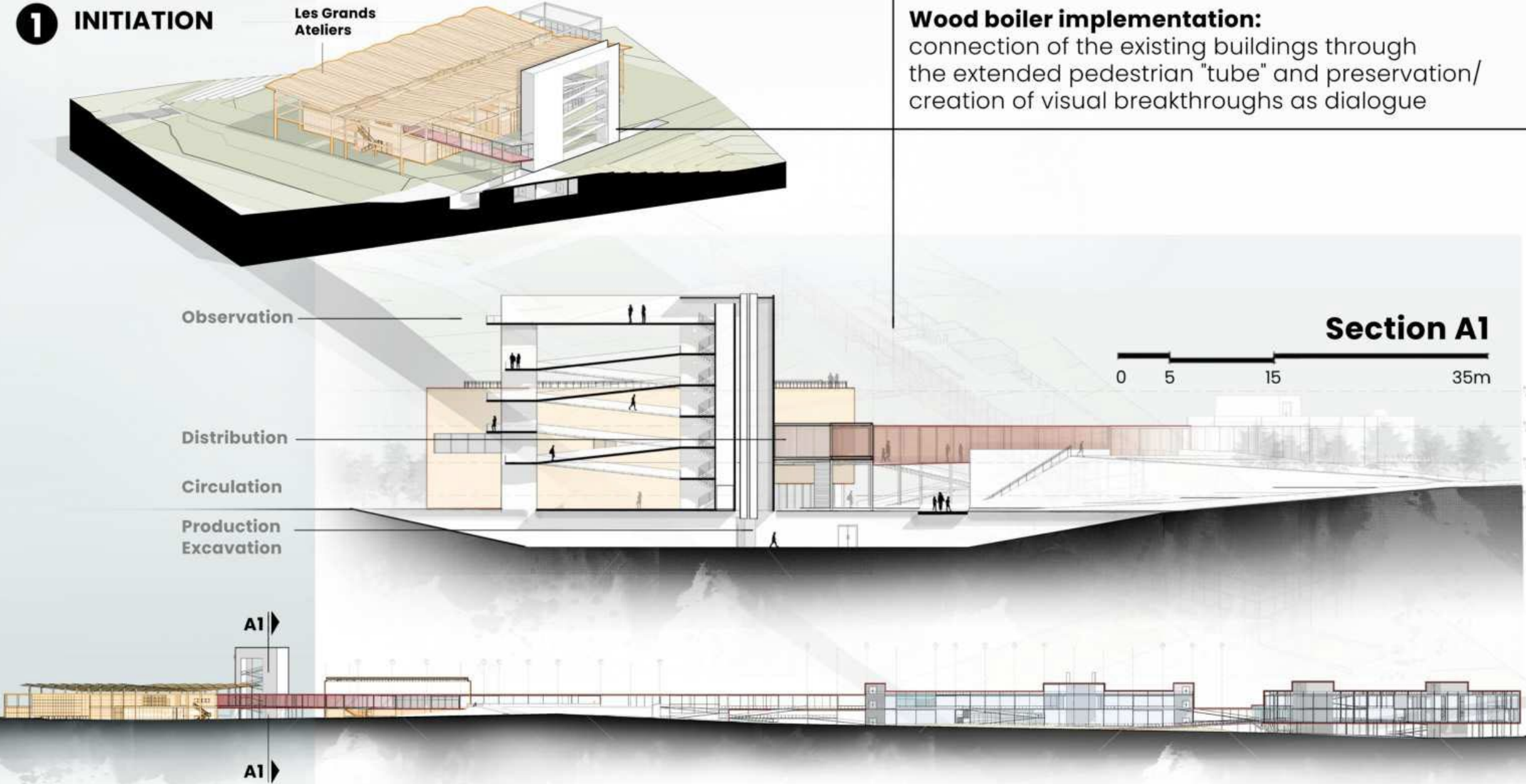
Production
Excavation

Section A1

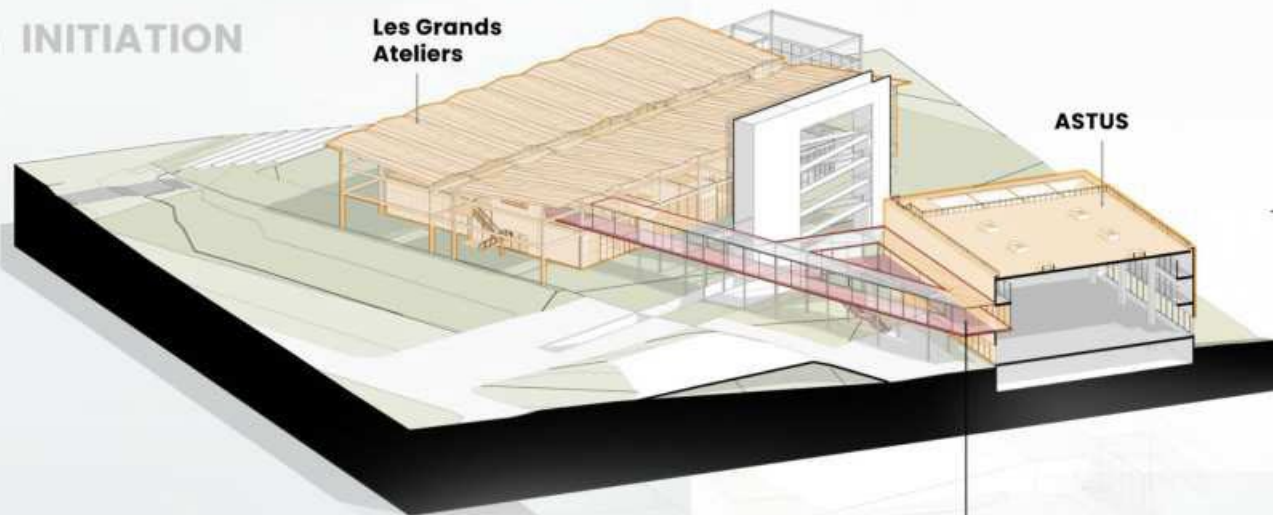
0 5 15 35m

A1 ▶

A1 ▶

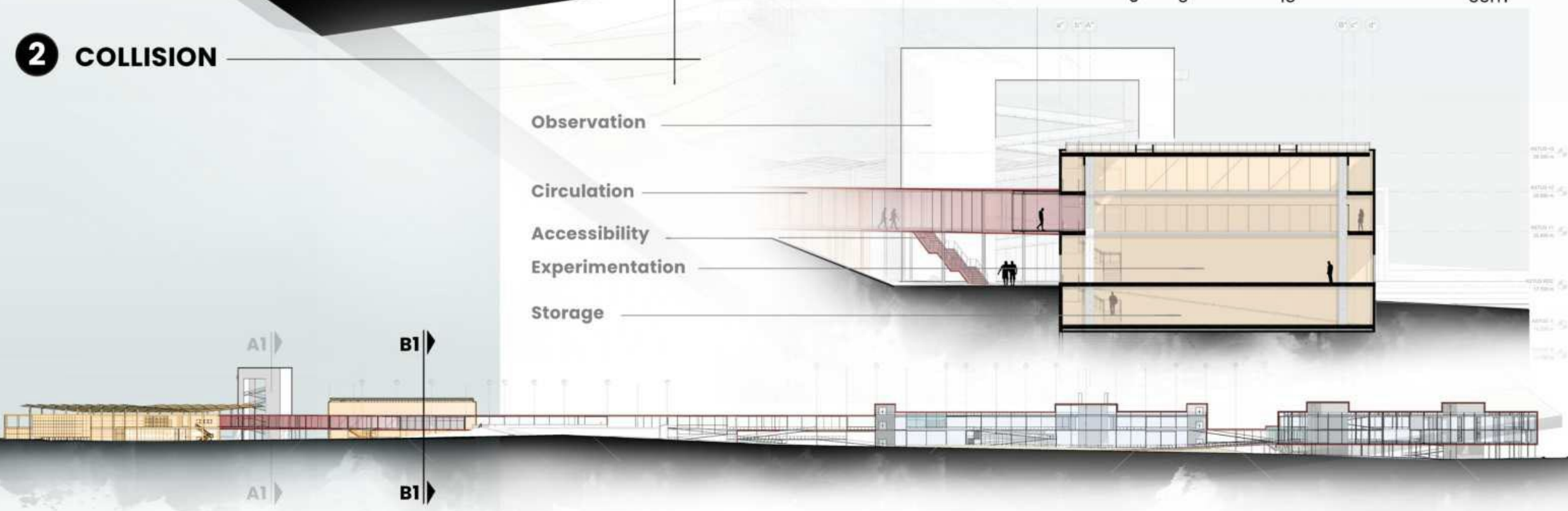


1 INITIATION



ASTUS building intersection:
 connection with the observation ramp and
 grafting of the raised pedestrian circulation
 onto existing building

2 COLLISION



2 COLLISION —

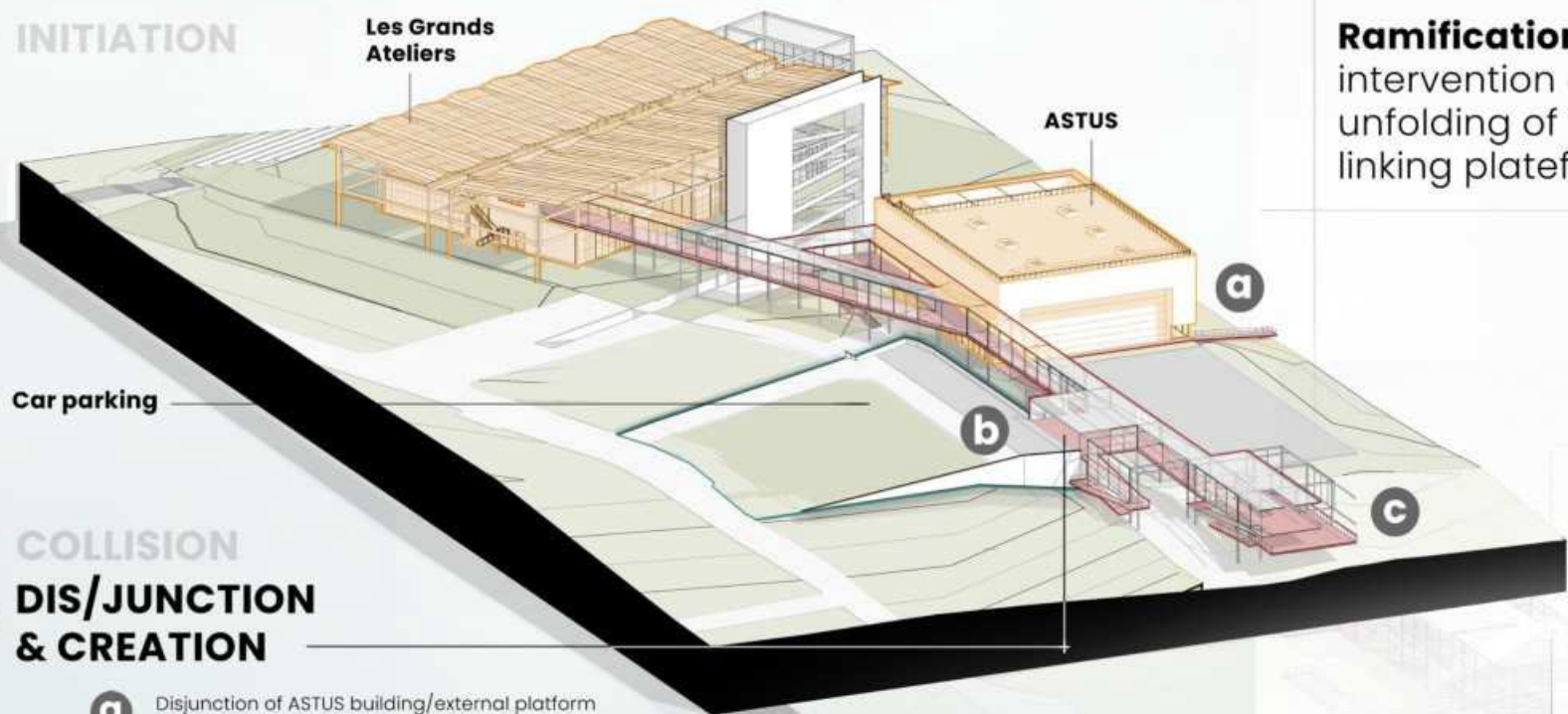


Perspective view 3 :
bridge connection with the
ASTUS building

Preservation of
transparency and visual
relationships

Landscaping intervention
on ASTUS platform

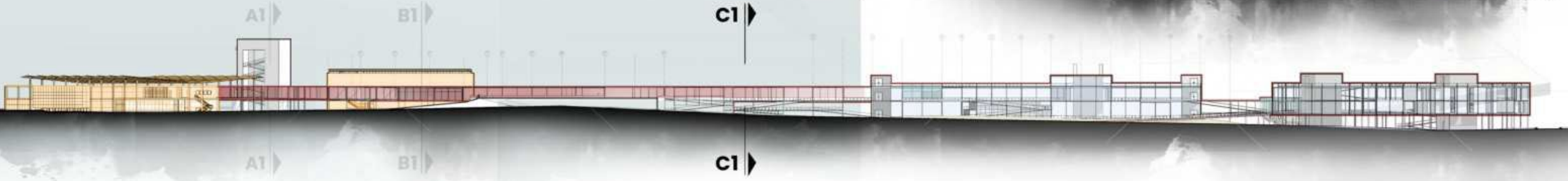
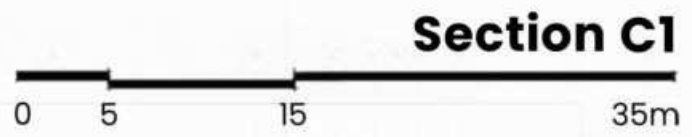
1 INITIATION



Ramification across existing:
 intervention on the built spaces through unfolding of the horizontal circulation into linking platforms and exhibition spaces

2 COLLISION
3 DIS/JUNCTION & CREATION

- a** Disjunction of ASTUS building/external platform to enhance spatial connection/readability
- b** Junction with the upper parking level for pedestrian access
- c** Creation of exhibition platforms to nourish spatial narrativity



1 INITIATION

Les Grands Ateliers

ASTUS

Car parking

Intervention buildings circulation:

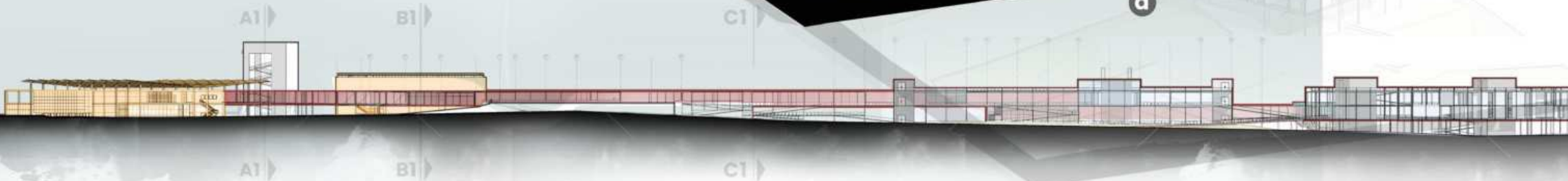
Creation of access points into the co-creation and accomodation buildings on different levels of intersection

2 COLLISION
3 DIS/JUNCTION & CREATION

- a Disjunction of ASTUS building/external platform to enhance spatial connection/readability
- b Junction with the upper parking level for pedestrian access
- c Creation of exhibition platform to nourish spatial narrativity

4 DISTRIBUTION

- a Access 1 to co-creation building through exterior exhibition space
- b Access 2 to co-creation building through exterior exhibition space
- c Access to accomodation building by bridging over the exposition space
- d Access to multi-purpose room and accomodation building



Perspective view 4 :
access to the co-creation building

Intervention buildings circulation:
Creation of access points into the co-creation
and accommodation buildings on different levels
of intersection

4 DISTRIBUTION



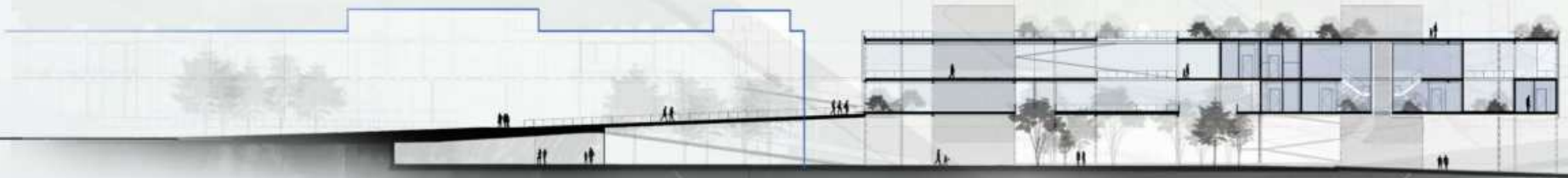
H I J K L M O P Q



ASTUS +3
29,900 m
ASTUS +2
25,900 m
ASTUS +1
23,400 m
ASTUS RDC 0.5
19,200 m
ASTUS RDC
17,700 m
ASTUS -1
14,200 m

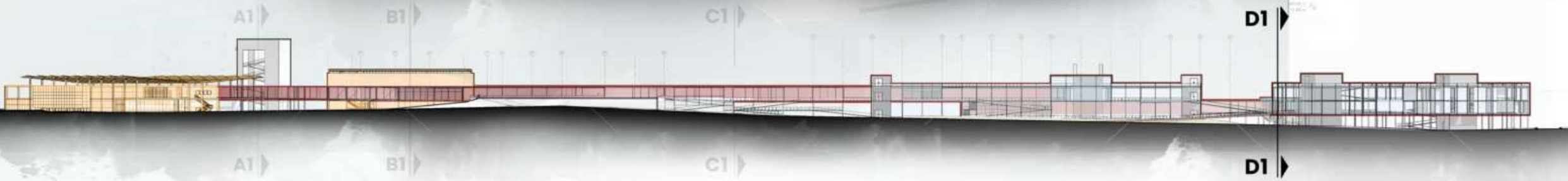
Section E1

0 2 6 14m



Section F1

0 5 15 35m



A1

B1

C1

D1

A1

B1

C1

D1

1 INITIATION

Les Grands Ateliers

ASTUS

Possible future extension

can be conceived as a box attached to the exposition platforms/the platforms can be deconstructed-reassembled to fit new implemented functions.

