Re:Flow

Lyon-Trino Railway

- Has a role in delivering goods and people
- Generates flow of people from urban to rural areas

Lyon

Urban area and diverse population

Chimilin

Traditional Architecture and Agriculture

Villefontaine

Creation and Ecosystem

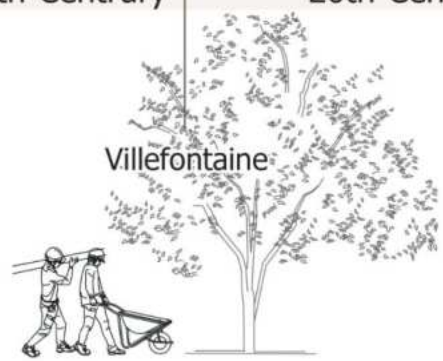
Trino

Historical and Industrial Innovation

Primary Industry — Gallo-Roman Period — Middle Ages

Secondary Industry — 19th-Centrury — 20th-Century

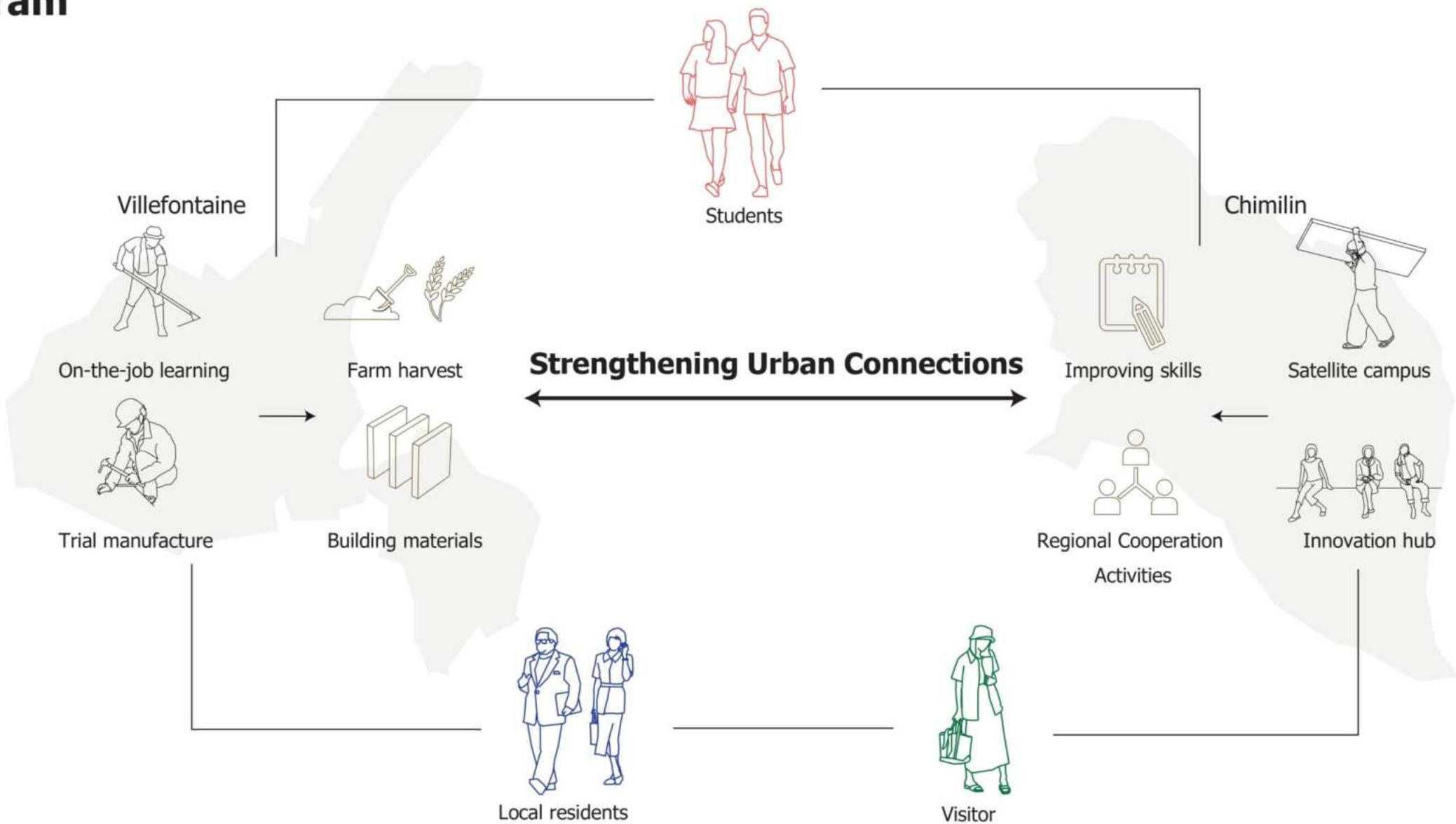
Tertiary Industry — Modern Times

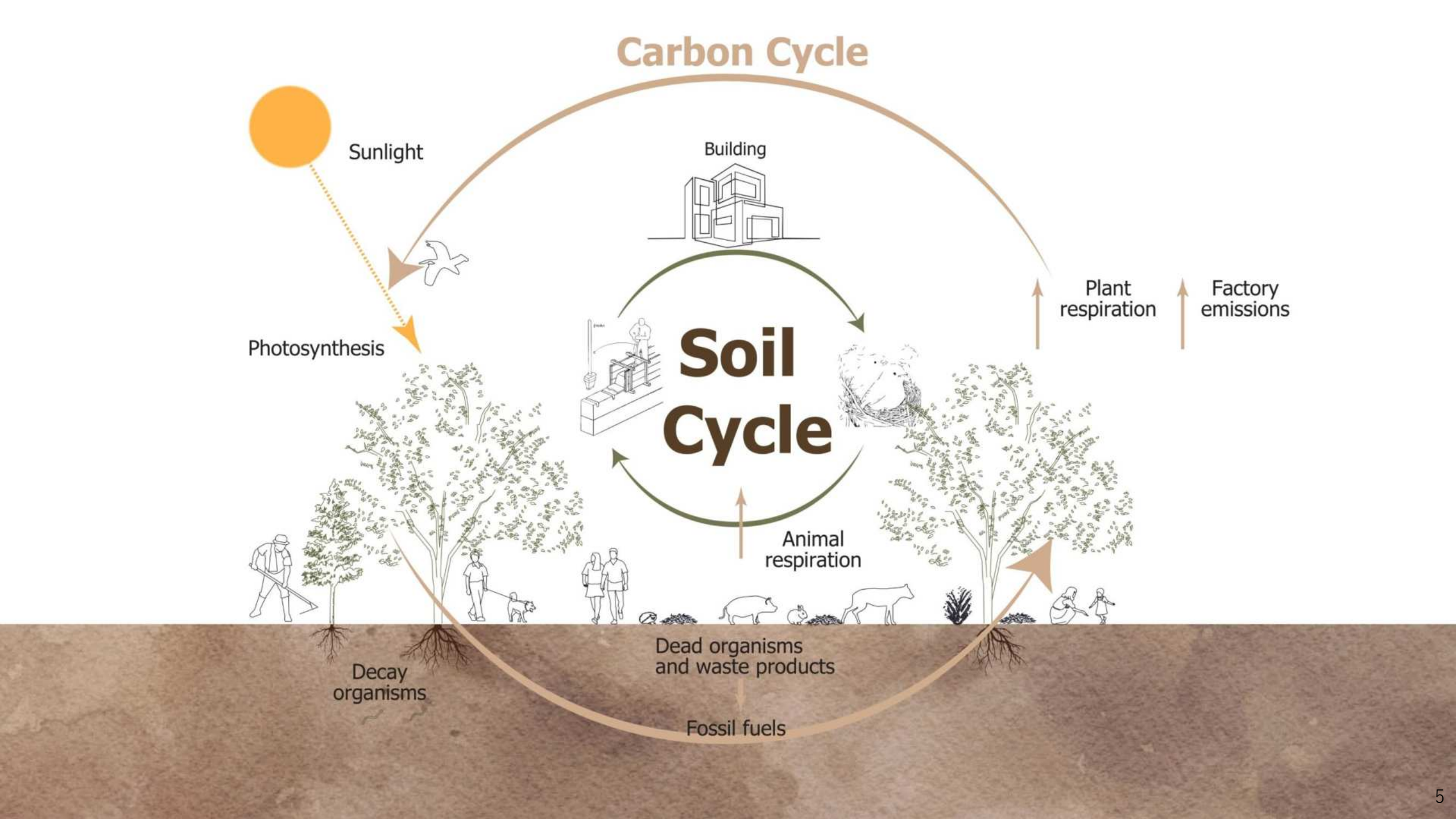


Re:FloW

Modern cities have been transformed by the concentration of economic, human, and resource flows, and by the "tourist-ization" of local production and landscapes for consumption. We propose a countermeasure to this trend from the perspective of "circulation" generated by local primary and secondary industries and architecture.

Program

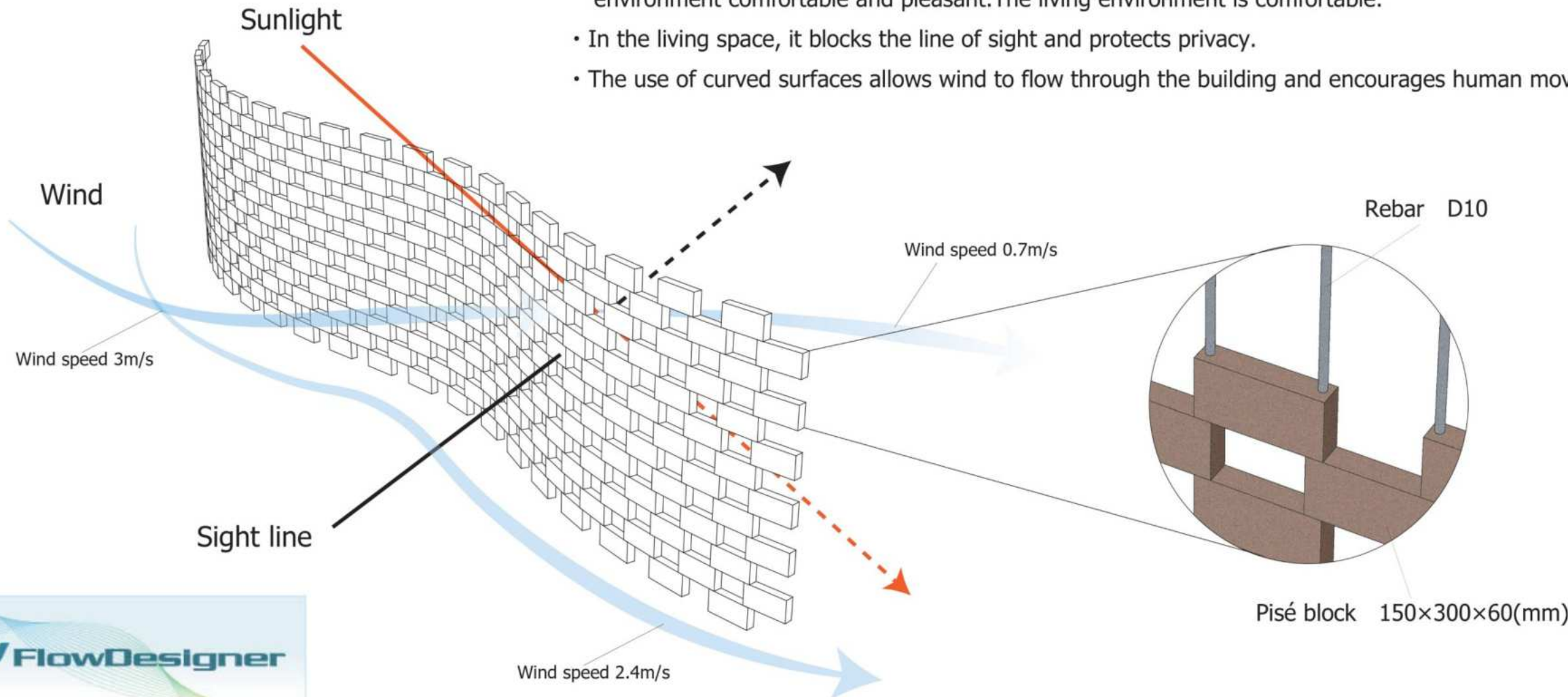

Students
Villefontaine
Chimilin
On-the-job learning
Farm harvest
Strengthening Urban Connections
Improving skills
Satellite campus
Trial manufacture
Building materials
Regional Cooperation Activities
Innovation hub
Local residents
Visitor


Carbon Cycle
Sunlight
Building
Photosynthesis
Soil Cycle
Plant respiration
Factory emissions
Animal respiration
Decay organisms
Dead organisms and waste products
Fossil fuels

Use of Pisé

Points

- The use of cement allows the soil to be returned to the ground.
- The brick walls of the pisé wall allow for a gentle ventilation and solar radiation, making the living environment comfortable and pleasant.The living environment is comfortable.
- In the living space, it blocks the line of sight and protects privacy.
- The use of curved surfaces allows wind to flow through the building and encourages human movement.