- Exterior amphitheatre
- Prototypes village
- Camping space

- a Access 1 to co-creation building through exterior exhibition space
- b Access 2 to co-creation building through exterior exhibition space
- c Access to accommodation building by bridging over the exposition space
- d Access to multi-purpose room and accommodation building

car parking

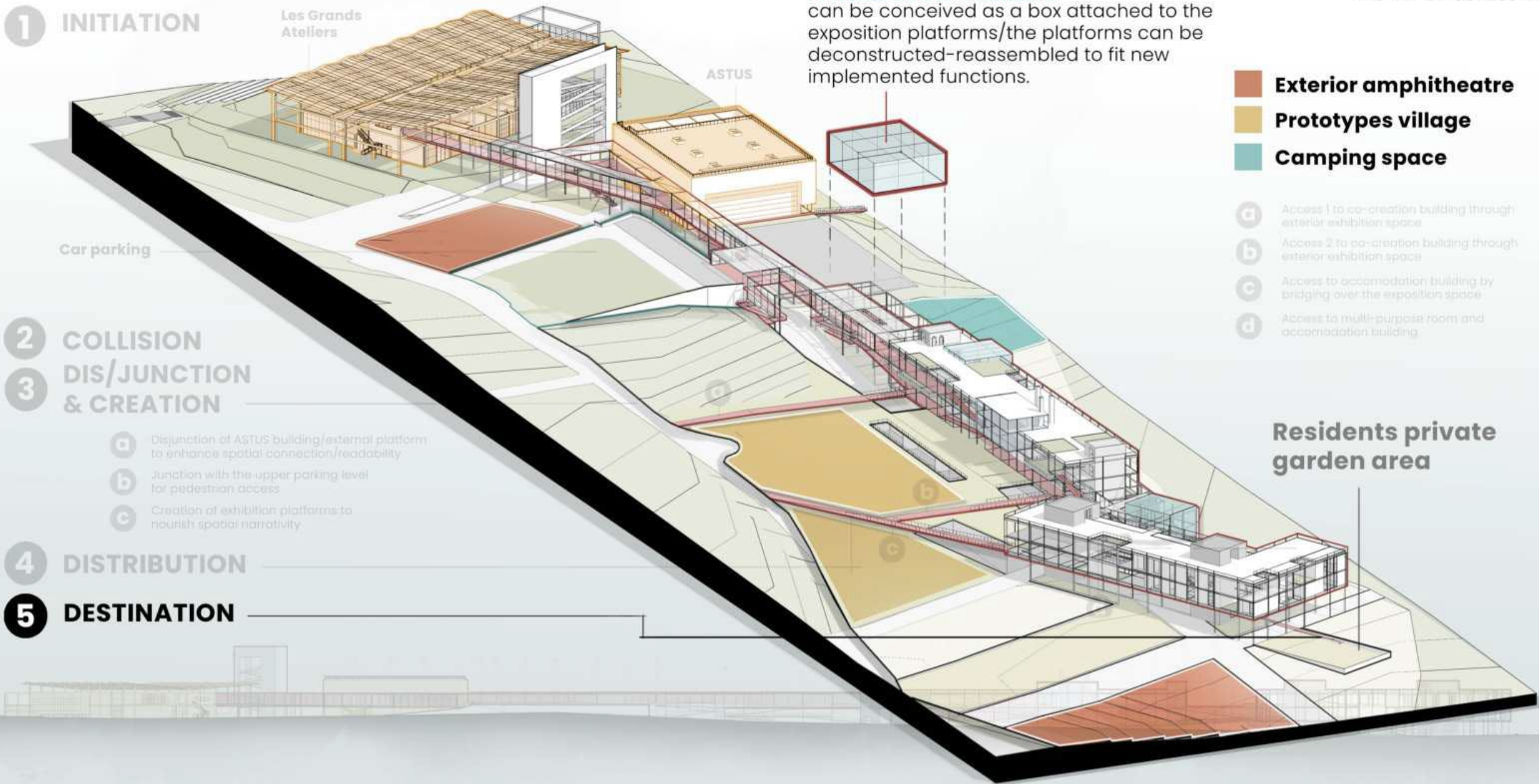
2 COLLISION
3 DIS/JUNCTION & CREATION

- a Disjunction of ASTUS building/external platform to enhance spatial connection/readability
- b Junction with the upper parking level for pedestrian access
- c Creation of exhibition platforms to nourish spatial narrativity

4 DISTRIBUTION

5 DESTINATION

Residents private garden area



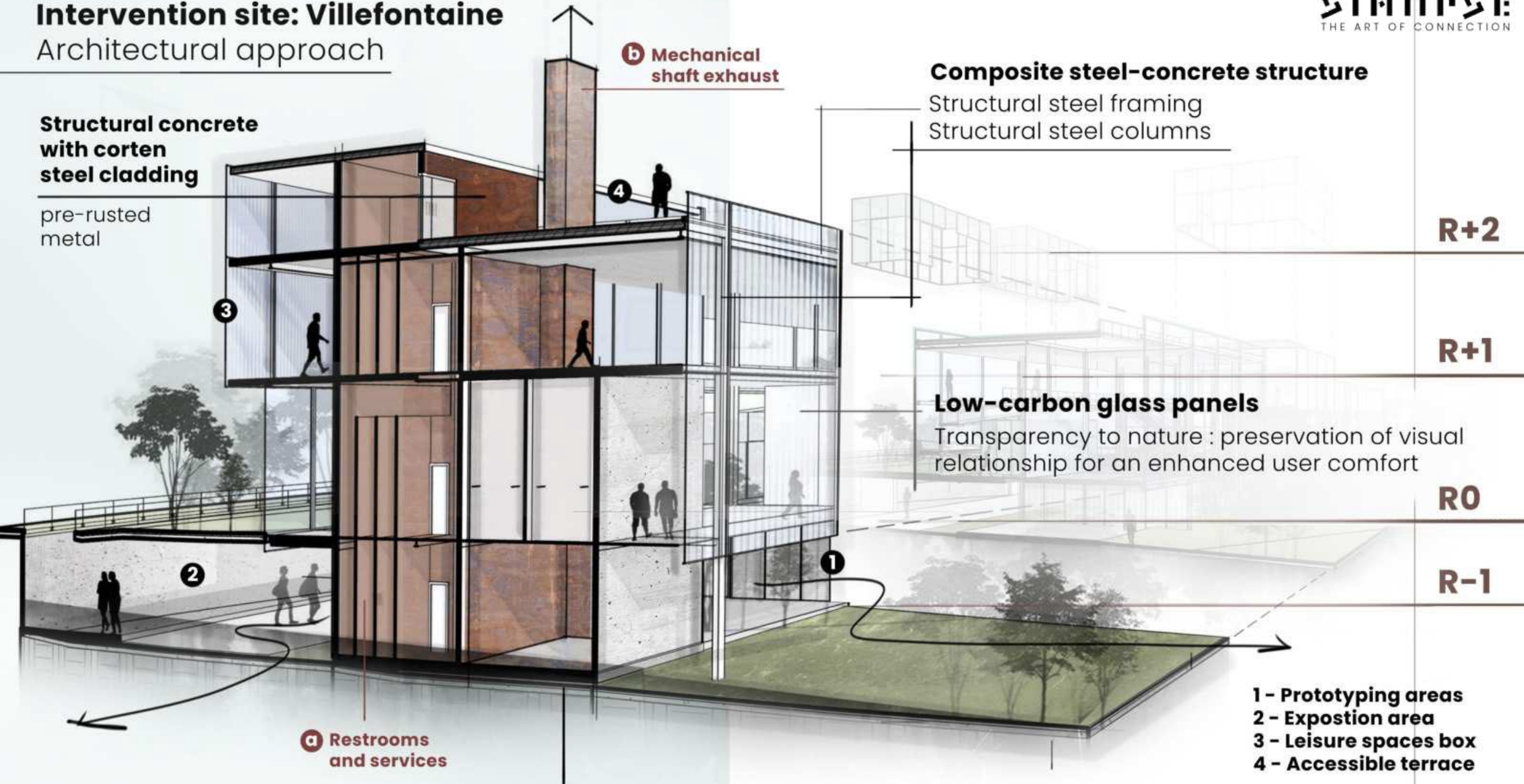
- 1 INITIATION**
- 2 COLLISION**
- 3 DIS/JUNCTION & CREATION**
- 4 DISTRIBUTION**
- 5 DESTINATION**



Perspective view 5 : Aerial view of the project

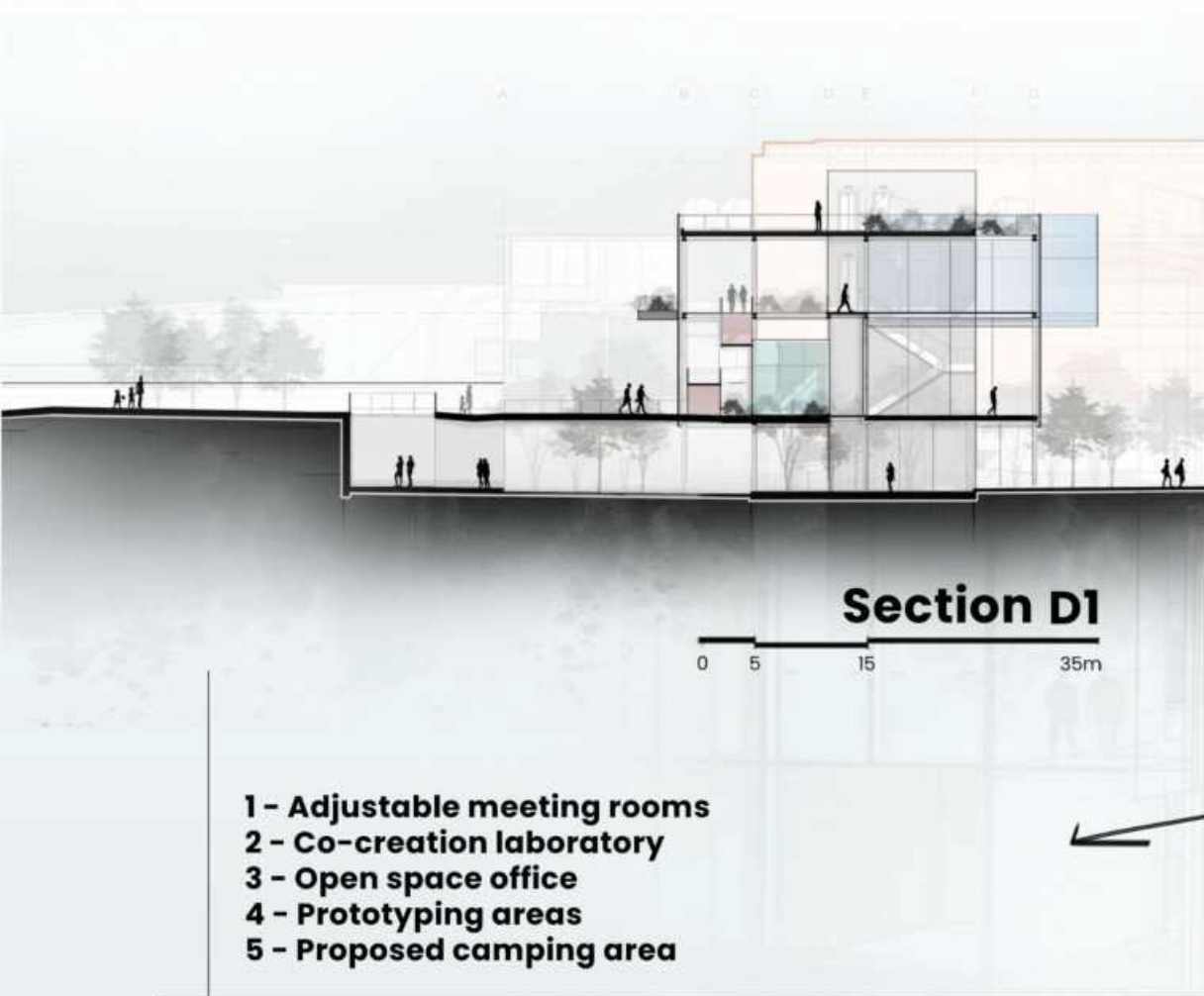
Intervention site: Villefontaine

Architectural approach



Intervention site: Villefontaine

Architectural approach



Section D1

0 5 15 35m

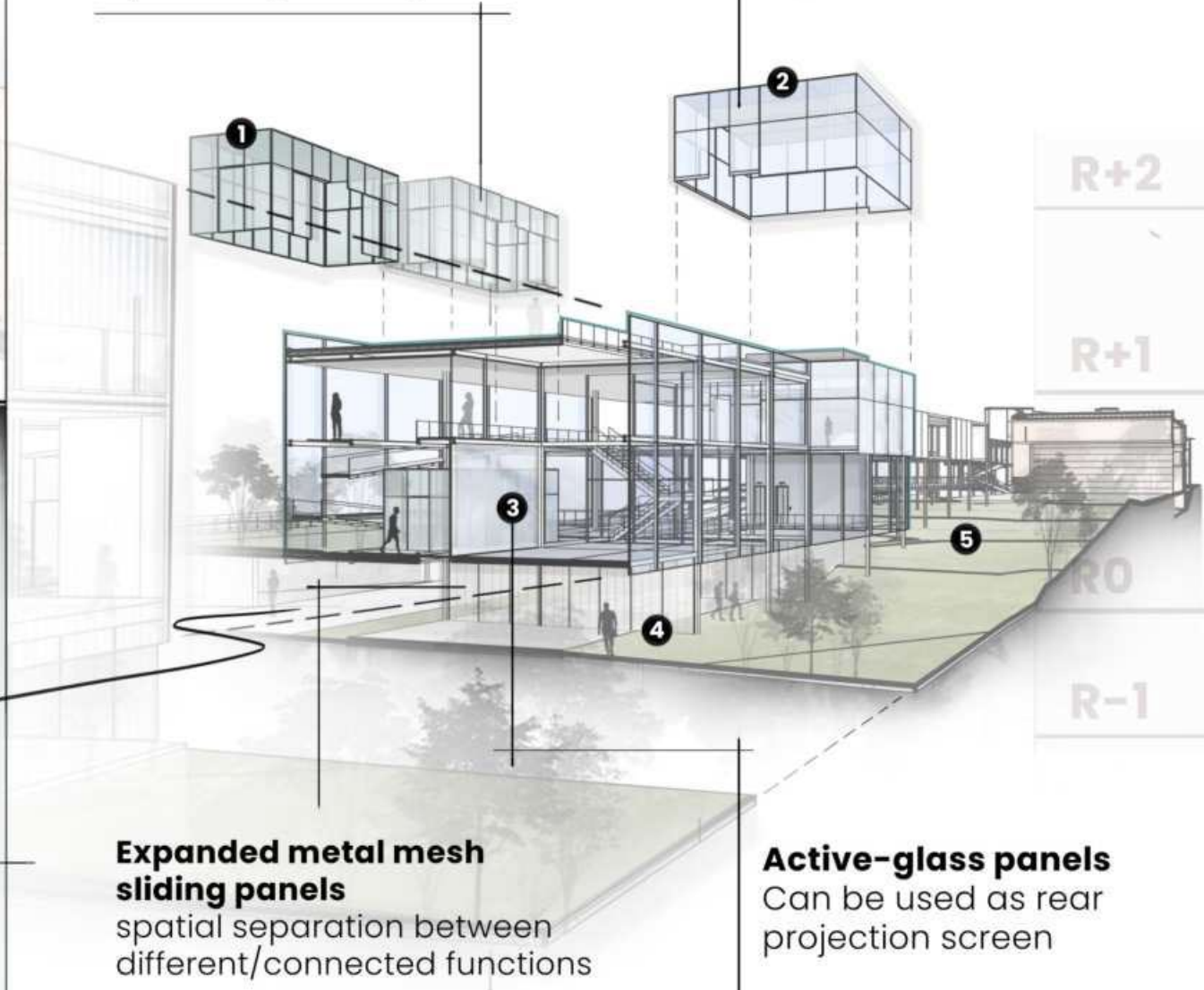
- 1 - Adjustable meeting rooms
- 2 - Co-creation laboratory
- 3 - Open space office
- 4 - Prototyping areas
- 5 - Proposed camping area

Translucent polycarbonate

Sliding panels for spatial adjustability

Active-glass box

opacity/luminosity regulation



Expanded metal mesh sliding panels

spatial separation between different/connected functions

Active-glass panels

Can be used as rear projection screen



Perspective view 6 :

interior view from the co-creation building (first floor)

Polycarbonate meeting box

Open-space office active-glass panels: used as rear projection screen



Perspective view 7:

interior view from the co-creation building (ground floor)

Double-height prototyping area

Active-glass panels: used as rear projection screen

Adaptive landscaping : Villefontaine-native plants



Acer campestre

Support insects and provides warm hues



Corylus avellana

Native hedge potential



Viburnum lantana

Hardy pollinator-friendly shrub



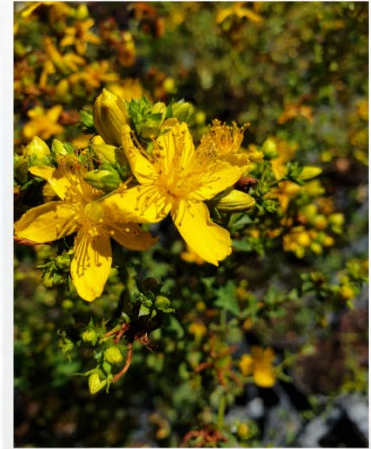
Lonicera periclymonum

Insects/birds support



Rosmarinus officinalis

Pest-repellent evergreen plant



Hypericum perforatum

Weather-tolerant shrub

Indoor plants



Spathyphillum

Humidity-friendly indoor/outdoor plant



Hedera helix

Self-clinging humidity-friendly climber



Rhaphis Escelsa

slow growing tidy indoor palm

Breathe

Water, Biodiversity & Local Value Creation



Adaptive-glass panels: used as rear projection screen

Intervention site: Villefontaine

Climatic approach



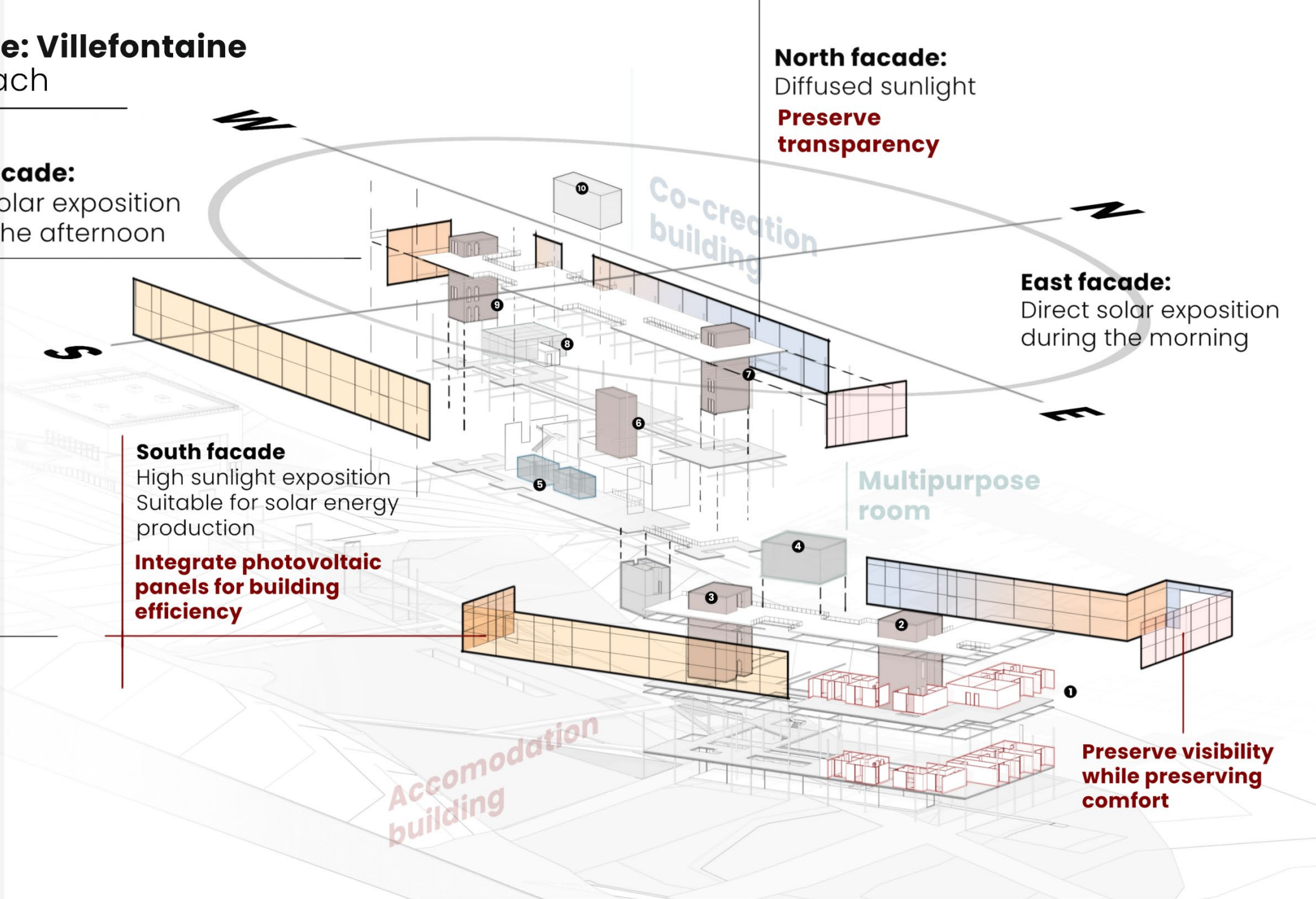
West facade:

Direct solar exposition during the afternoon



Turning the glass boxes into an efficient envelope through solar study of the building's facade

- 1 - Accommodation units
- 2 - Vertical circulation block
- 3 - Vertical circulation block
- 4 - Multi-purpose room
- 5 - Meeting rooms
- 6 - Restrooms/services block
- 7 - Vertical circulation/storage
- 8 - Co-creation laboratory
- 9 - Vertical circulation block
- 10 - Offices leisure spaces



North facade:

Diffused sunlight

Preserve transparency

East facade:

Direct solar exposition during the morning

South facade

High sunlight exposition
Suitable for solar energy production

Integrate photovoltaic panels for building efficiency

Preserve visibility while preserving comfort

Intervention site: Villefontaine

Climatic approach

Horizontal plan:

Circulation spaces

Low carbon steel wire mesh using recycled steel for circulation



POINT.P

Enhabited functions

Low carbon concrete industrial cement combined with mineral compounds

Structural design uses **Recycled steel** framework

North facade:

COOL-LITE® SKN ORAÉ



Occupant Wellness

Exposure to beautiful, natural light makes people happier, healthier, and more comfortable.

NORTH

Low embodied carbon glass ORAÉ

combining high recycled glass content with renewable energy

WEST-EAST

SageGlass photochromic glass panels

automatically tints and clears in response to changing sunlight conditions



Productivity Increases by

23%
from better lighting



11%
from better ventilation



3%

from individual temperature control

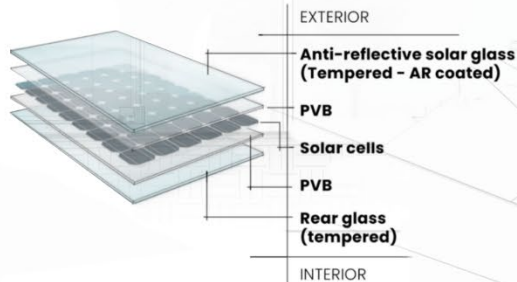
SOUTH

Integrated photovoltaic translucent solar

Solar building envelope made with BIPV, turning a passive building into an energy producing solar skin



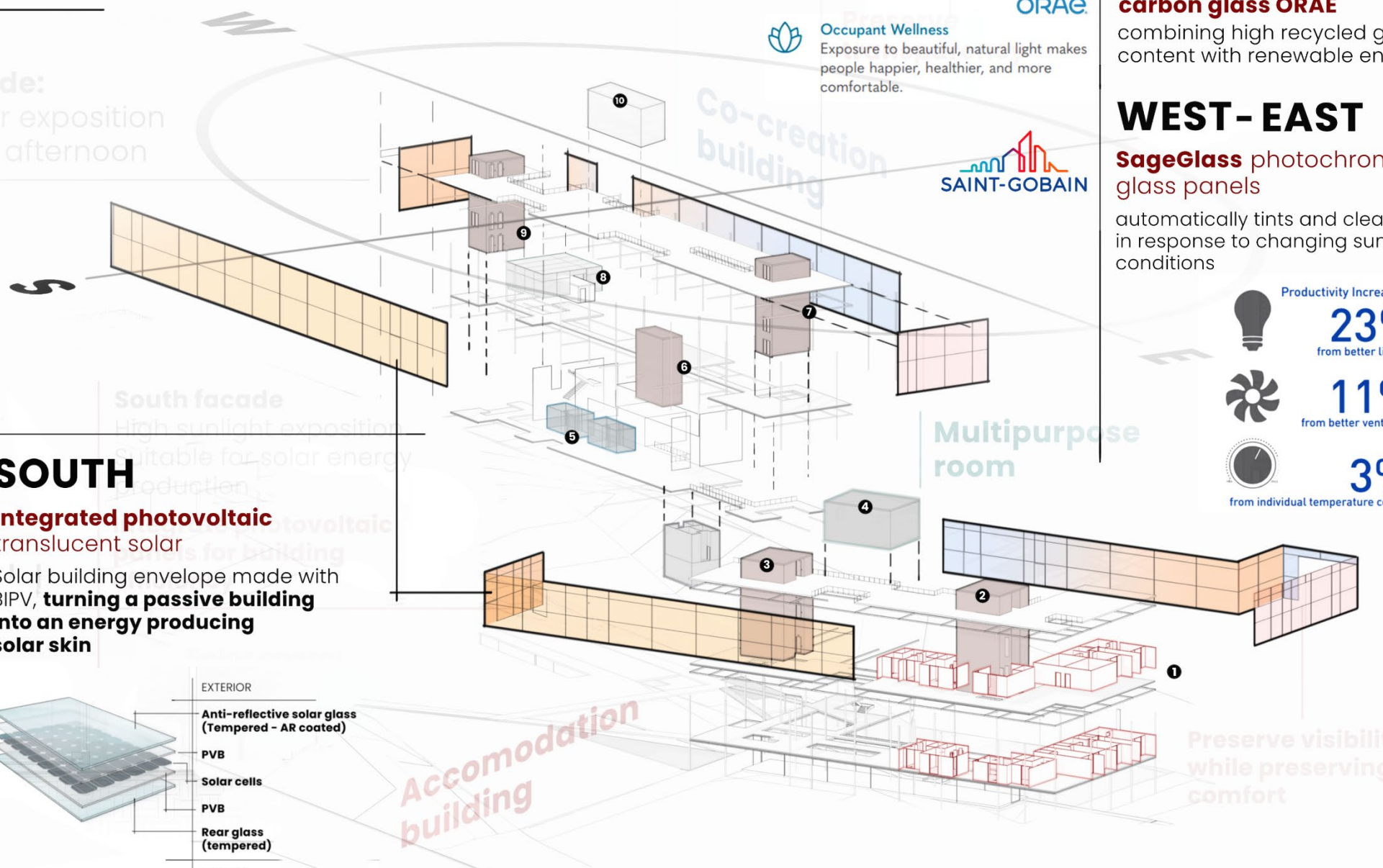
- 1 - Accomodation units
- 2 - Vertical circulation block
- 3 - Vertical circulation block
- 4 - Multi-purpose room
- 5 - Meeting rooms
- 6 - Restrooms/services block
- 7 - Vertical circulation/storage
- 8 - Co-creation laboratory
- 9 - Vertical circulation block
- 10 - Offices leisure spaces



Accomodation building

Multipurpose room

Preserve visibility while preserving comfort



Intervention site: Villefontaine

Climatic approach

Horizontal plan:

Circulation spaces

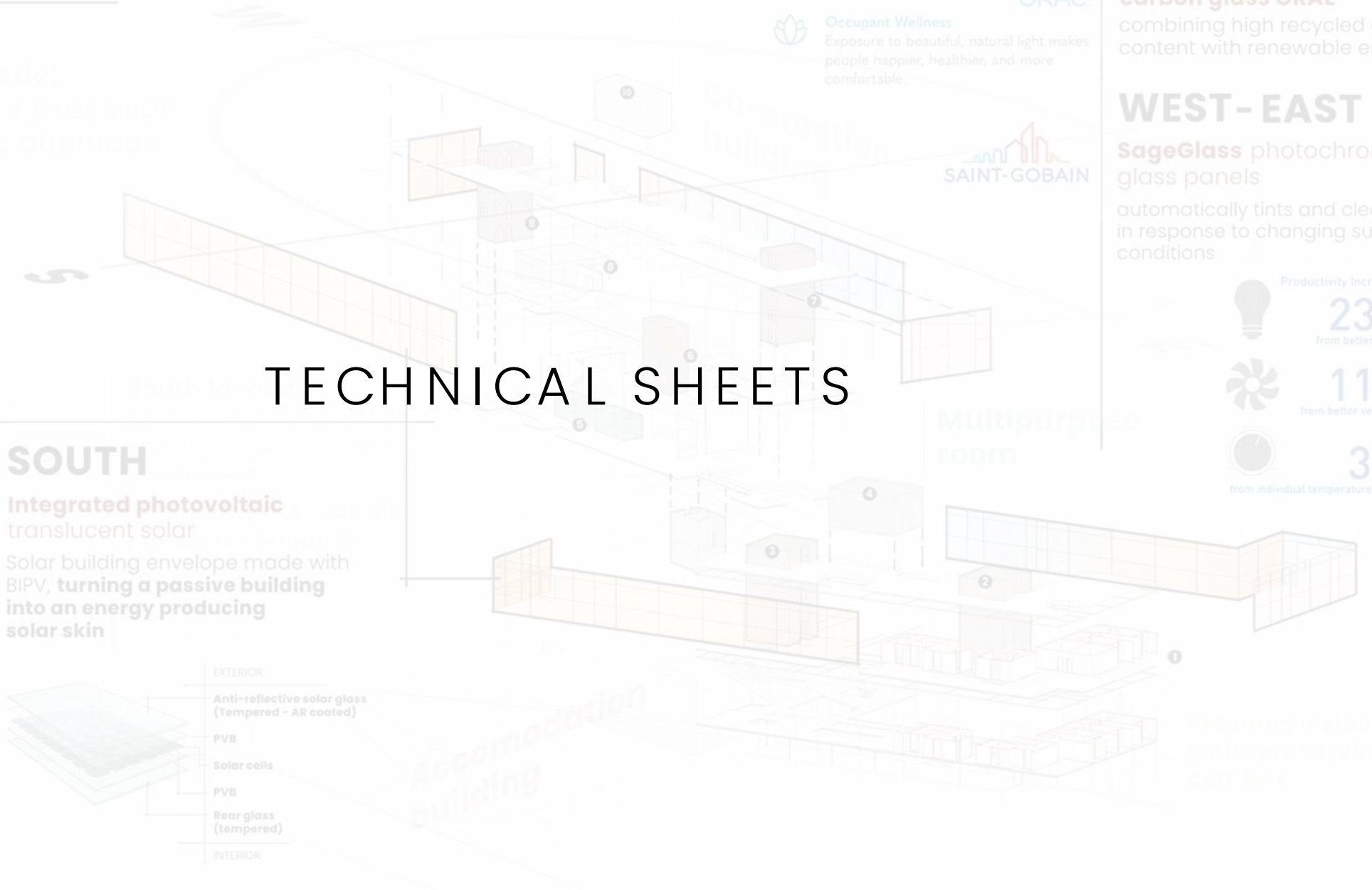
Low carbon steel wire mesh using recycled steel for circulation



POINT.P

Enhabited functions

Low carbon concrete industrial cement combined with mineral compounds



COOL-LITE® SKN
ORAÉ



Occupant Wellness
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automatically tints and clears in response to changing sunlight conditions



Productivity increases by

23%
from better lighting



11%
from better ventilation



3%
from individual temperature control

TECHNICAL SHEETS

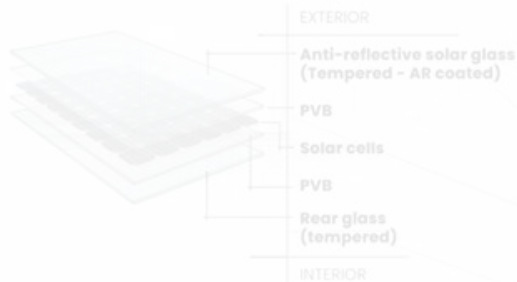
SOUTH

Integrated photovoltaic translucent solar

Solar building envelope made with BIPV, turning a passive building into an energy producing solar skin



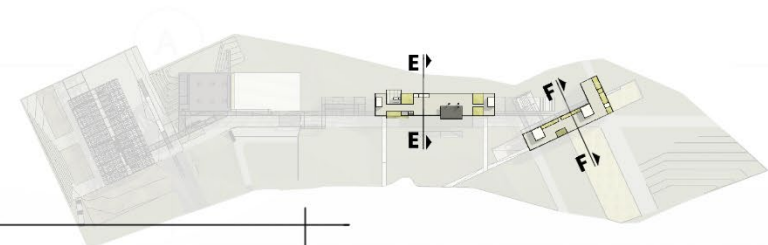
- 1 - Accomodation units
- 2 - Vertical circulation block
- 3 - Vertical circulation block
- 4 - Multi-purpose room
- 5 - Meeting rooms
- 6 - Restrooms/services block
- 7 - Vertical circulation/storage
- 8 - Co-creation laboratory
- 9 - Vertical circulation block
- 10 - Offices leisure spaces