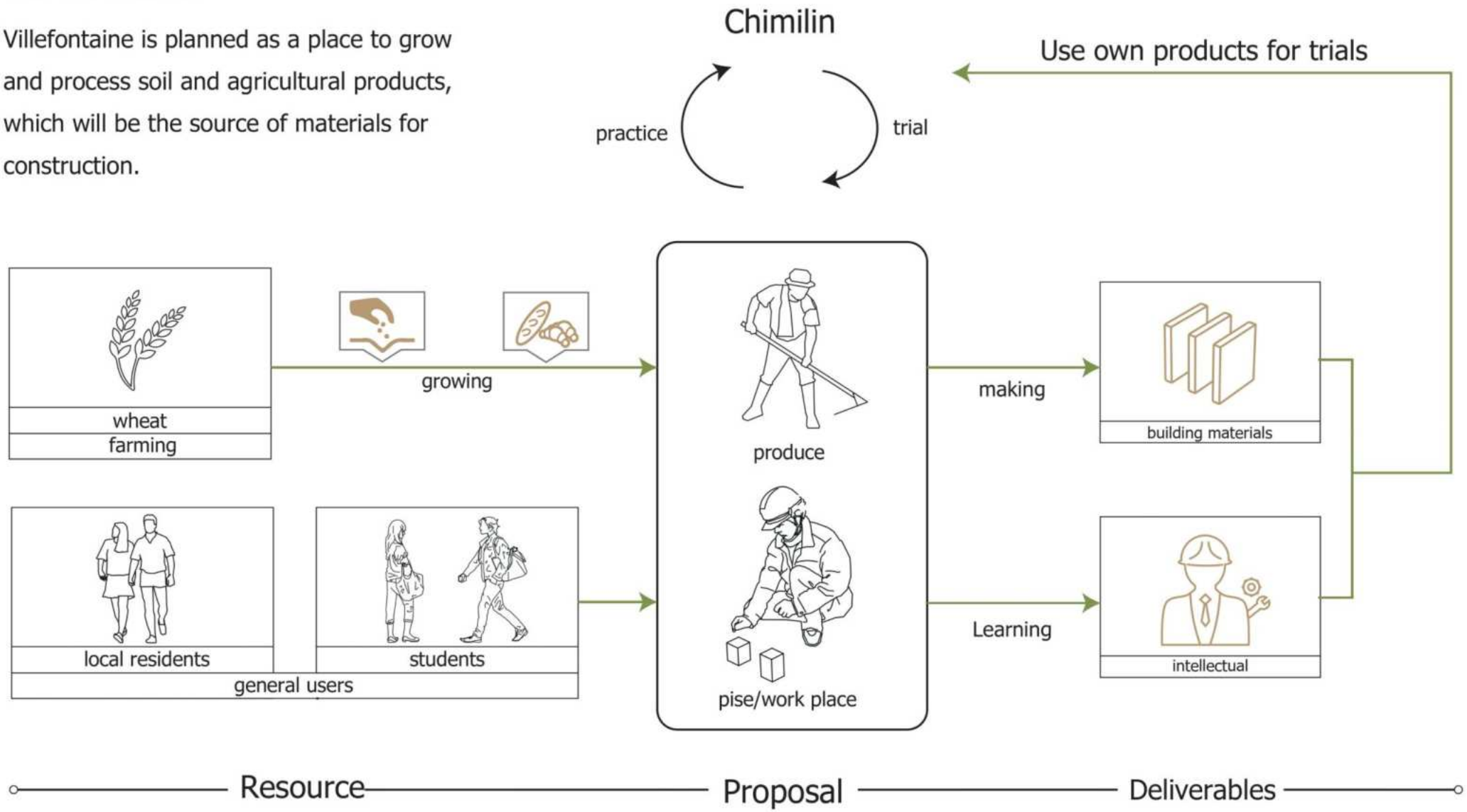
FlowDesigner

Building B - Co-Creation Lab

Villefontaine program

Villefontaine

Villefontaine is planned as a place to grow and process soil and agricultural products, which will be the source of materials for construction.



Master Plan

Office Room

Co-Creation Lab

Biotope

Restaurant

Medical Clinic

Astus

Les Grands Ateliers

Boiler Room

Bakery

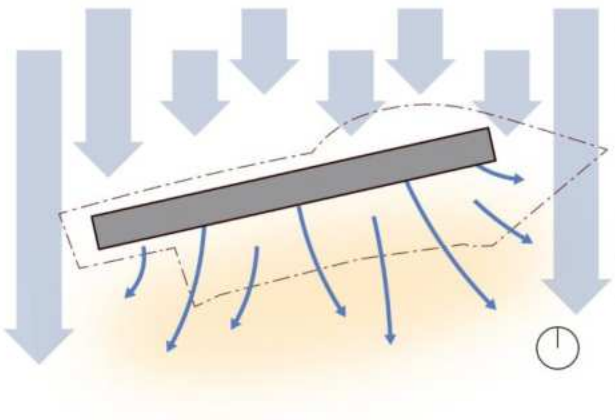
Dormitory

N

0 10 30 60 120 200(m)

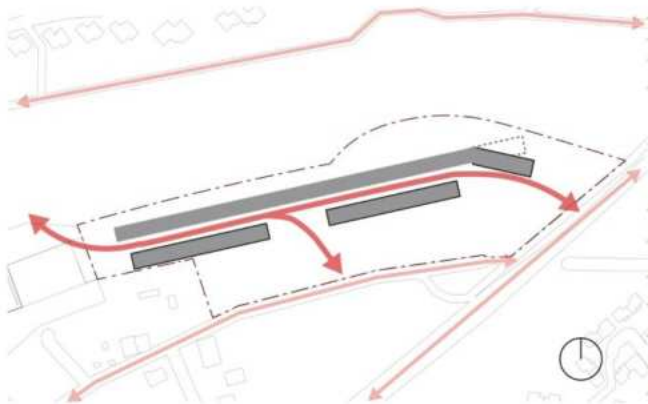
Massing Diagram

1 Wind × Flow



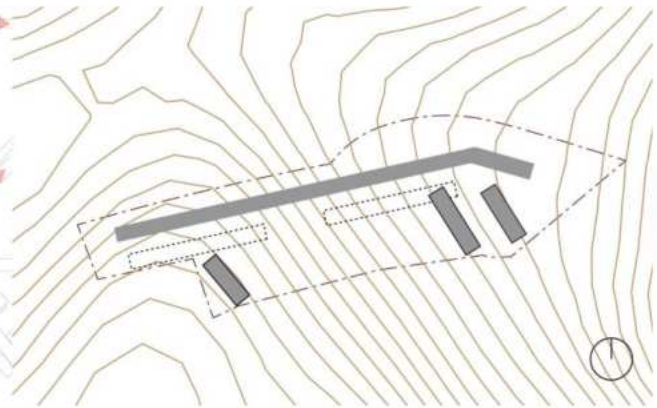
In Nord-Isère, the wind blows mainly from the north throughout the year. Building on the north side of the site created a comfortable space for people and crops for the wind to enter the site.

2 People × Flow



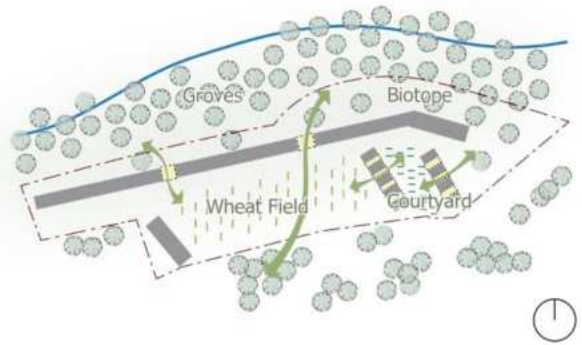
Passing flow lines through the centre of the site.Creating flow lines that allow people more flexible activities on a large site stretching from east to west.

3 Land × Flow



Environmental considerations were made so as not to destroy the original form of the site.In order to make use of the rich topography, volumes were manipulated along contour lines.