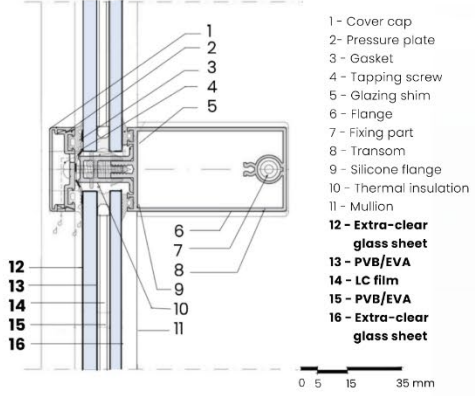
Accomodation building

Preserve visibility while preserving comfort

Co-creation building

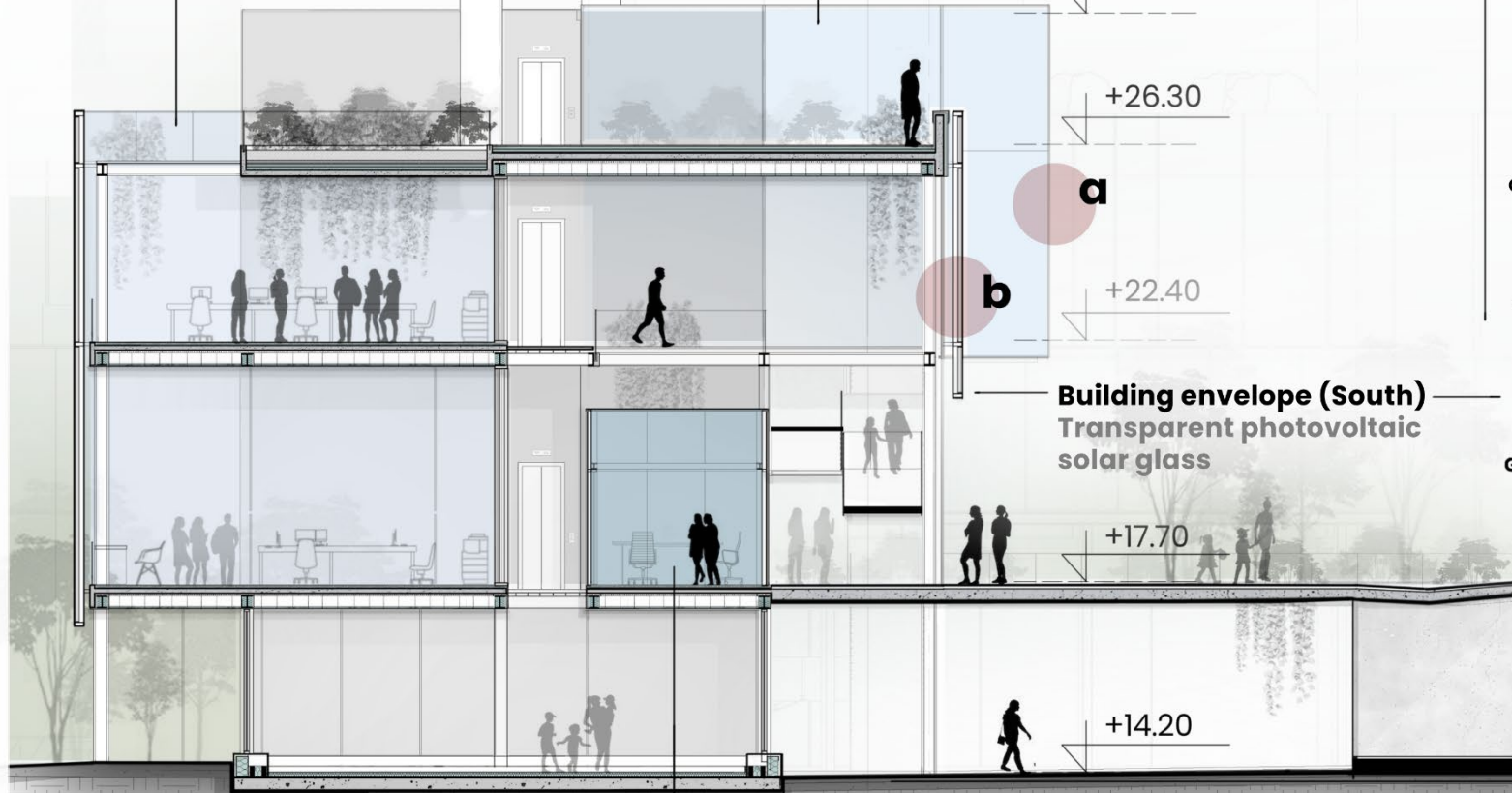


a. PRIVA-LITE active glass



Building envelope (East):
Sageglass electrochromic panels

Offices lounge/roof leisure:
PRIVA-LITE active glass



PRIVACY

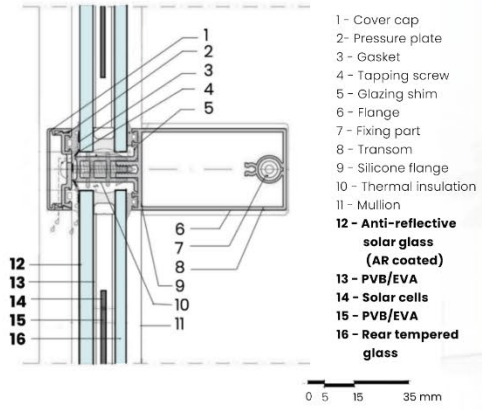
CREATIVITY

COMFORT

ENERGY GENERATION



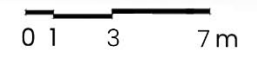
b. IPV transparent glass



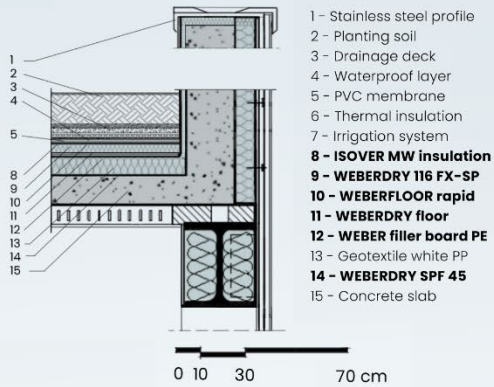
Building envelope (South):
Transparent photovoltaic solar glass

Meeting rooms:
Polycarbonate panels

Section E-E

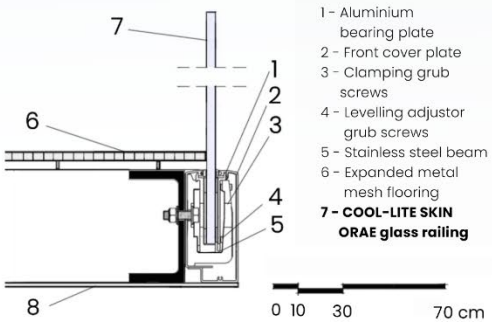


c. Green roof detail

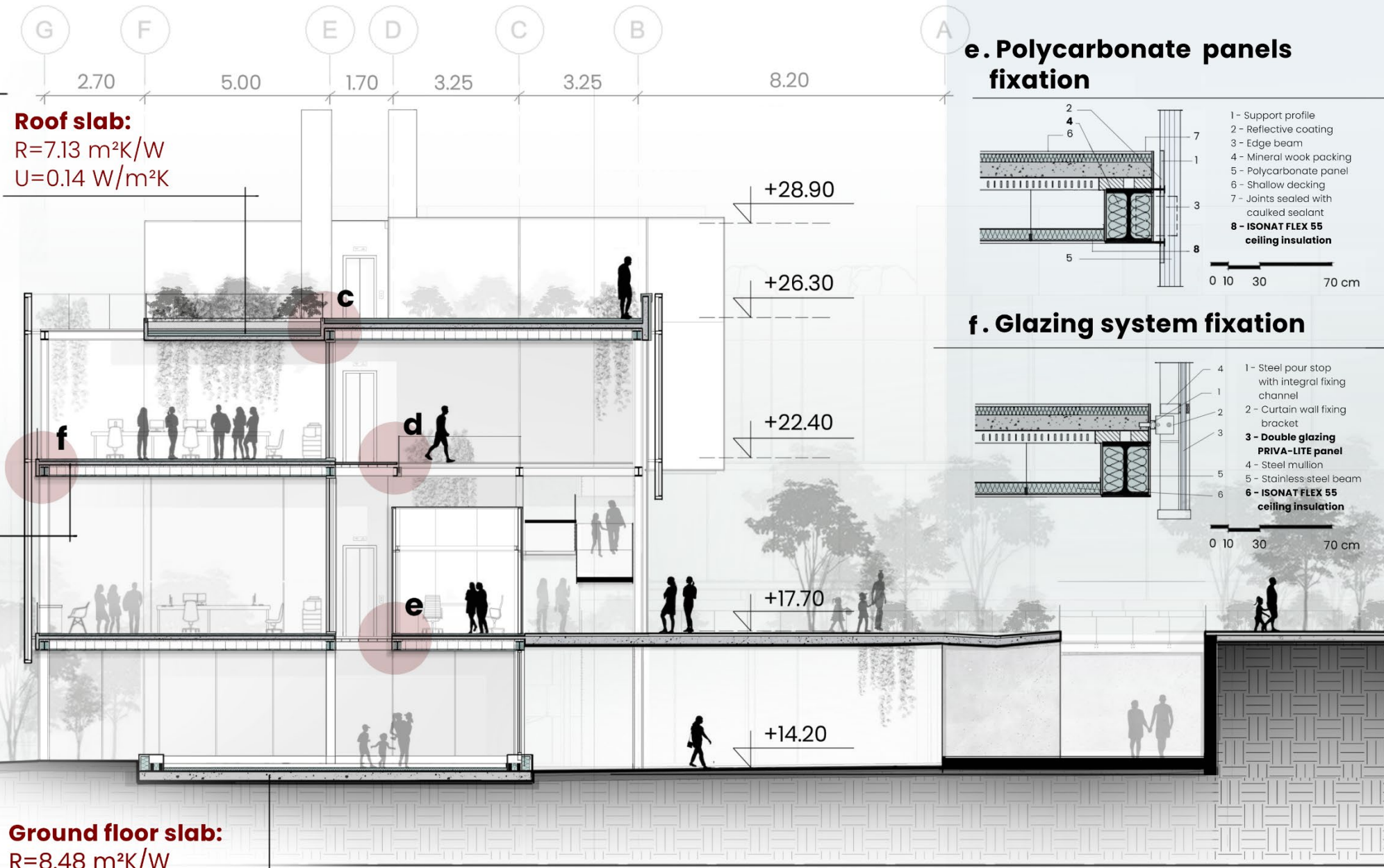


Upper floors slab:
 $R=7.30 \text{ m}^2\text{K/W}$
 $U=0.13 \text{ W/m}^2\text{K}$

d. Glass railing fixation

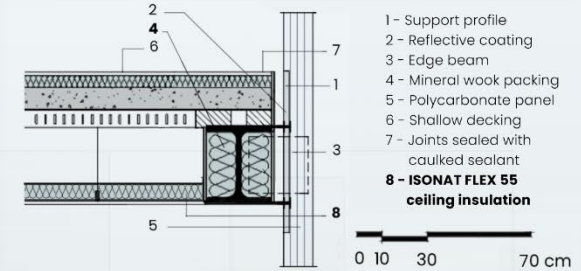


Roof slab:
 $R=7.13 \text{ m}^2\text{K/W}$
 $U=0.14 \text{ W/m}^2\text{K}$

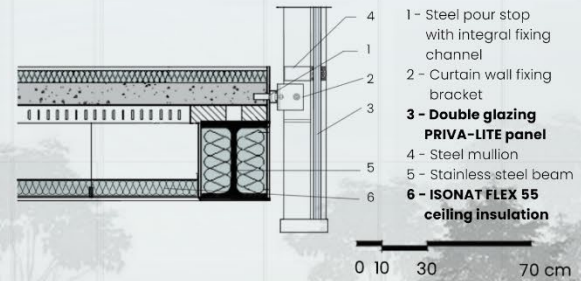


Ground floor slab:
 $R=8.48 \text{ m}^2\text{K/W}$
 $U=0.12 \text{ W/m}^2\text{K}$

e. Polycarbonate panels fixation

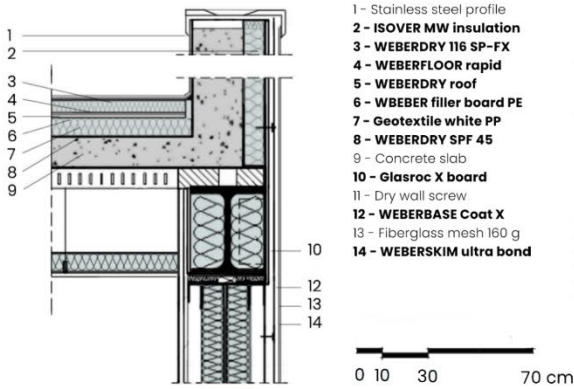


f. Glazing system fixation

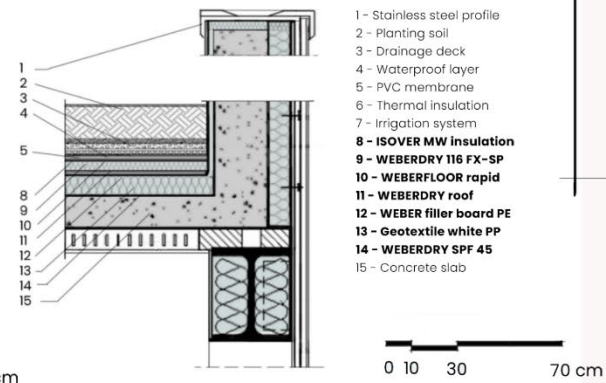


Accomodation building

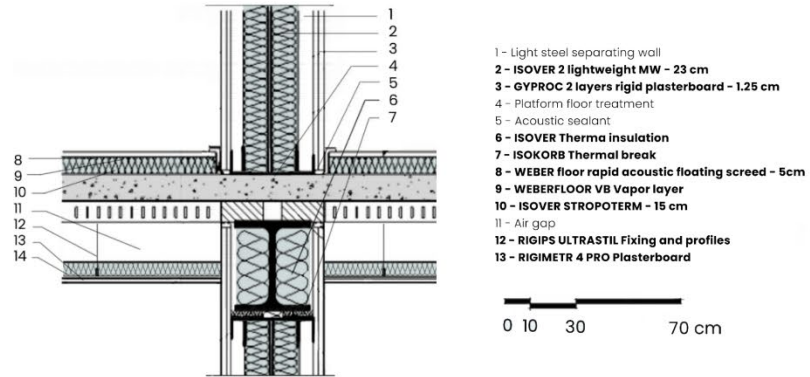
a. Roof insulation detail



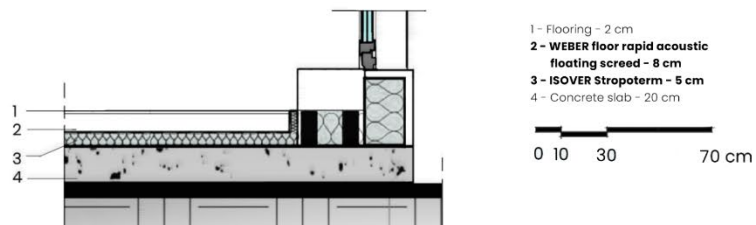
b. Green Roof insulation detail



c. Upper floor slab/partition walls insulation detail



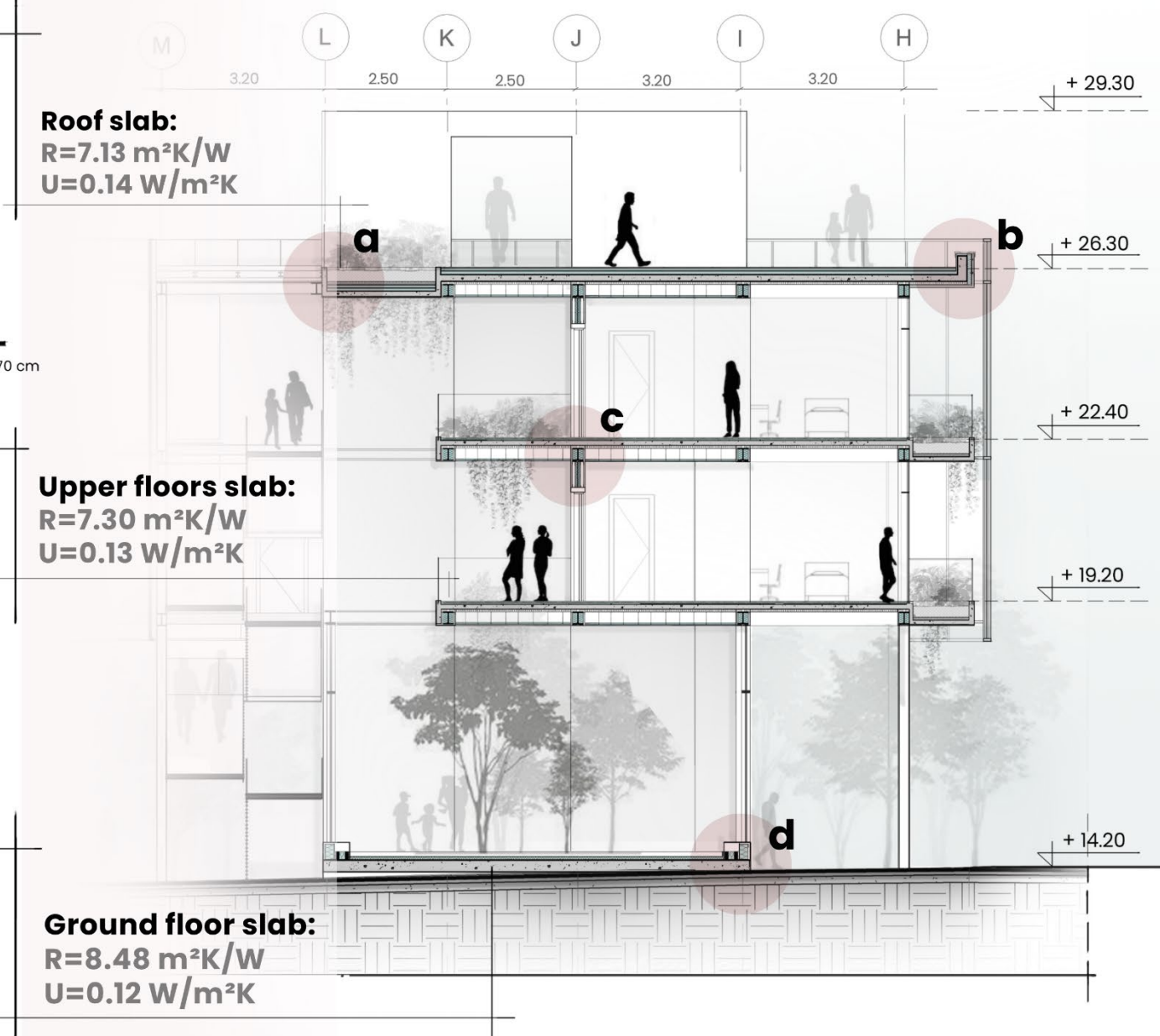
d. Ground floor slab detail



Roof slab:
 $R=7.13 \text{ m}^2\text{K/W}$
 $U=0.14 \text{ W/m}^2\text{K}$

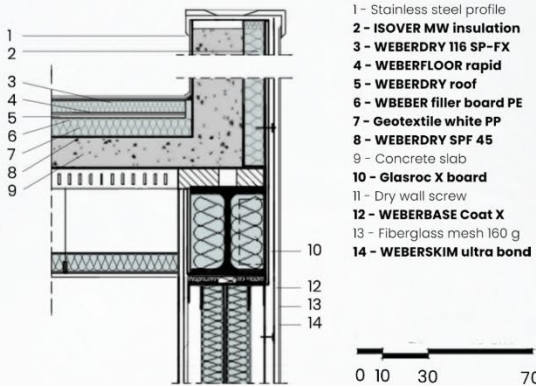
Upper floors slab:
 $R=7.30 \text{ m}^2\text{K/W}$
 $U=0.13 \text{ W/m}^2\text{K}$