4 Green × Flow



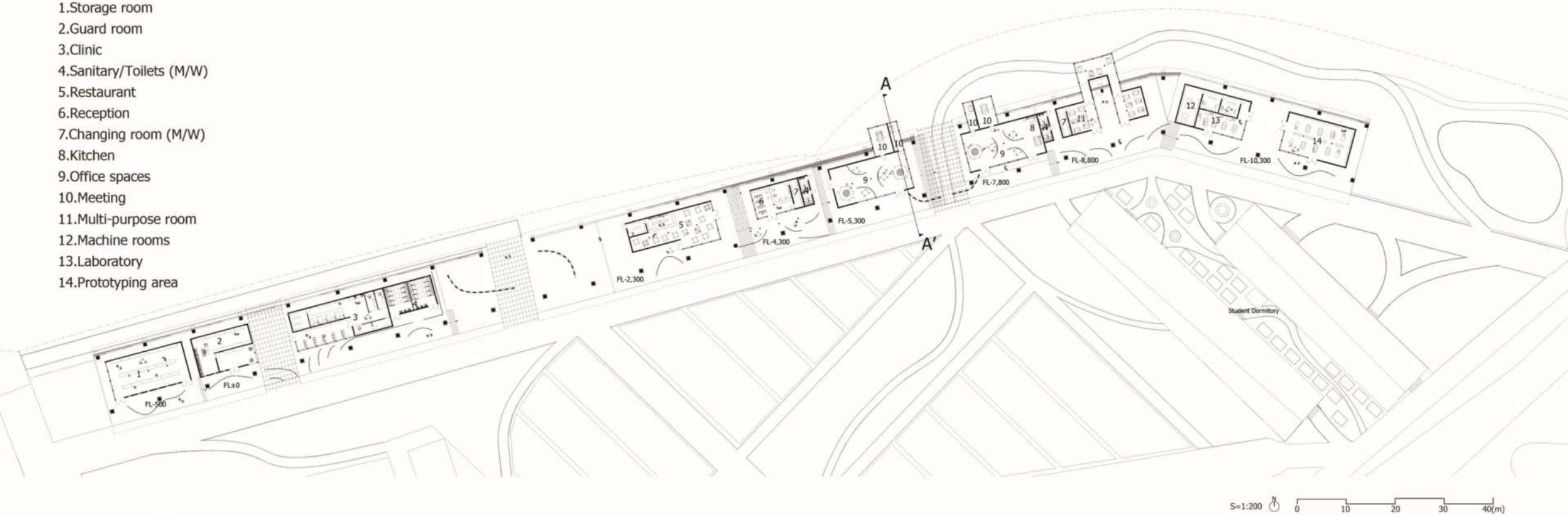
Gaps have been created in the building to connect the diverse ecosystems of Nord-Isère with people's activities. Environmental elements such as light and wind passing through the gaps provide an opportunity for users to experience the natural environment.

Building B -Plan

Co-Creation Lab

Ground floor plan

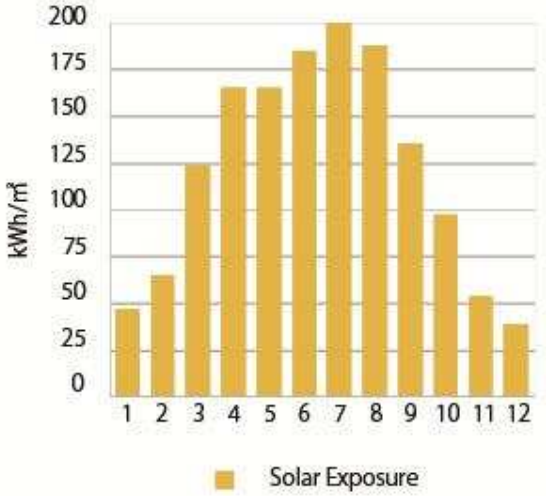
1.Storage room
2.Guard room
3.Clinic
4.Sanitary/Toilets (M/W)
5.Restaurant
6.Reception
7.Changing room (M/W)
8.Kitchen
9.Office spaces
10.Meeting
11.Multi-purpose room
12.Machine rooms
13.Laboratory
14.Prototyping area



South Elevation

Building B - Section

Co-Creation Lab



1,465 kWh / m² - year

- Plan with energy efficiency and light access in mind
- Optimized for visual and thermal comfort and other user health metrics

Sunlight

10

5

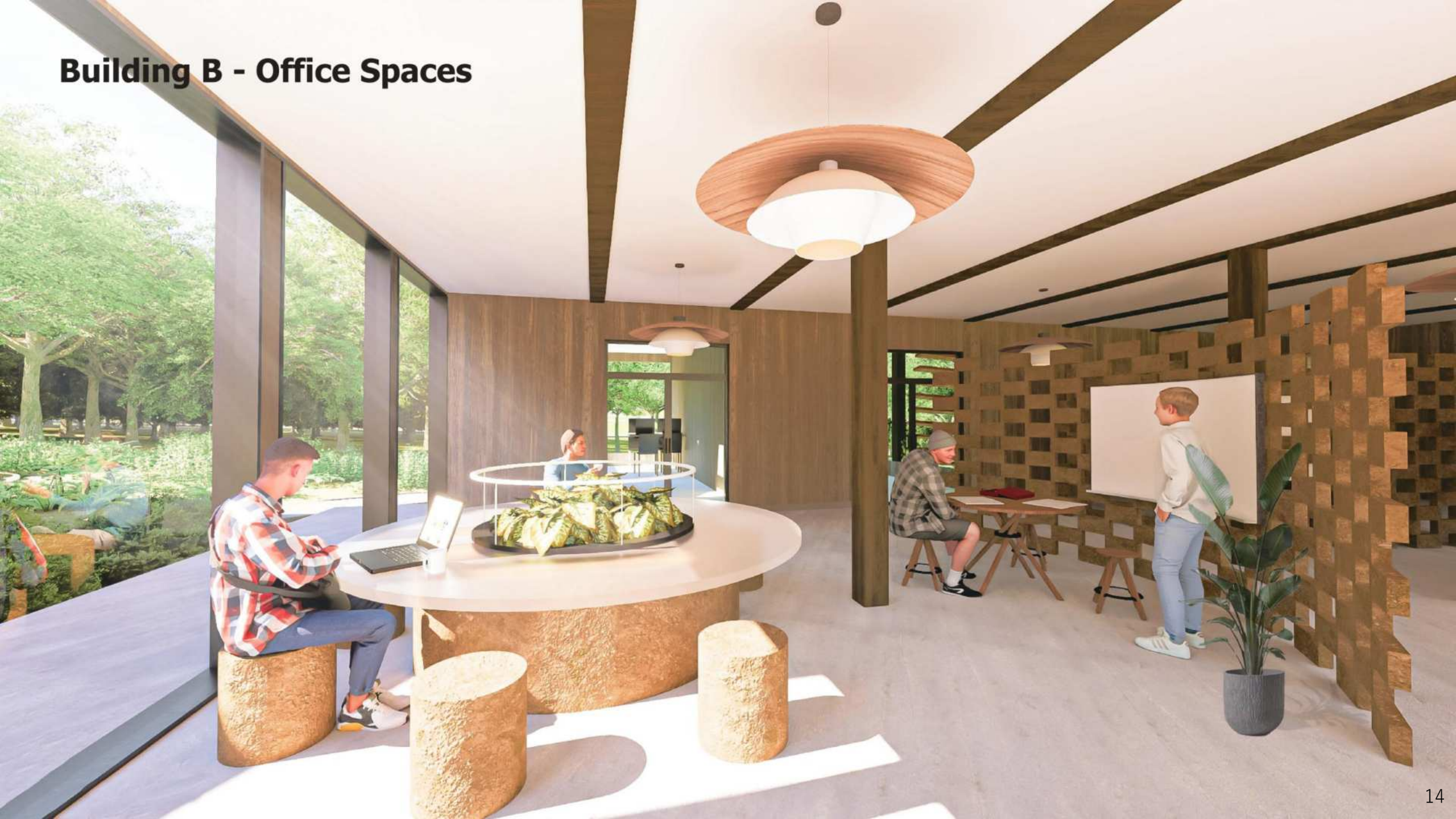
Rainwater Flow

A-A' Section 1/100 0 2.5 5 10m

ClimateStudio

Building B - New Construction for Residential Function in Campus Location

Building B - Office Spaces



Building B - Student Dormitory

Building B -Plan

Student dormitory

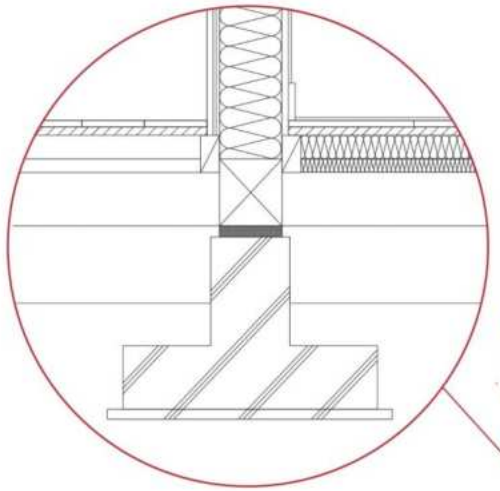
Ground floor plan

1.Single room
2.Double room
3.Six-person dormitory
4.Eight-person dormitory
5.Toilet and shower
6.Farm tool storage

South Elevation

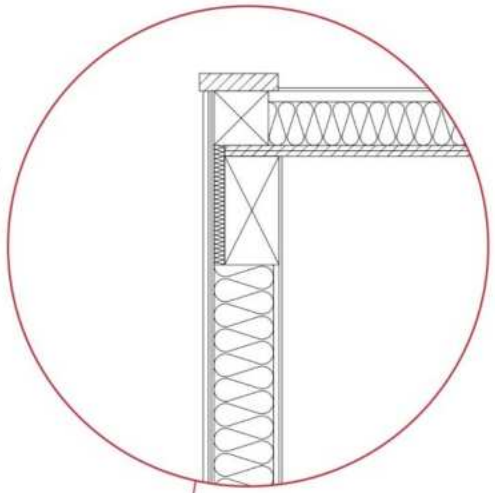
Building B - Detailed Cross Section

Student dormitory



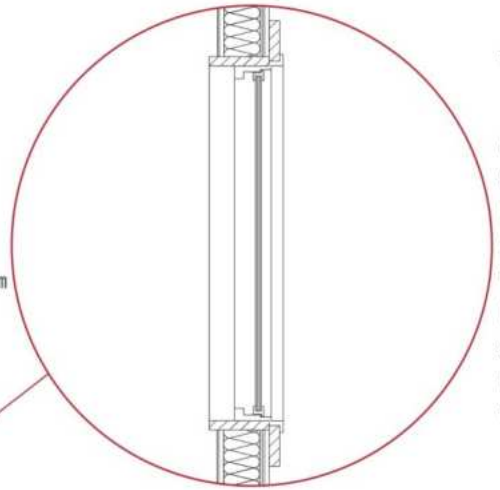
Inner Floor

Wood Flooring : 12 ㎜
Structural Plywood : 24 ㎜
Wood : 45 ㎜
Isover Standard : 150 ㎜
Wood:105 ㎜



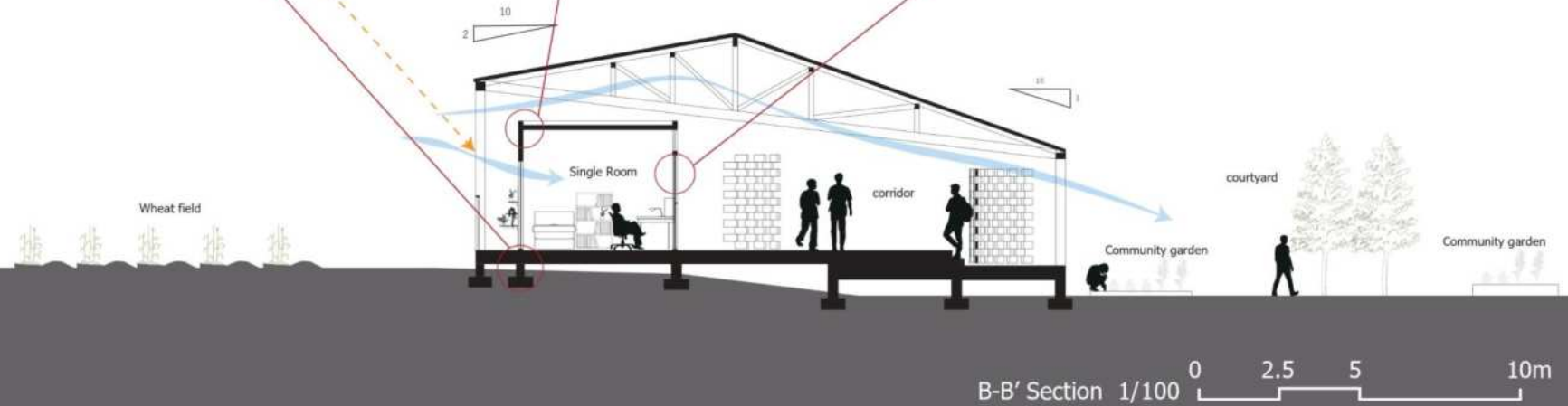
Outer Wall

Wood siding : 18 ㎜
Structural Plywood : 9 ㎜
Hard urethane : 70 ㎜
Wood:120 ㎜
Izover Barrio Extra Safe : 120 ㎜
Plasterboard : 12 ㎜



Window

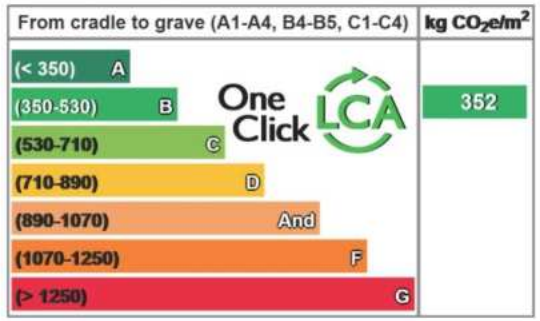
Glass
Saint gobain Low-E glass
ECLAZ3 + FL3 + ECLAZ3
Ug=0.512w/m²k
Wooden sash
Ug=2.15w/m²k
Spacer
Ug=0.029w/m²k
Visible trarsmittance:70.90%