Ground floor slab:
 $R=8.48 \text{ m}^2\text{K/W}$
 $U=0.12 \text{ W/m}^2\text{K}$

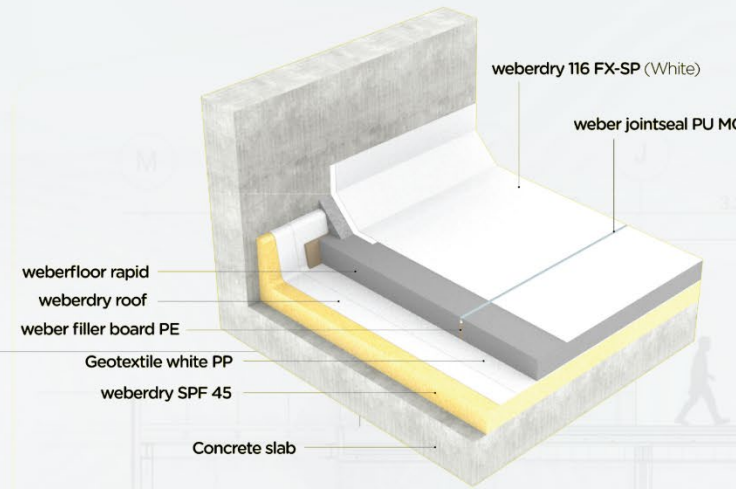
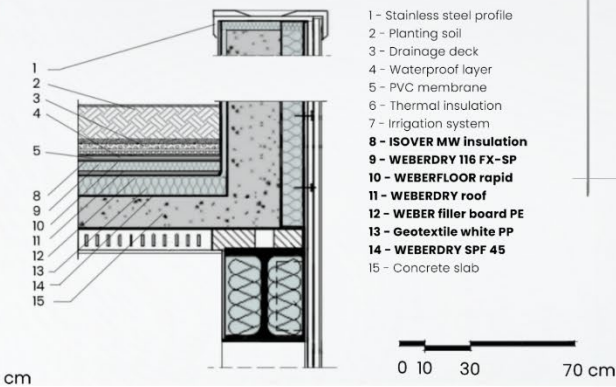


Accommodation building

a. Roof insulation detail

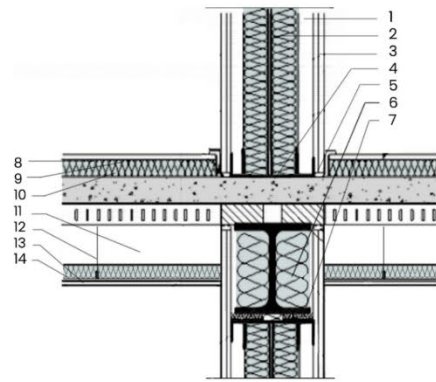


b. Green Roof insulation detail



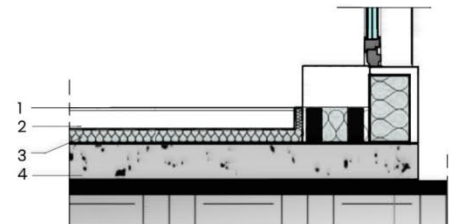
Weberroof SPF
Waterproofing and thermal insulation roofing system

c. Upper floor slab/partition walls insulation detail



- 1 - Light steel separating wall
- 2 - ISOVER 2 lightweight MW - 23 cm
- 3 - GYPROC 2 layers rigid plasterboard - 1.25 cm
- 4 - Platform floor treatment
- 5 - Acoustic sealant
- 6 - ISOVER Therma insulation
- 7 - ISOKORB Thermal break
- 8 - WEBER floor rapid acoustic floating screed - 5cm
- 9 - WEBERFLOOR VB Vapor layer
- 10 - ISOVER STROPOTERM - 15 cm
- 11 - Air gap
- 12 - RIGIPS ULTRASTIL Fixing and profiles
- 13 - RIGIMETR 4 PRO Plasterboard

d. Ground floor slab detail



- 1 - Flooring - 2 cm
- 2 - WEBER floor rapid acoustic floating screed - 8 cm
- 3 - ISOVER Stropoterm - 5 cm
- 4 - Concrete slab - 20 cm

Energy & sustainability



- Lower roof temperatures
- Lower heating and cooling cost
- No thermal bridges
- Highest R-value insulation
- Reflects solar radiation
- Improve individual comfort

Weather impact



- Closed cell foam which resists water penetration
- High wind uplift resistance

Installation



- Fast installation
- Lower labor cost
- Fully adhere to many different substrates
- Self flashing system
- Fully mechanized installation procedures

Repair & maintenance

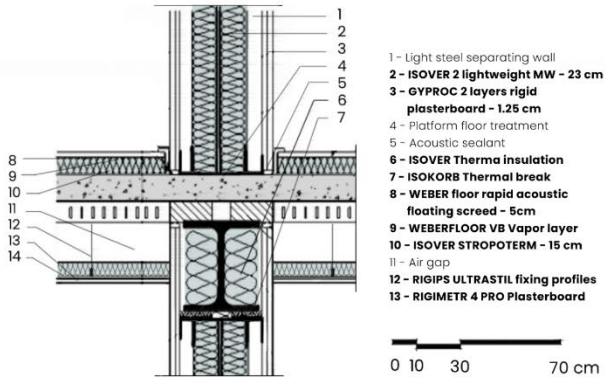


- Low maintenance
- Multiple recoating at intervals possible

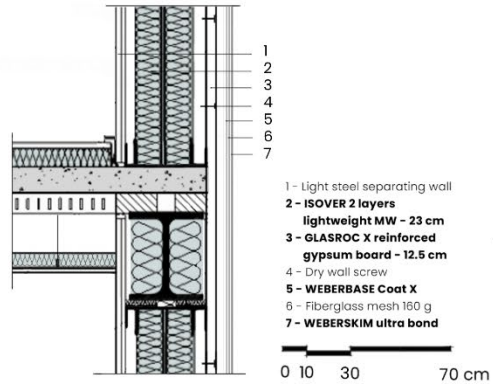
Schöck Isokorb®
Structural Thermal Break Solutions.



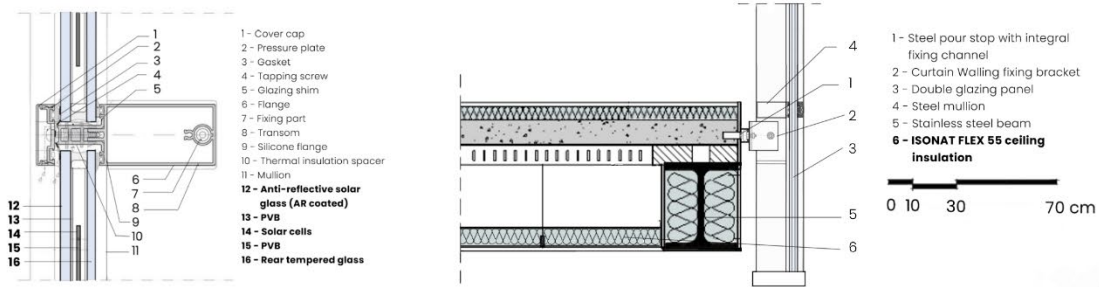
c. Partition walls insulation



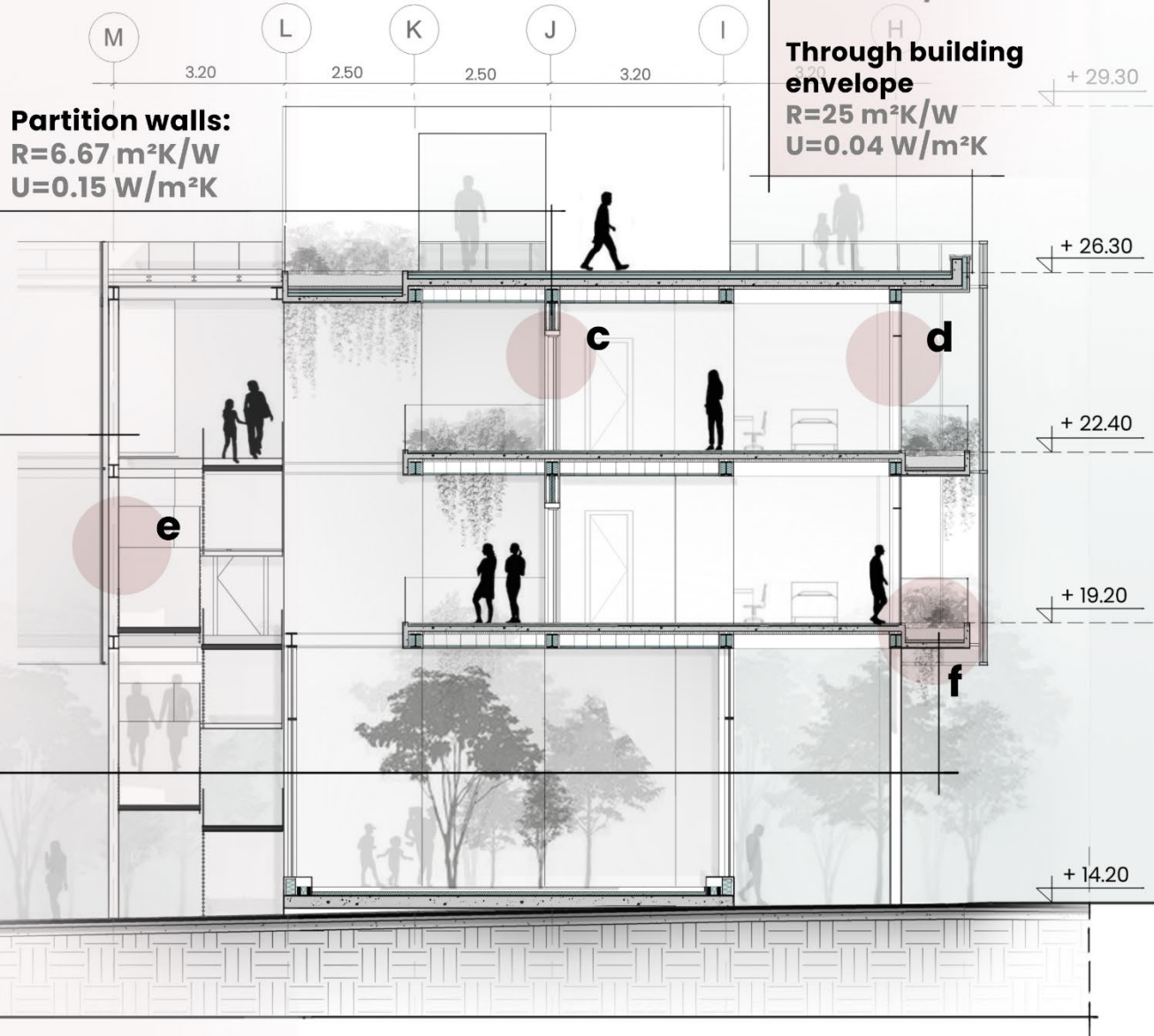
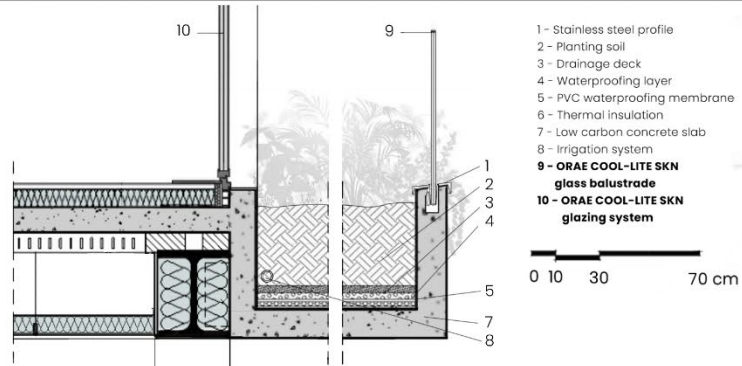
d. External walls insulation



e. External glazing system fixation



f. Apartment unit planter

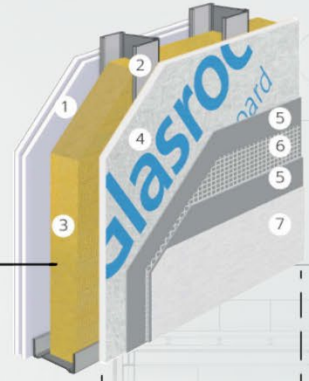
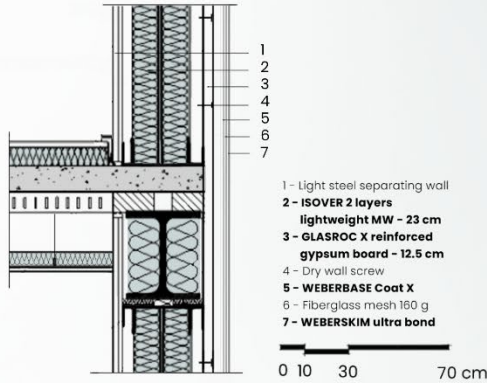




SAINT-GOBAIN

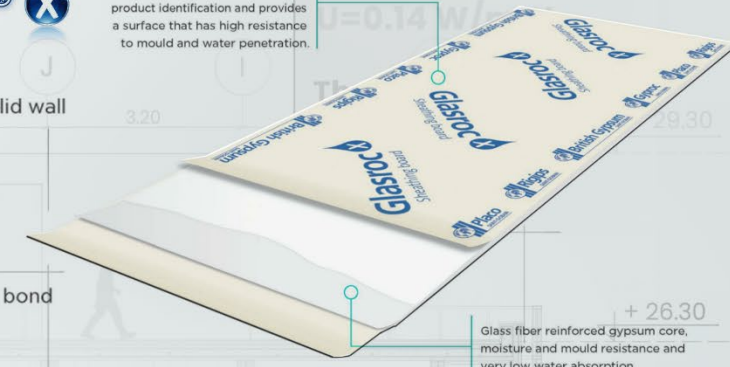
- Exterior Application
- Moisture and Mould Resistance
- Fire Resistance
- Dimensional Stability
- Energy Efficiency
- Low Environmental Impact
- Impact Resistance
- Flexibility
- Easy to Score and Snap
- Easy to screw fix
- Easy to Handle
- High Labour Productivity

d. External walls insulation

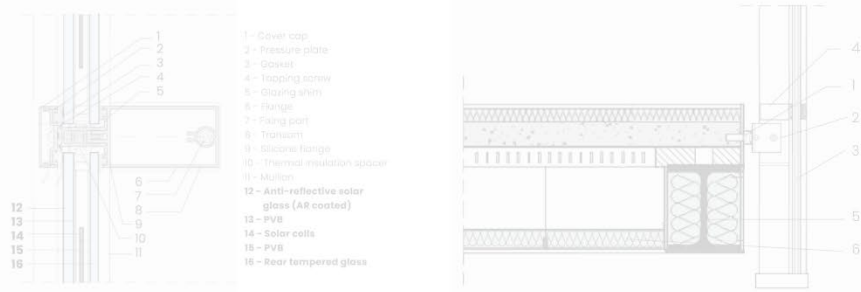


Inorganic glass mat surface with strong visual branding for instant product identification and provides a surface that has high resistance to mould and water penetration.