B-B' Section 1/100 0 2.5 5 10m

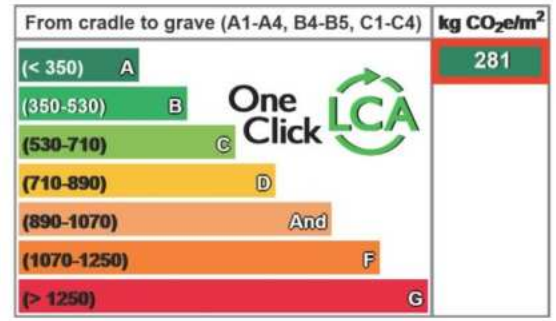
Life Cycle Assessment

Solid foundation

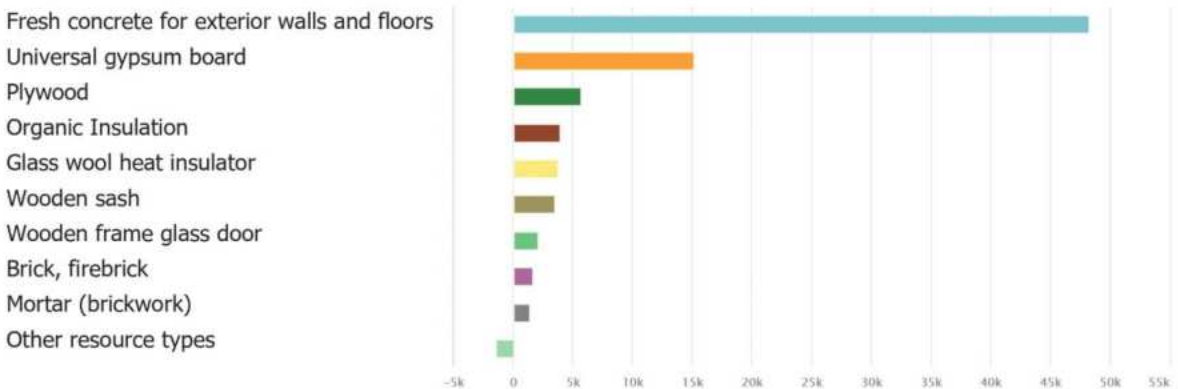


-71 kg CO_2e/m^2

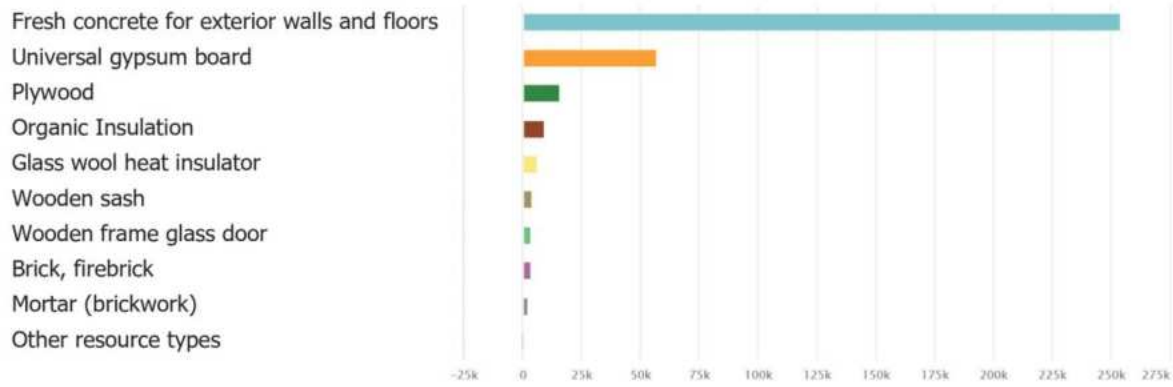
Fabric foundation



Total global warming potential kg CO_2 Resource type



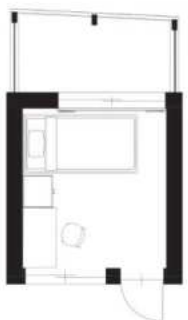
Total global warming potential kg CO_2 Resource type



From a solid foundation to a cloth foundation
Reduce LCA CO_2 emissions while reducing the amount of concrete