1. Internal board(s) / Solid wall
2. Metal Frame
3. Insulation
4. Glasroc X Board
5. weberbase coat X
6. Fiber mesh 160g
7. weberbase skim ultra bond



e. External glazing system fixation



- 1 - Steel pour stop with integral fixing channel
- 2 - Curtain Walling fixing bracket
- 3 - Double glazing panel
- 4 - Steel mullion
- 5 - Stainless steel beam
- 6 - ISONAT FLEX 55 ceiling insulation



Used as external board for direct rendering on single facade walls

Direct render system

High impact and UV rays resistance

WEBERBASE coat X

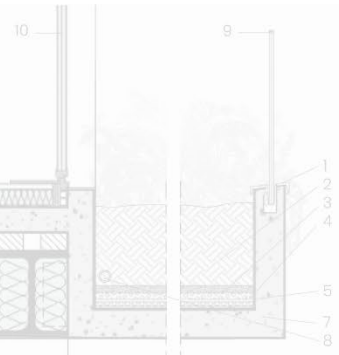
High performance undercoat base

WEBER skim coat

Smooth acrylic finishing



f. Apartment unit planter



SPECIFICATIONS	Value	Unit
Total water absorption (EN 520)	≤ 5 (H1)	%
Surface water absorption (EN 520)	< 45	g/m ²
Mould resistant (ASTM D3273)	10 (No mould)	-
Thermal conductivity λ	0.1865	W/mK
Vapour diffusion μ	18.2	-
Fire reaction (EN 13501-1)	A1	-

Productivity Increases by
23%
from better lighting

11%
from better ventilation

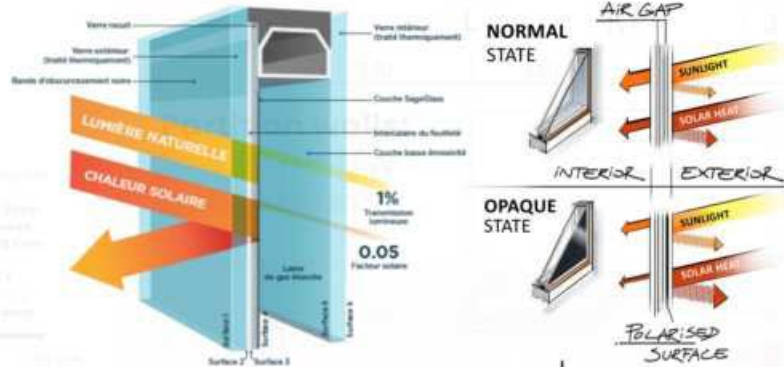
3%
from individual temperature control



Sustainability
Block the sun on hot days, harness it on cool days. Cut energy use all year, helping environments inside and out.

Occupant Wellness
Exposure to beautiful, natural light makes people happier, healthier, and more comfortable.

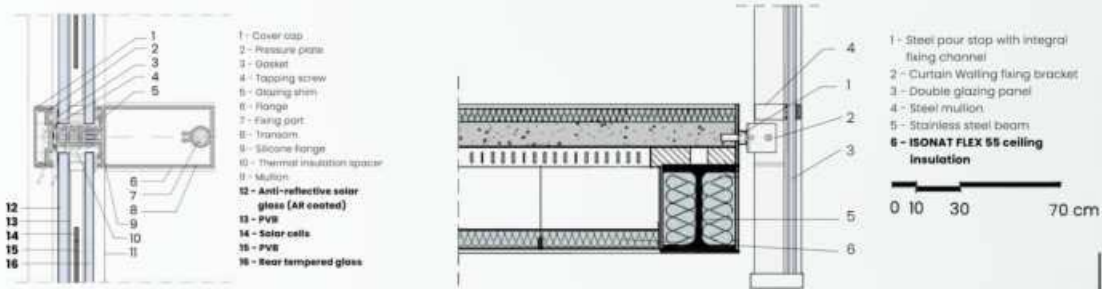
Single pane solution (East-West orientation)



Electrochromic glass with Power over Ethernet (PoE) system for full facade independence



e. External glazing system fixation



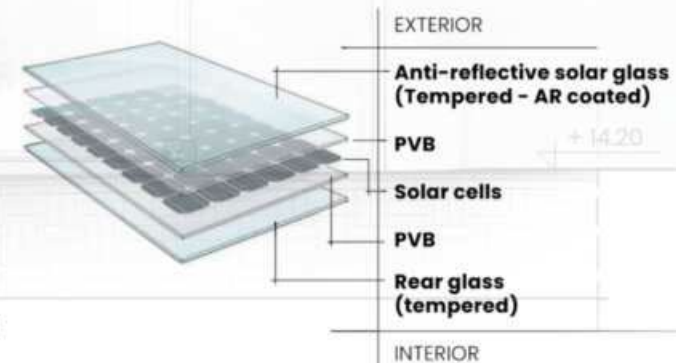
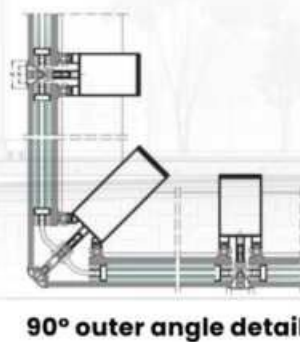
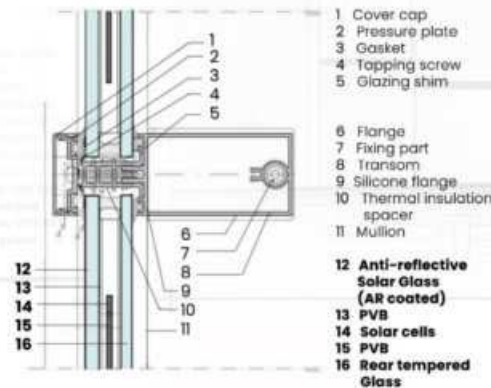
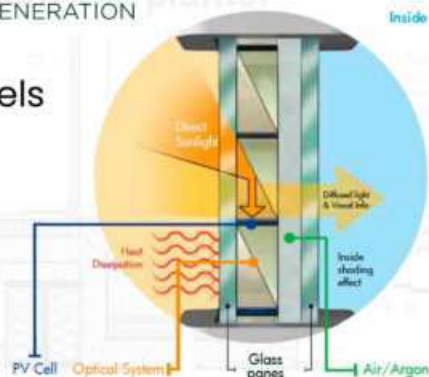
	Clear	Light	Mid	Full
LIGHT TRANSMISSION TL(%)	60%	18%	6%	<1%
SOLAR FACTOR G(%)	38%	12%	7%	4%
INSULATION Ug(W/m2.K)	1.1	1.1	1.1	1.1

+ 19.20

Single pane solution (South orientation)

SUSTAINABLE SOLUTIONS FOR ENERGY GENERATION

Integrated photovoltaics
transparent solar glass panels



Fire safety : insulation strategy

External finish
WEBERWALL premium cement plaster



8-12 mm base coat

8-12 mm Finish coat




-  RESISTANCE TO CRACKING
-  POLYMERIZED
-  PERFECT ADHERENCE
-  EXTRA WATER RESISTANT

BS476 Certified ISO 14001

A blend of portland cement, supplementary cementitious material, graded sand and polymer additives.


Interior surface
ISOVER wool insulation
GYPROC fireline board



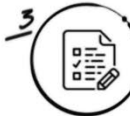


Steel stud 97x49x1.5 mm

Ceiling and floor perimeter steel channel 100x40x1.5 mm

M6 steel anchor bolt




-  **PERFORMING MATERIAL**
-  **FIRE RESISTANT**
-  **TESTED AND CERTIFIED**

Class - 1 Material as per BS 476

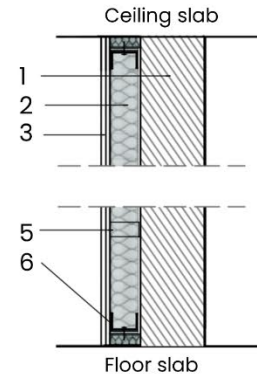
From 60 to 240 mins in wall, shaftwall & Beam/column encasement systems

Third party tested & certified

Standard multi-purpose stone mineral wool slab




g. Fire protection insulation details



- 1 - Low carbon concrete structural wall
- 2 - ISOVER rock wool slab MT - 20 cm
- 3 - GYPROC fireline board - 0.95 cm
- 4 - WEBER coverstrips
- 5 - Optima fixing steel stud
- 6 - Floor steel channel

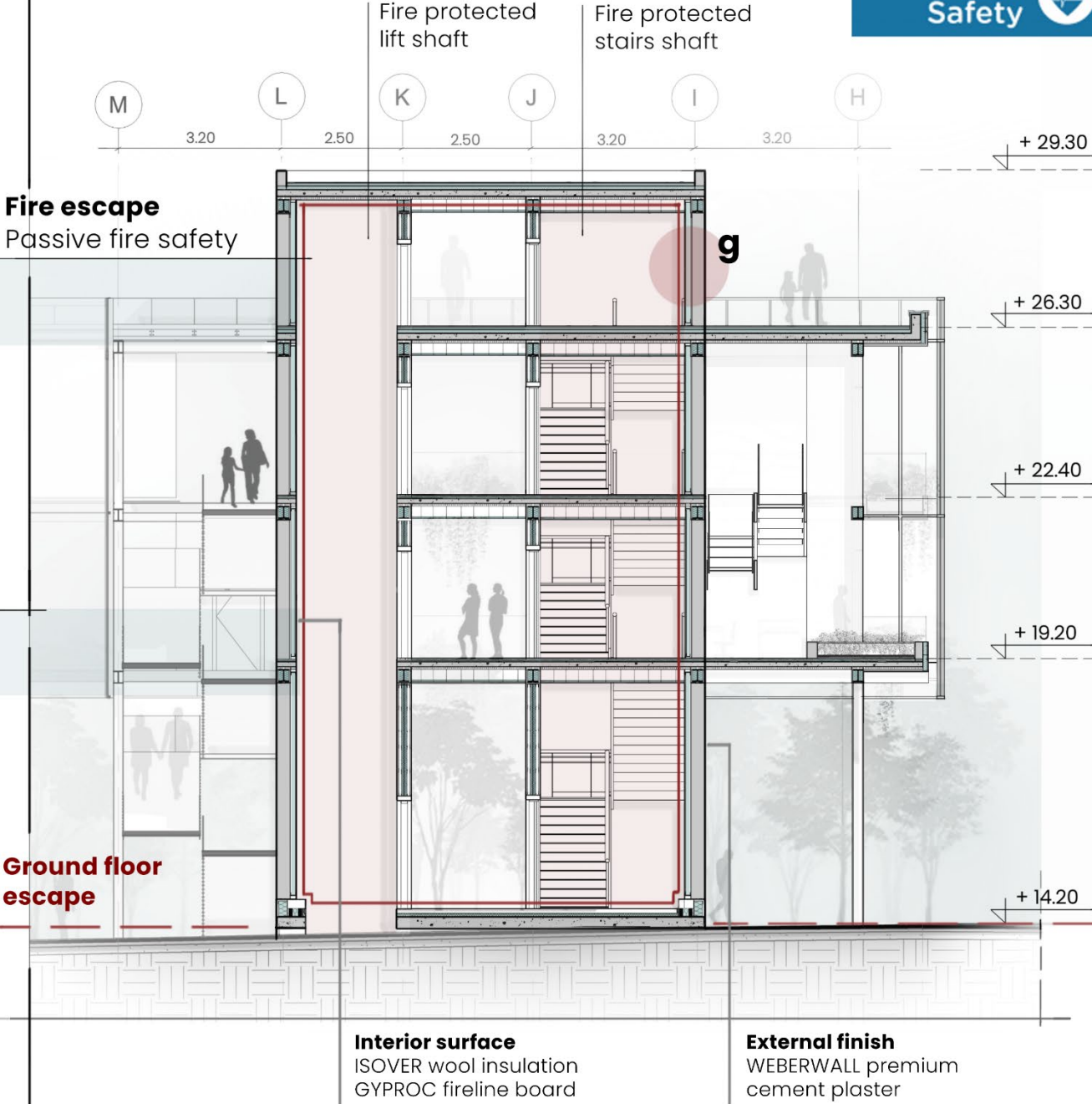
U = 0.15 W/m²K



Fire escape
Passive fire safety

Fire protected lift shaft

Fire protected stairs shaft



M 3.20 L 2.50 K 2.50 J 3.20 I 3.20 H

+ 29.30

+ 26.30

+ 22.40

+ 19.20

+ 14.20

Ground floor escape

Interior surface
ISOVER wool insulation
GYPROC fireline board

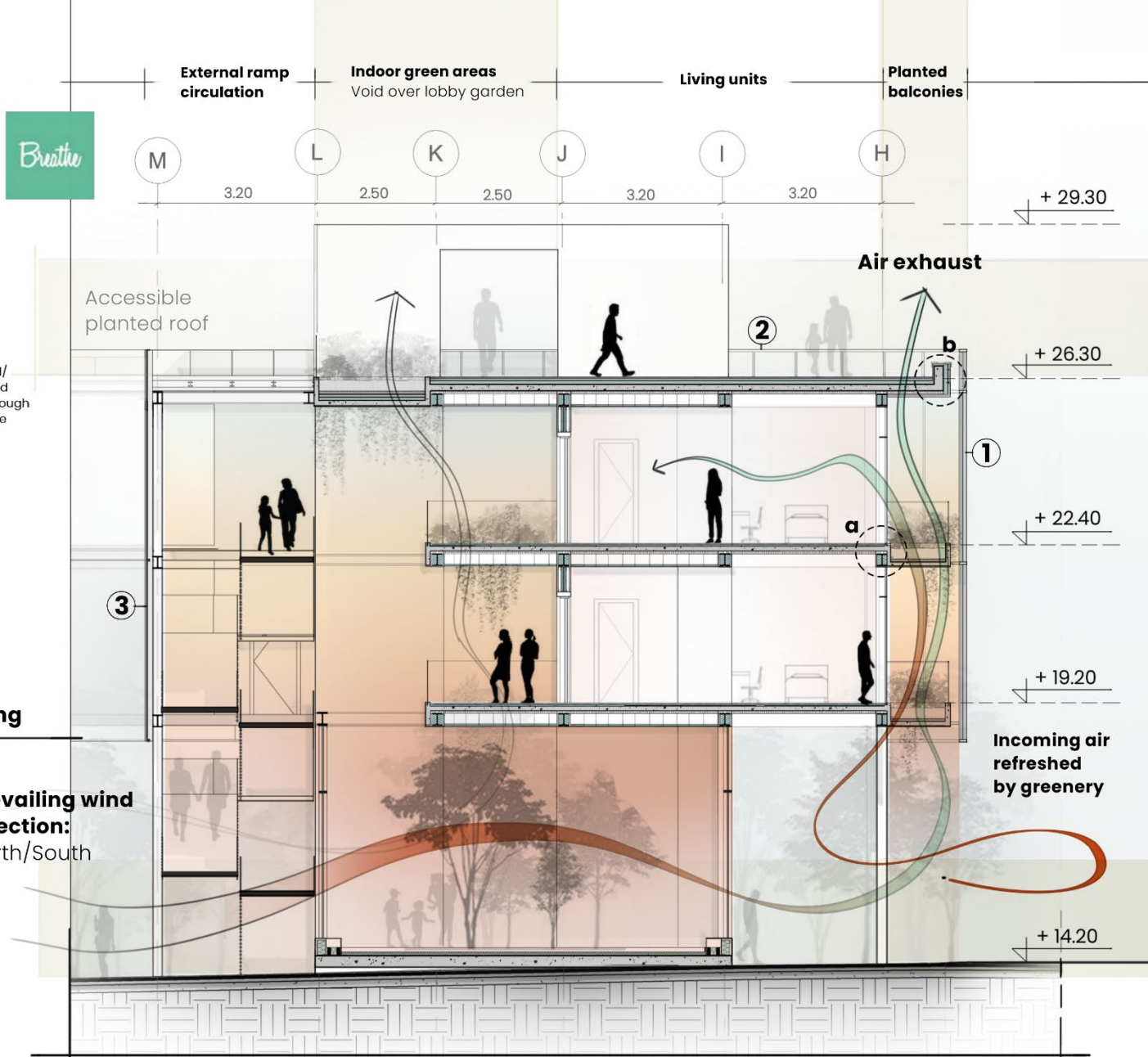
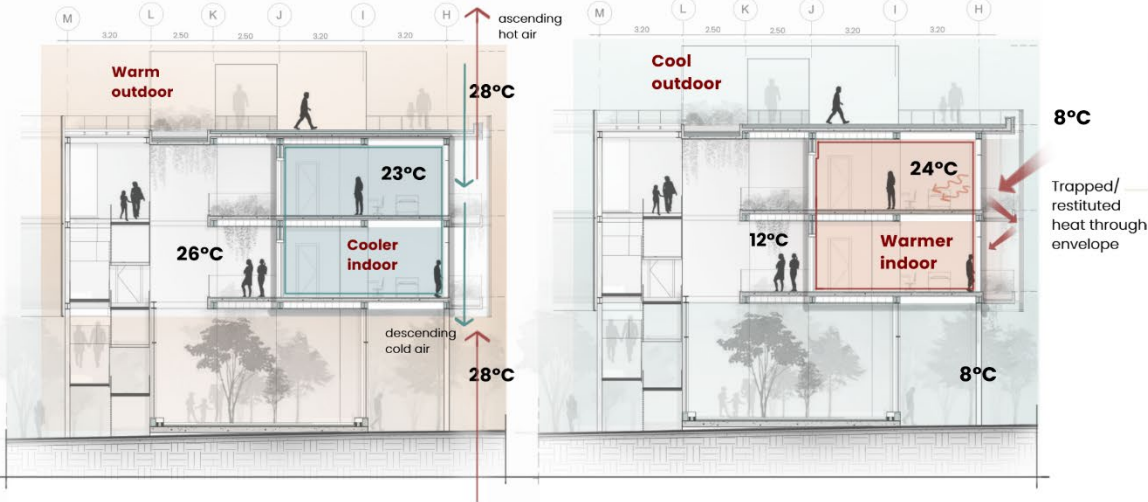
External finish
WEBERWALL premium cement plaster