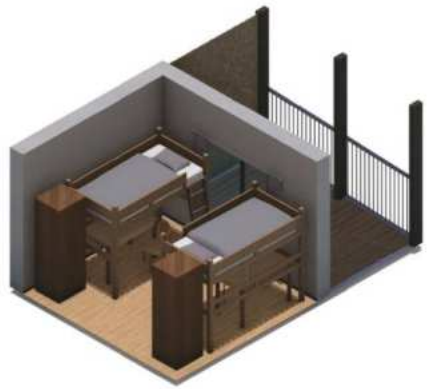
Unit

Single room



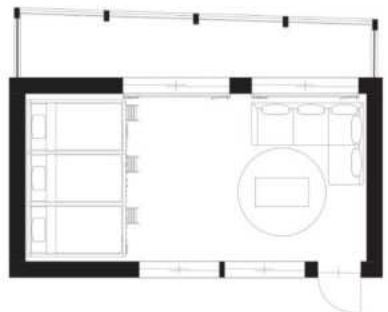
10m²

Double room



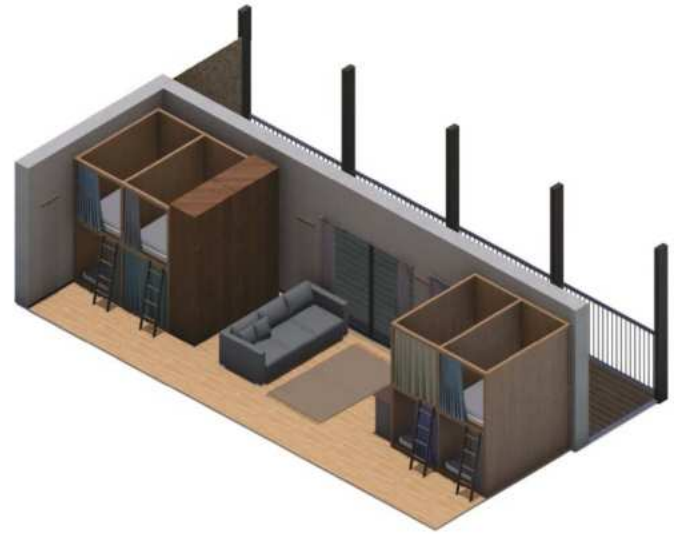
12m²

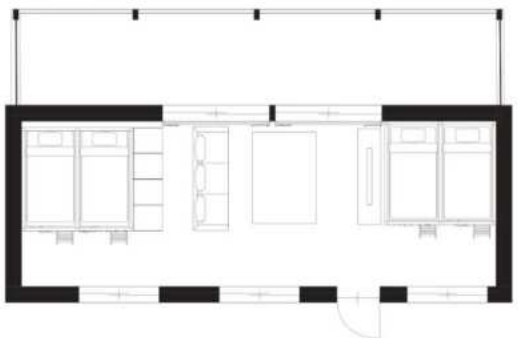
Dormitory for 6 persons



25m²

Dormitory for 8 persons





30m²

Building B - Student Dormitory

Single room

Double room

Building B - Student Dormitory

Dormitory for 6 persons

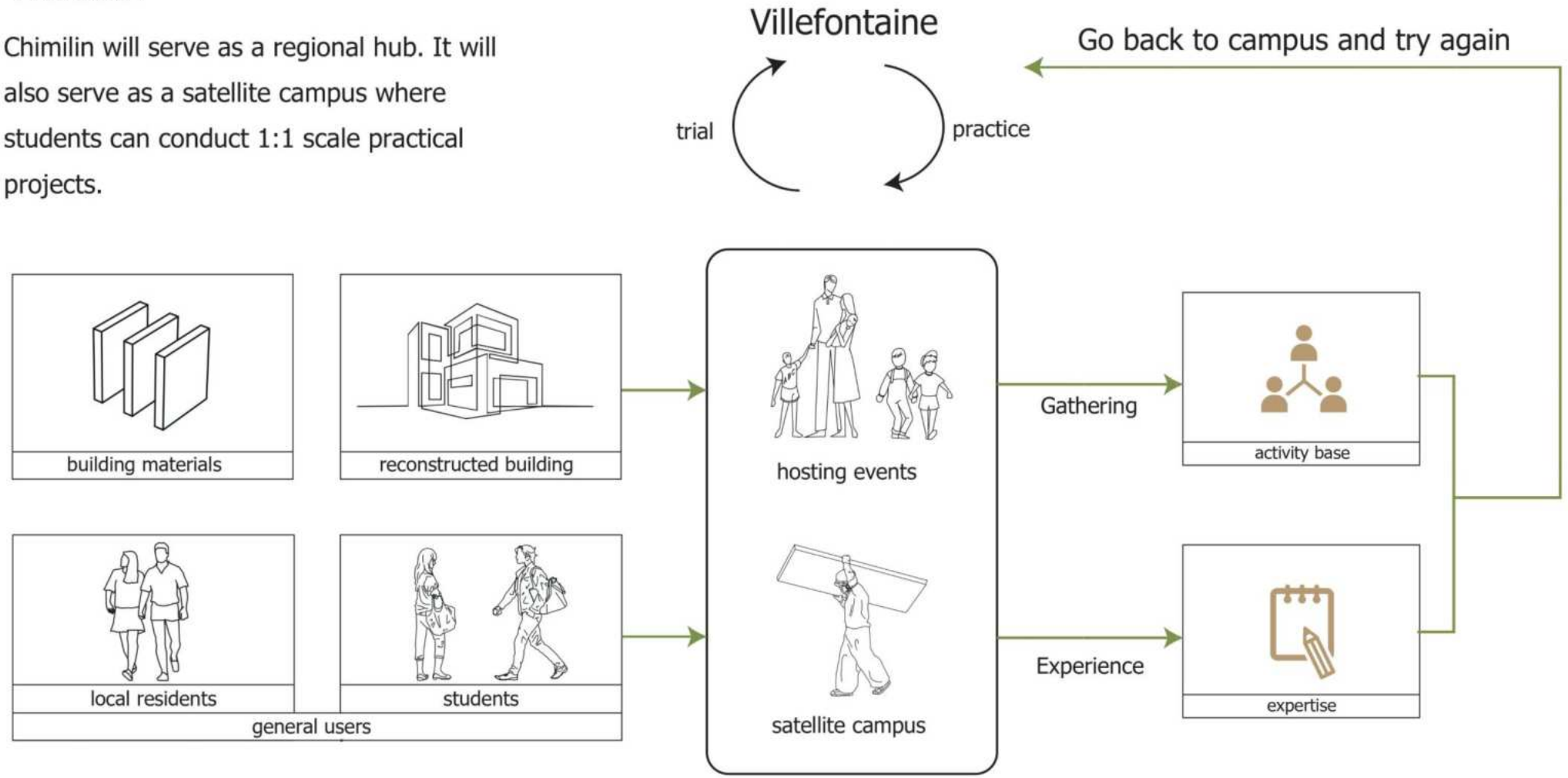
Dormitory for 8 persons

Building A - Renovation

Chimilin Program

Chimilin

Chimilin will serve as a regional hub. It will also serve as a satellite campus where students can conduct 1:1 scale practical projects.



Master Plan

Outdoor Gallery

Cafeteria

Administration Office

Meeting Room

Workshop

Terrace

Local store

N

0 10 30 60(m)

Renovation program

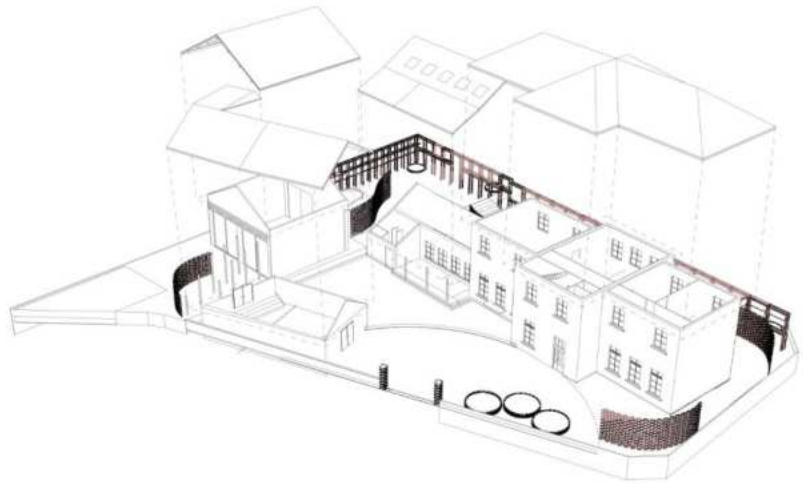
DEMOLISHED

The site includes an abandoned school and two garages with all of the walls made of pisé. The inner walls separating the rooms are demolished to make room for a new use of the space.

URGRADE

The roof and windows will be renovated to improve the usability of the existing building. For site circulation, the roof was extended from the existing portion to connect to the west side of the site, and a terrace was placed on the front plaza. Skylights were installed to bring in light from above. The windows are triple-skinned to enhance the thermal insulation inside the building.

NEW



An outdoor extension will be built to serve as a satellite campus and regional hub. The plaza in the northern part of the site will be used for 1:1 scale learning and events as a regional hub. A partition made of bricks made of pisé was planned to create a circular flow line.

BUILDING A - Plans

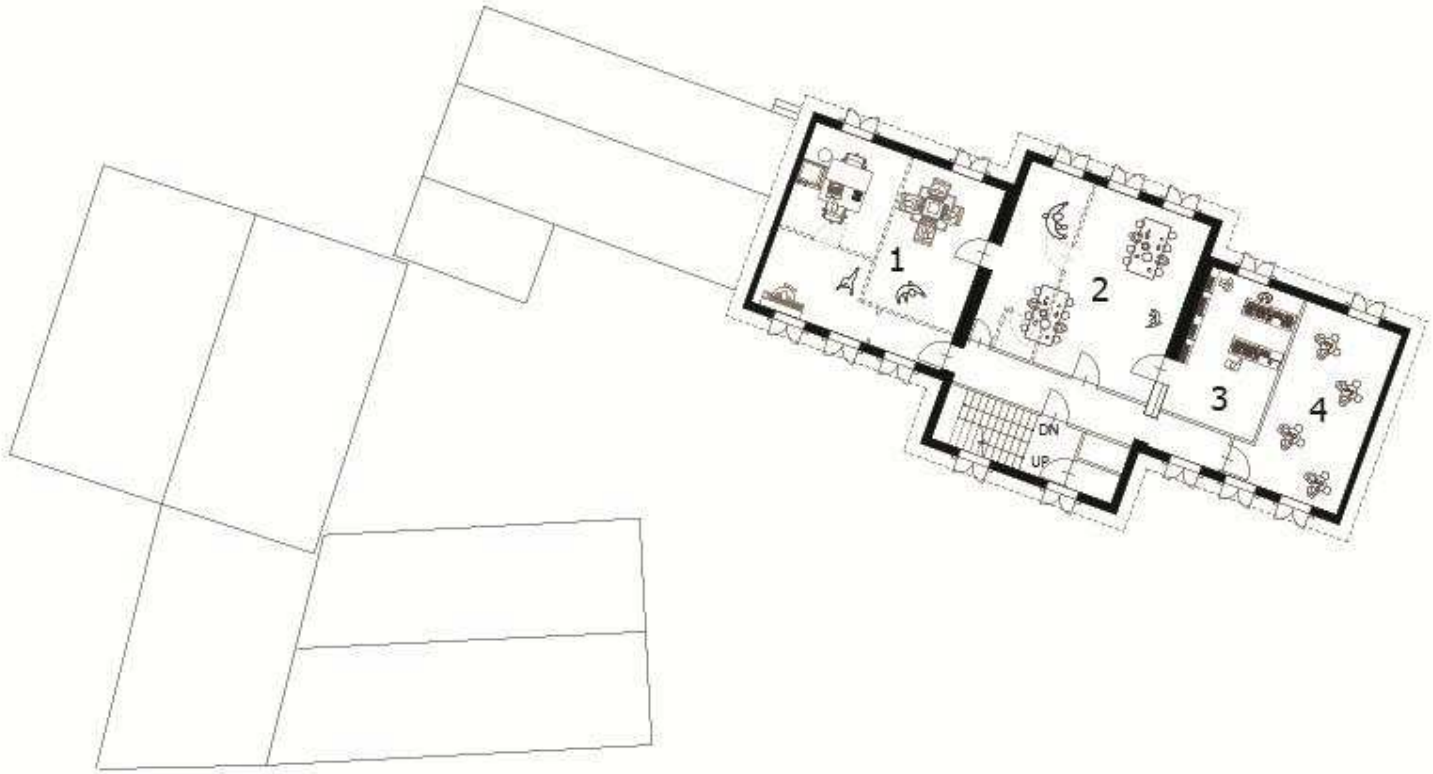
B1-0F Plan

1.Selectshop
2.Grass garden
3.Workshop
4.Toilet
5.Playroom
6.Terrace
7. Cafeteria
8.Kitchen
9.Administration Office
10.meeting room
11.Storage room