Multi-comfort: passive strategies



Thermal comfort: Summer scenario

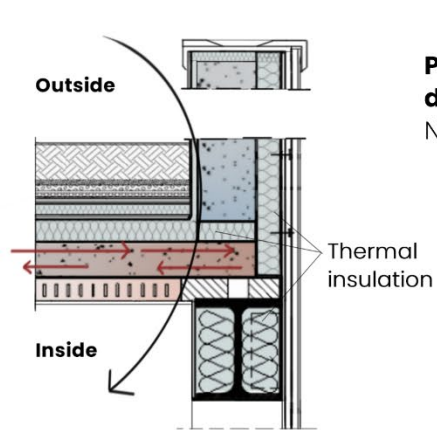
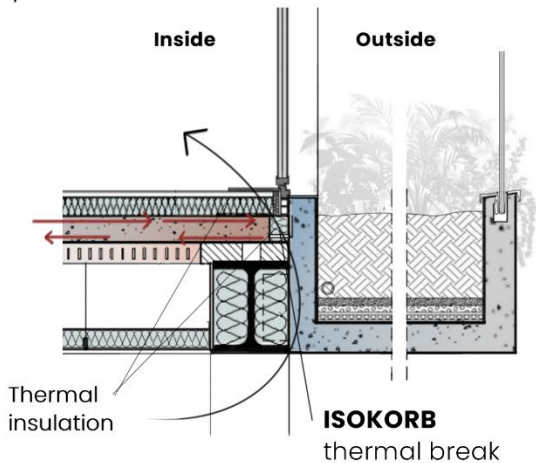
Winter scenario



Avoiding thermal bridges

Detail a: Balcony thermal breaking

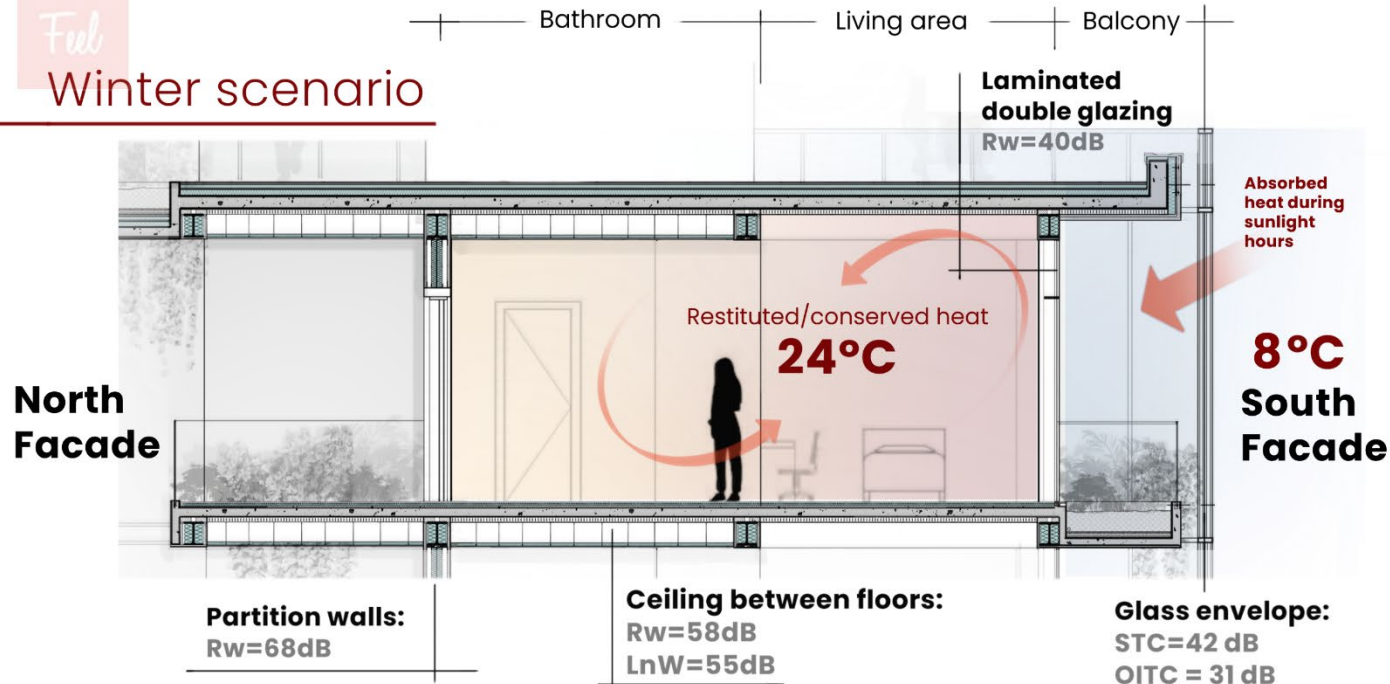
Detail b: Roof parapet thermal breaking



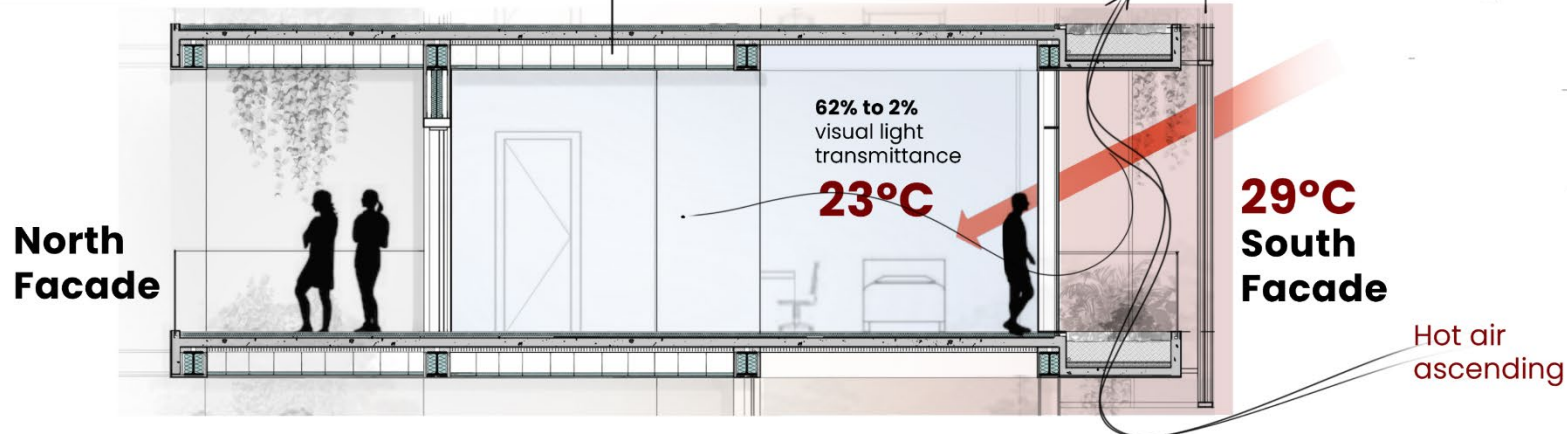
- 1 - Double glazing transparent solar glass
- 2 - Single pane electrochromic glass
- 3 - Double glazing ORAE Low carbon glass

Multi-comfort: passive strategies

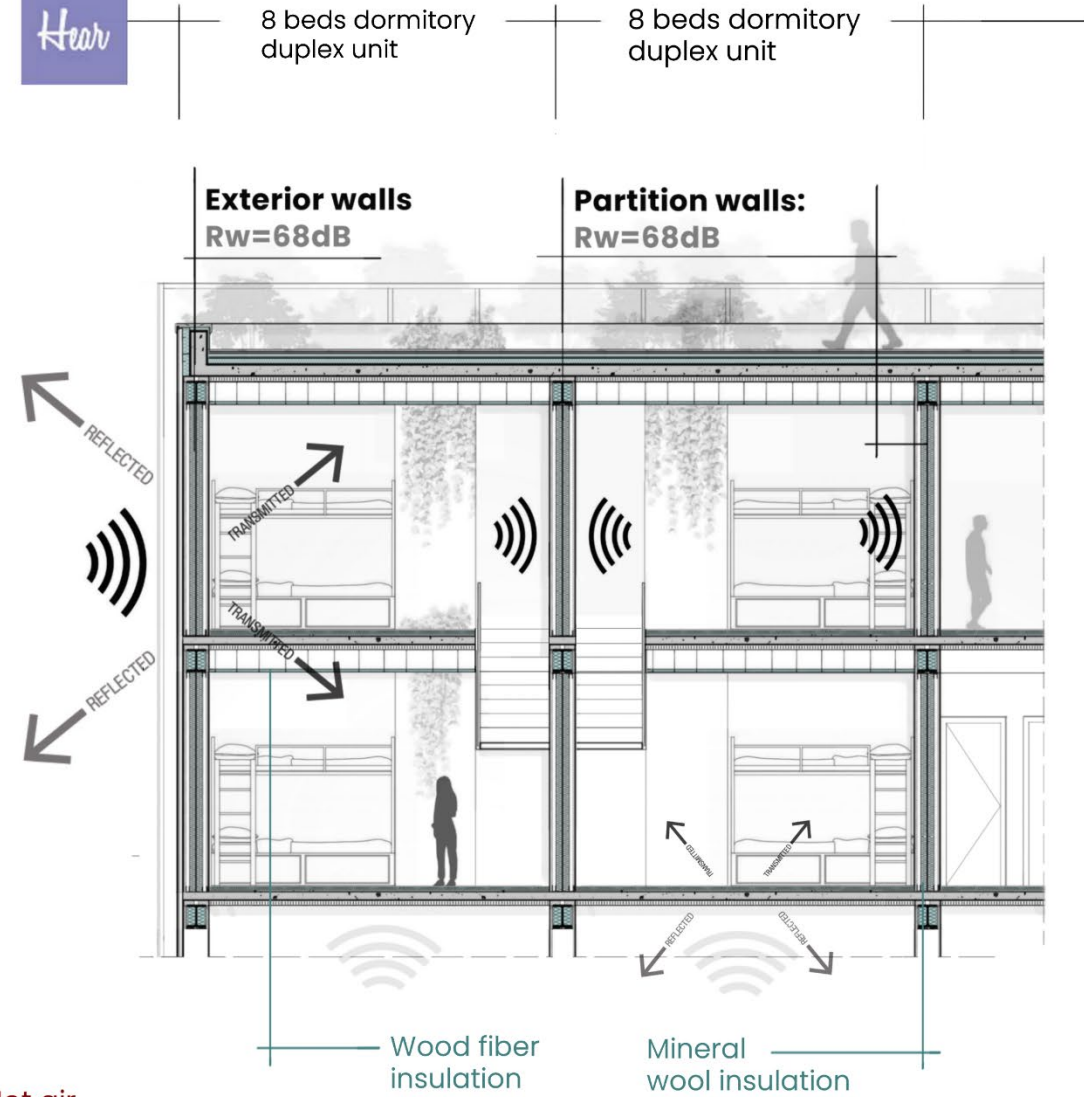
Feel Winter scenario



Summer scenario

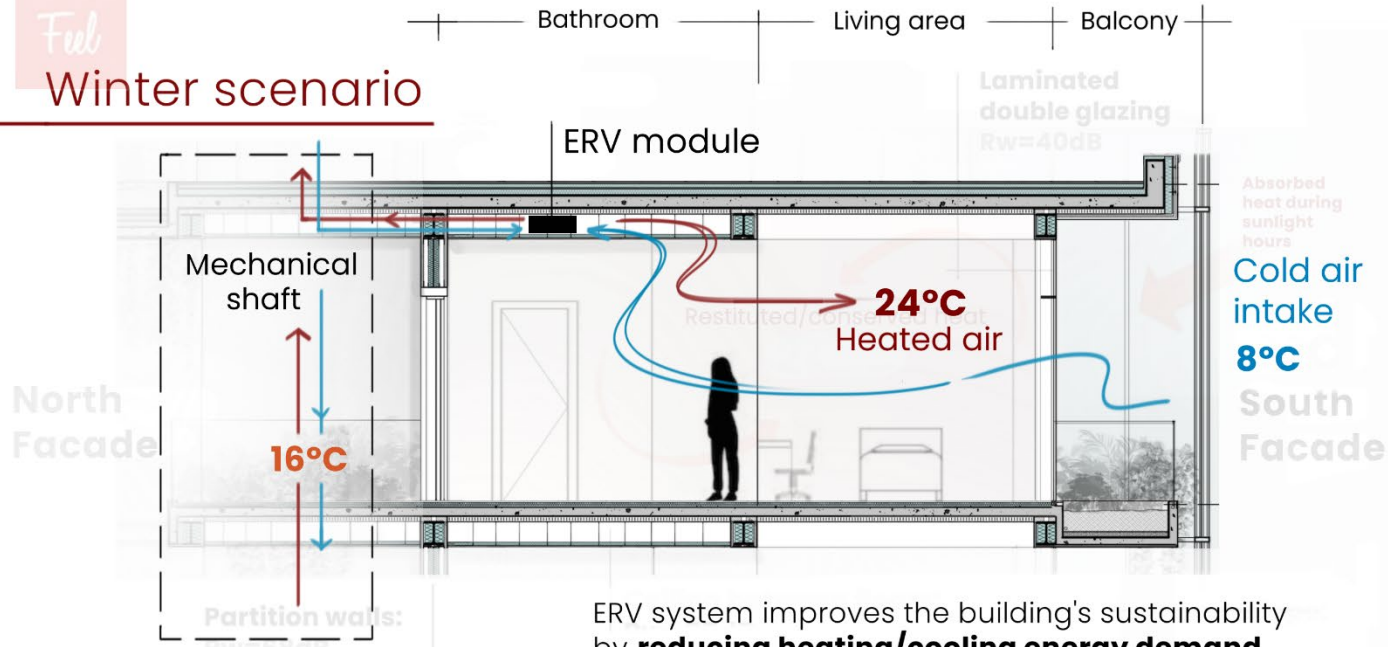


Hear



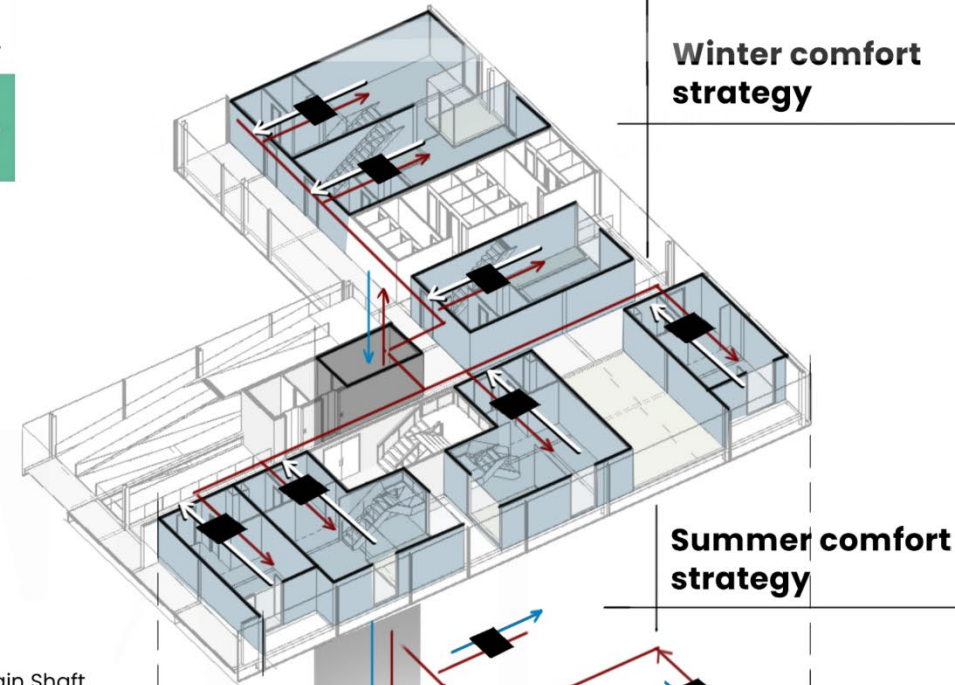
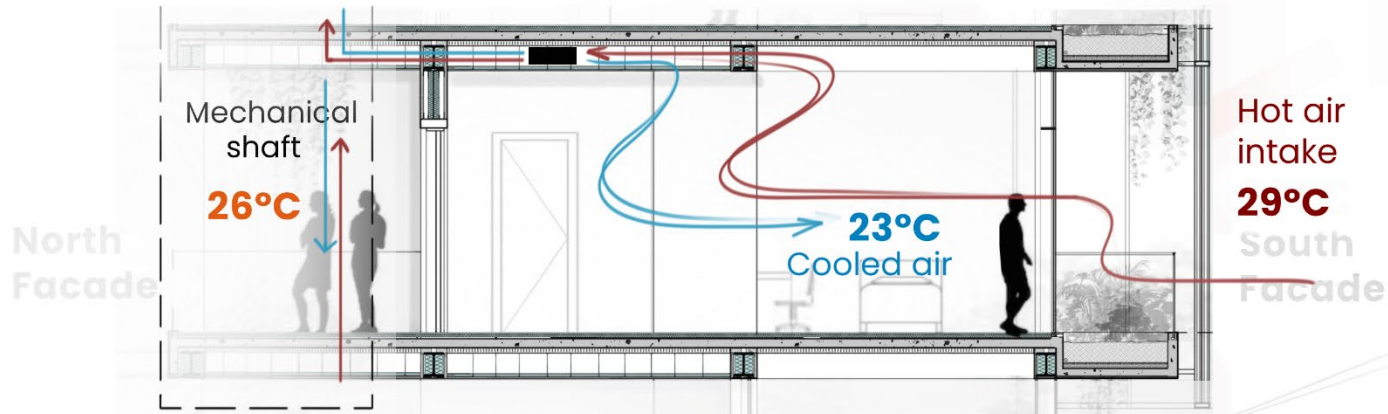
Multi-comfort: active strategy

Winter scenario



ERV system improves the building's sustainability by **reducing heating/cooling energy demand** while **maintaining indoor air quality** through efficient heat/moisture exchange.

Summer scenario



- Main Shaft
- Living modules
- ERV unit
- Hot air
- Cool air



Humidity

Maintaining balanced indoor humidity by transferring moisture



Air Quality

Filtering out pollutants and contaminants through continuous air exchange



Mold

Controlling humidity levels and preventing excess moisture buildup



Stale air

Replacing stale air with fresh outdoor air to maintain a healthier indoor environment

Life-cycle assessment

Via One Click LCA



Annual energy demand for heating : 13.95 kWh/m²

CO₂ 1 179 Tonnes CO₂e

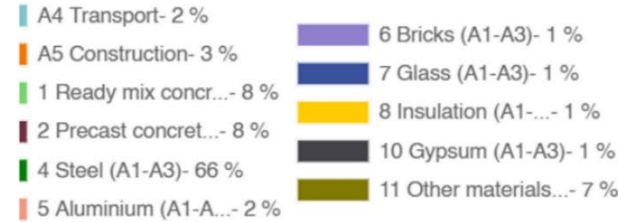
4.70 kg CO₂e / m² / year

58 955 € Social cost of carbon

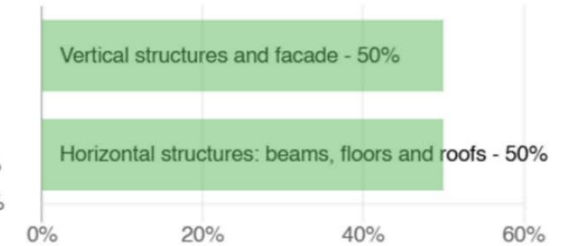
Embodied carbon benchmark

Cradle to gate impacts (A1-A3)	kg CO ₂ e/m ²
(< 263) A	393
(263-398) B	
(398-533) C	
(533-668) D	
(668-803) E	
(803-938) F	
(> 938) G	

Embodied carbon by life-cycle stage



Embodied carbon by structure - A1-A3



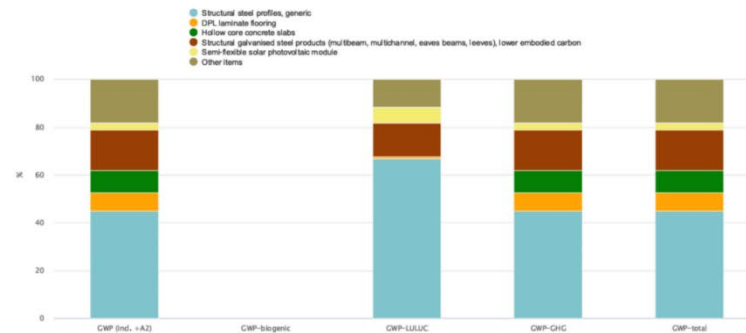
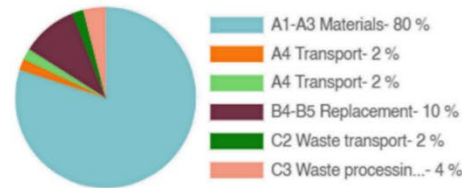
Glazing strategy:



Insulation strategy:

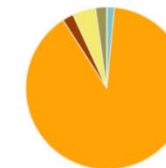


Life-cycle impact by materials

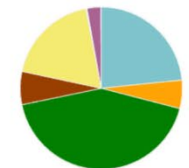


Embodied carbon by life-cycle stage

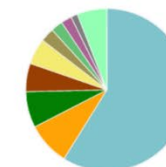
Global Warming Potential total kg CO₂e - Life-cycle stages



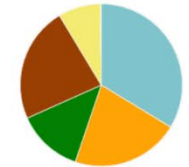
Global Warming Potential total kg CO₂e - Classifications



Global Warming Potential total kg CO₂e - Resource types



Mass kg - Classifications



Integrated sustainable systems

Low carbon lightweight structure
Active/passive building envelope
Environment-thoughtful landscaping

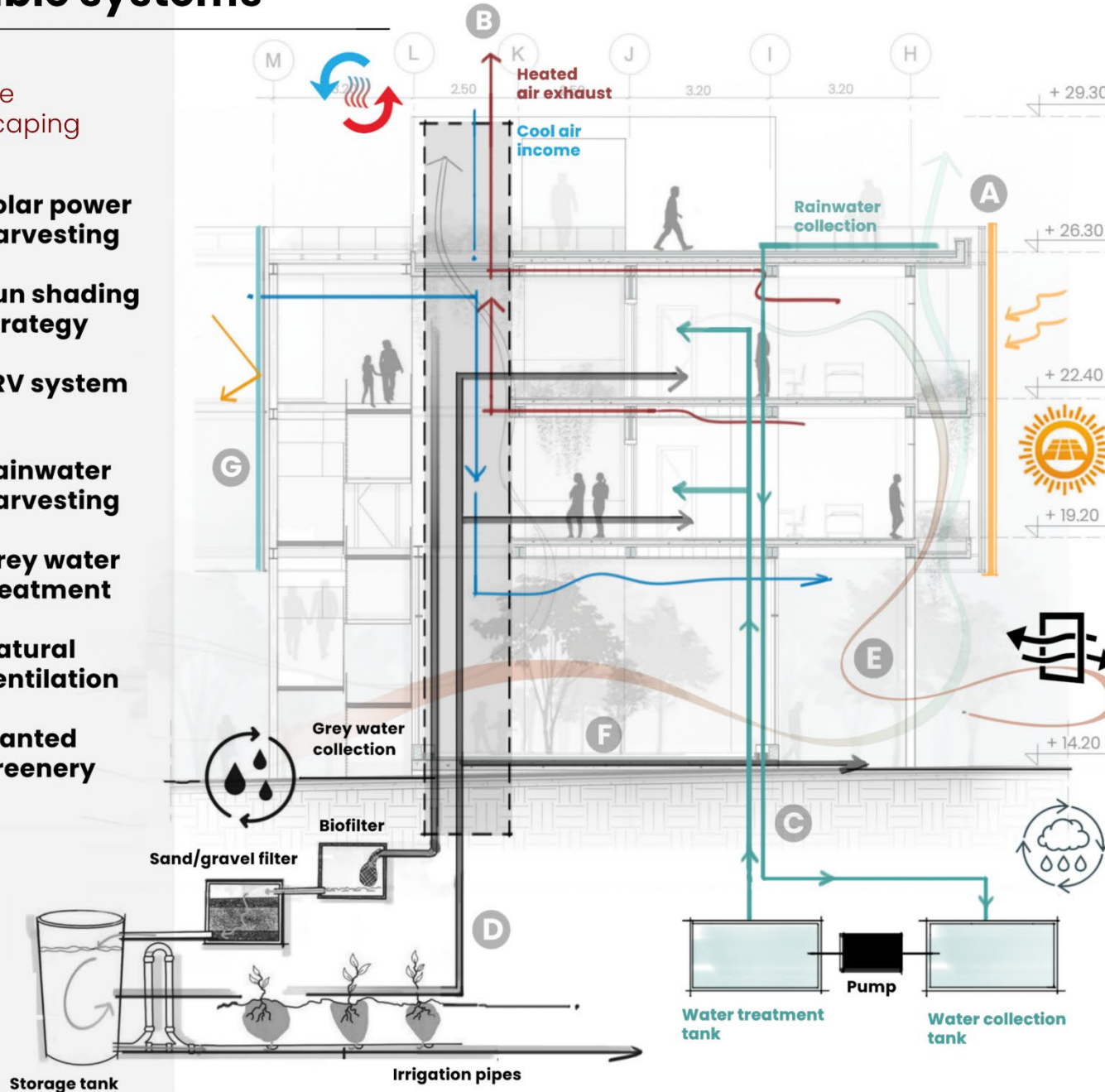
Feel
 thermal stability through insulation/energy recovery

See
 Visual comfort through adequate light regulation

Hear
 Balanced acoustic environment through adequate insulation

Breathe
 Fresh indoor air through greenery incorporation

- A Solar power harvesting**
- B Sun shading strategy**
- C ERV system**
- D Rainwater harvesting**
- E Grey water treatment**
- F Natural ventilation**
- G Planted greenery**



Energy & Carbon

Integrated systems for energy production & reducing carbon impact.

Materials & Resources

Low carbon impact, recycled/locally resourced material

Health & Safety

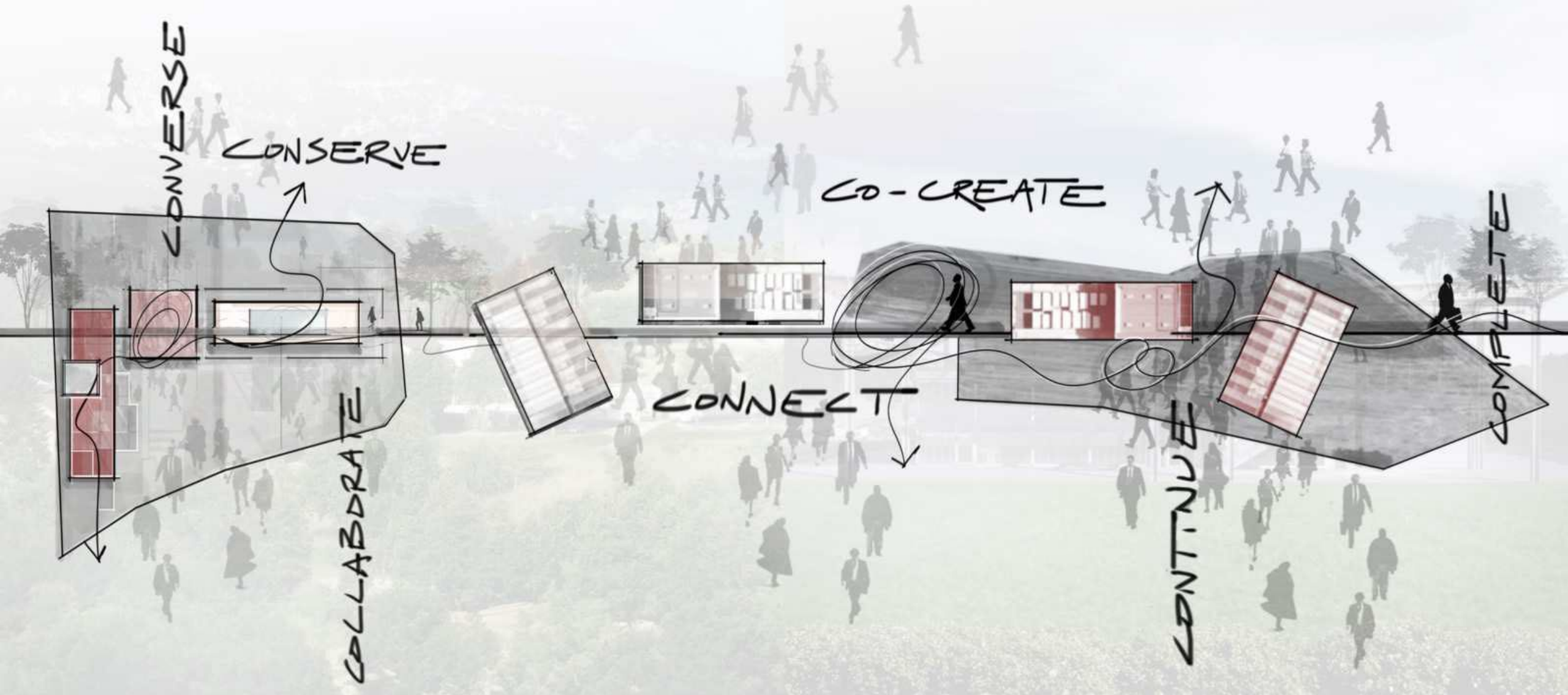
Fire safety measures through insulation, indoor/outdoor air quality

Water, Biodiversity & Local Value Creation

Water harvesting systems, strategic landscaping for biodiversity

A conceptual architectural sketch of a community layout. The sketch features a central horizontal path with several rectangular blocks of varying sizes and colors (red, grey, white) representing buildings or structures. The background is filled with faint silhouettes of people walking, suggesting a vibrant, active community. Hand-drawn labels in various orientations are scattered throughout the sketch: 'CONVERSE' (vertical, left), 'CONSERVE' (horizontal, top-left), 'CO-CREATE' (horizontal, top-center), 'CONNECT' (horizontal, bottom-center), 'COLLABORATE' (vertical, bottom-left), 'CONTINUE' (vertical, bottom-right), and 'COMPLETE' (vertical, far right). Arrows point from some labels towards specific areas of the sketch, indicating relationships or processes. The overall style is light and illustrative, typical of early-stage urban planning or architectural conceptualization.

CONCLUSION : A COMMUNITY OF COMMUNES
CONNECTING PAST, PRESENT AND FUTURE



LYON

CONVERSE

CONSERVE

PAST

PRESENT

CO-CREATE

FUTURE

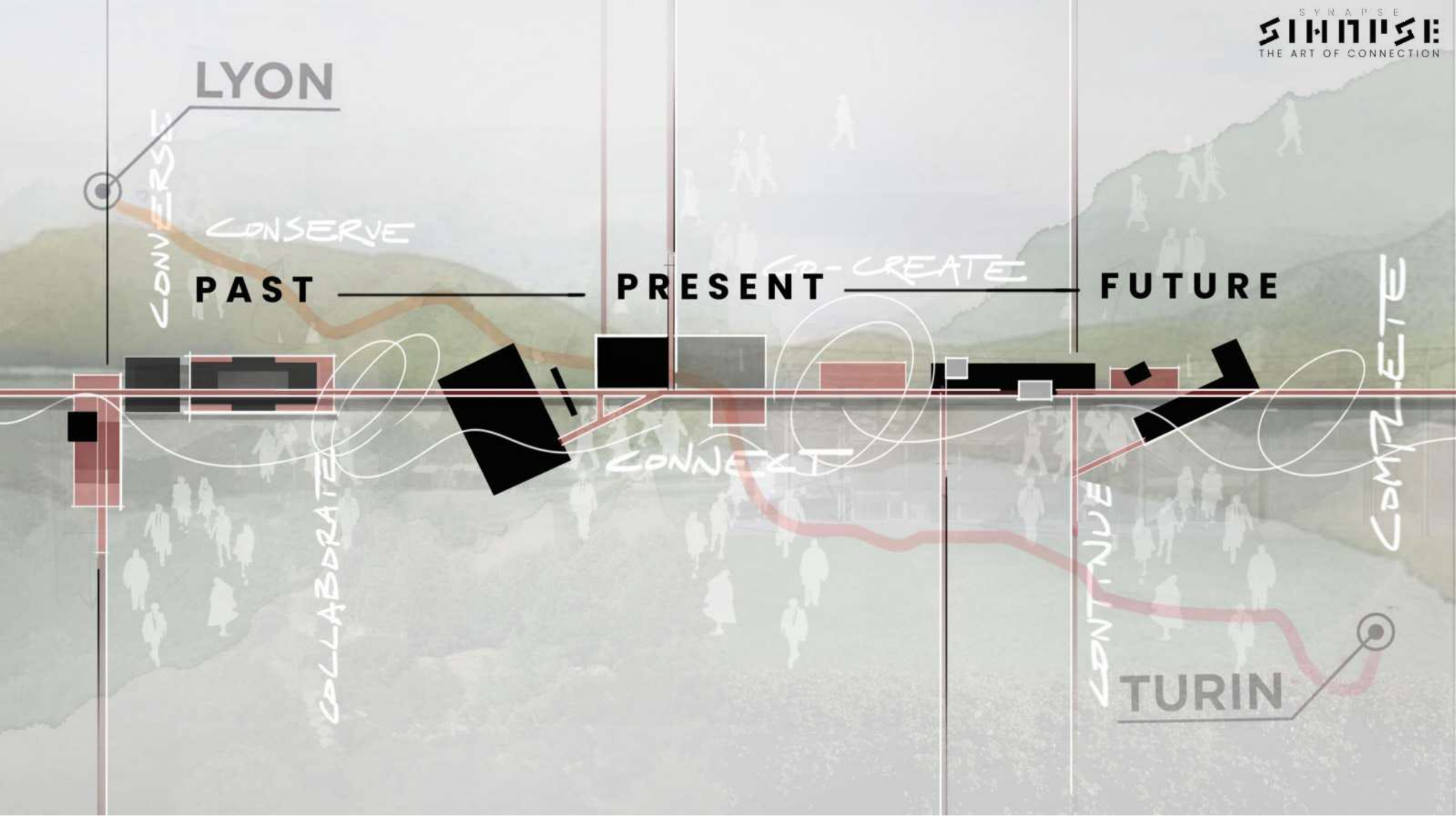
CONNECT

COLLABORATE

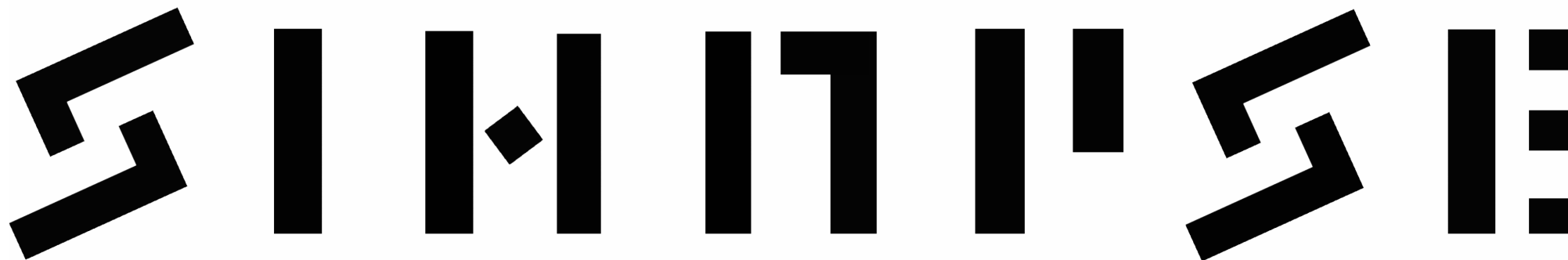
CONTINUE

COMPLETE

TURIN



S Y N A P S E



THE ART OF CONNECTION