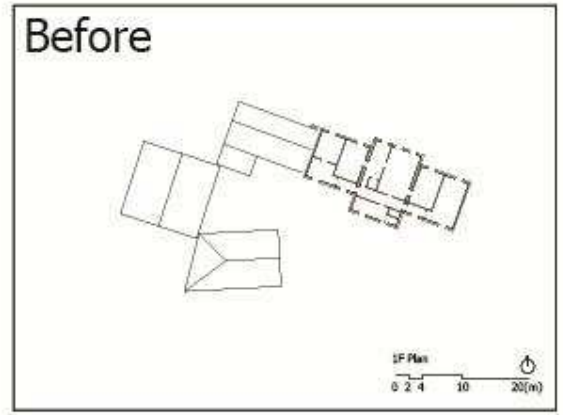
Building A - Plan

1F Plan

1.Playroom
2.Meeting room
3.Storage room
4.meeting room



Before

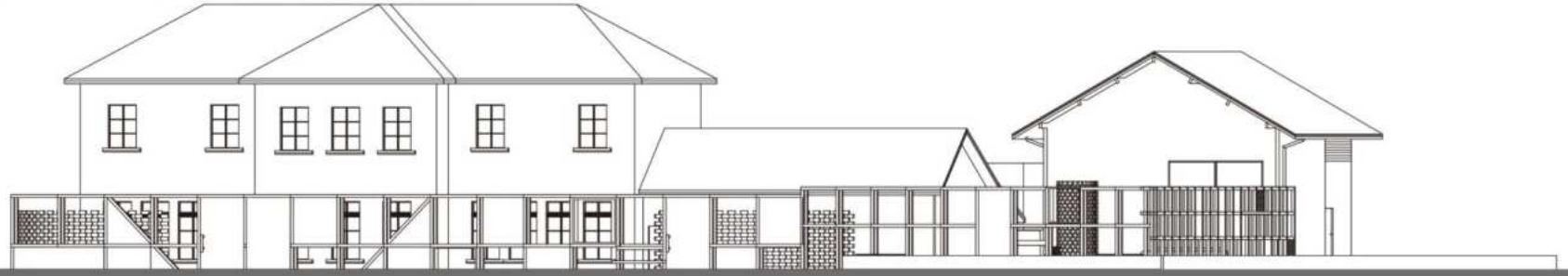


N

S=1:200

0 2 4 10 20(m)

Building A - North Elevation



Elevation 1/100 0 2.5 5 10m

- Repair of cracks in wall
- 1 : 1 project
- Urban innovation hub

Glass
Saint gobain Low-E glass
ECLAZ3 + FL3 + ECLAZ3
Ug=0.512w/m²k

Wooden sash
Ug=2.15w/m²k

Spacer
Ug=0.029w/m²k
Visible trarsmittance:70.90%

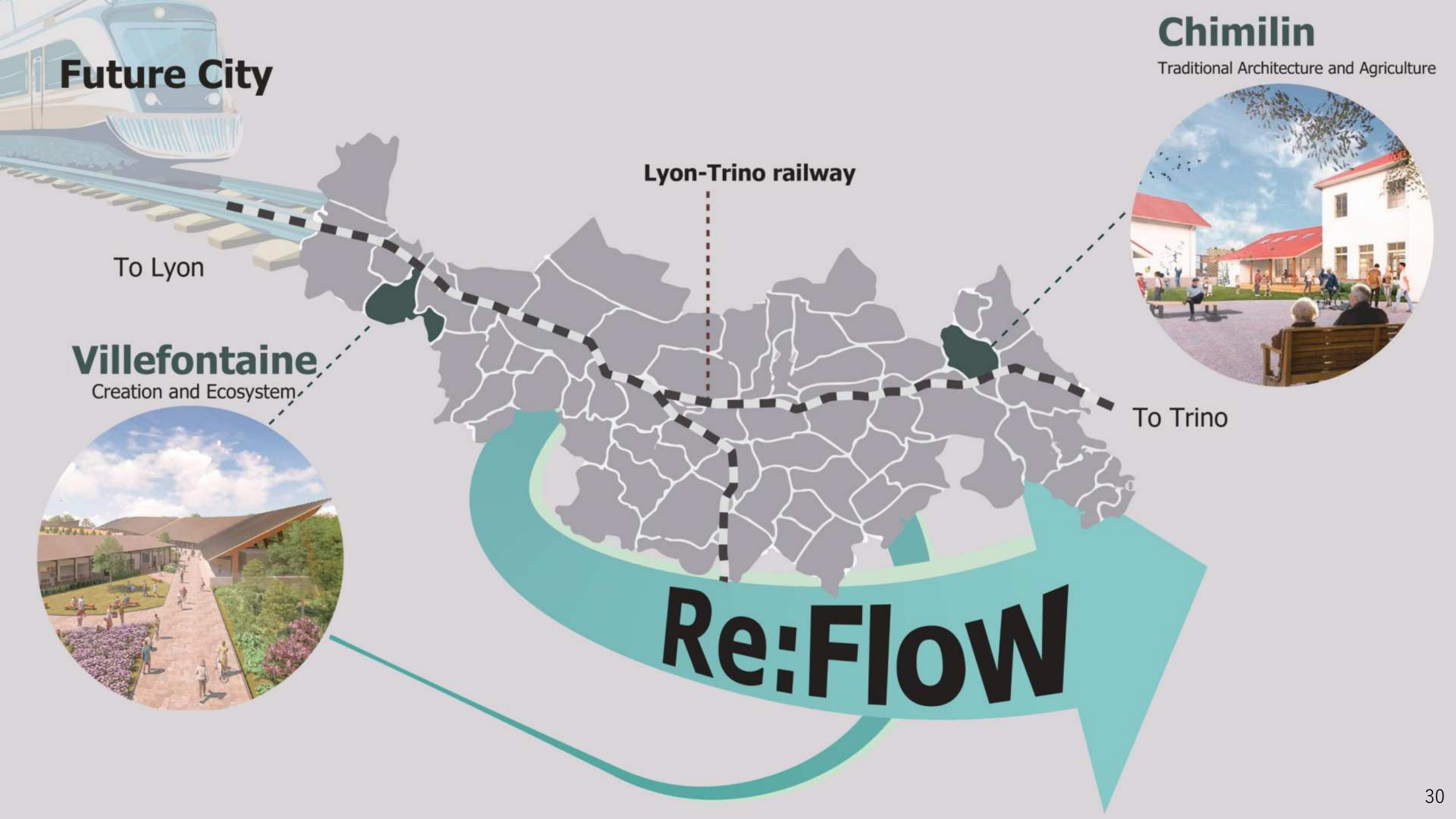
SAINT-GOBAIN

Soil

Wood

Elevation Program 1/50 0 1.25 2.5 5 m

Building A - Renovation


Future City
Chimilin
Traditional Architecture and Agriculture
Lyon-Trino railway
To Lyon
Villefontaine
Creation and Ecosystem
To Trino
Re:FloW