

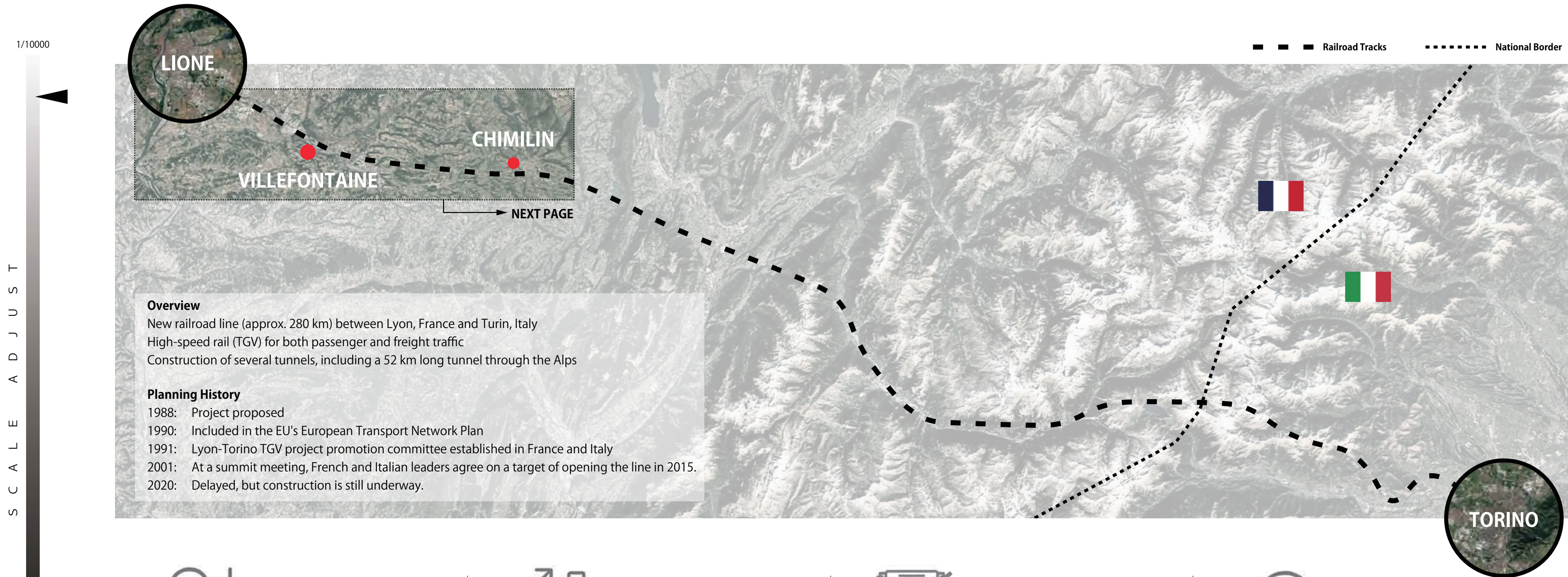


RE: PUBLIC  
→ BRICK





# 1. SITE ANALYSIS - About the Lyon / Torino Railway -



## Environmental Protection

Reduction in the use of private cars and trucks, resulting in reduction of exhaust emissions and CO2 emissions.



## Economic & Regional Development

The construction of the rail line will bring tourists and goods to the small villages located along the line, thus acclimatizing them to the economic activities concentrated in the large cities.



## Transportation Efficiency

Increased rail capacity and piggyback transportation will improve the overall performance of freight transportation.

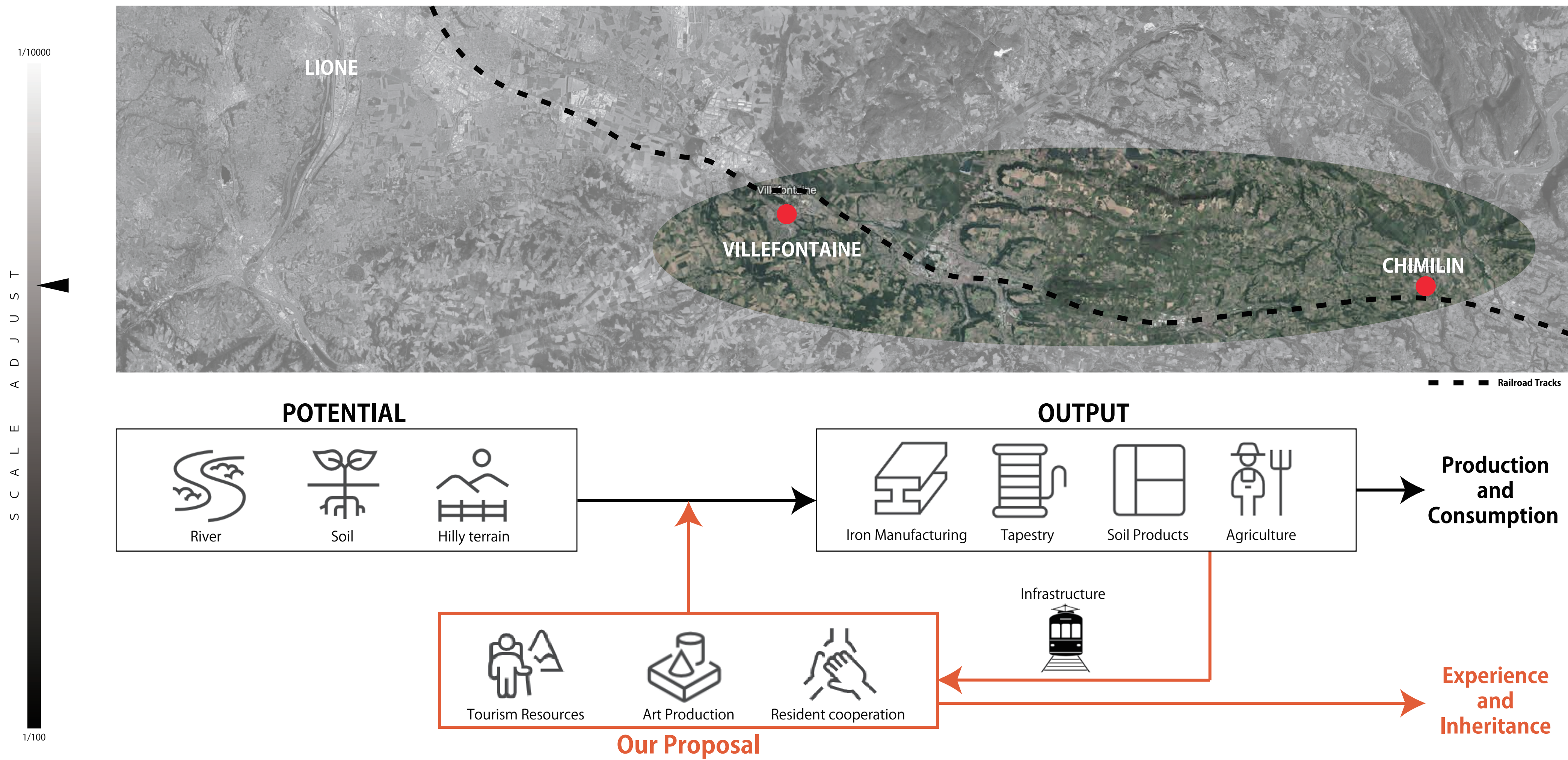


## Travel Time Reduction

Shorter travel times between France and Italy will lead to greater efficiency and increased ridership.

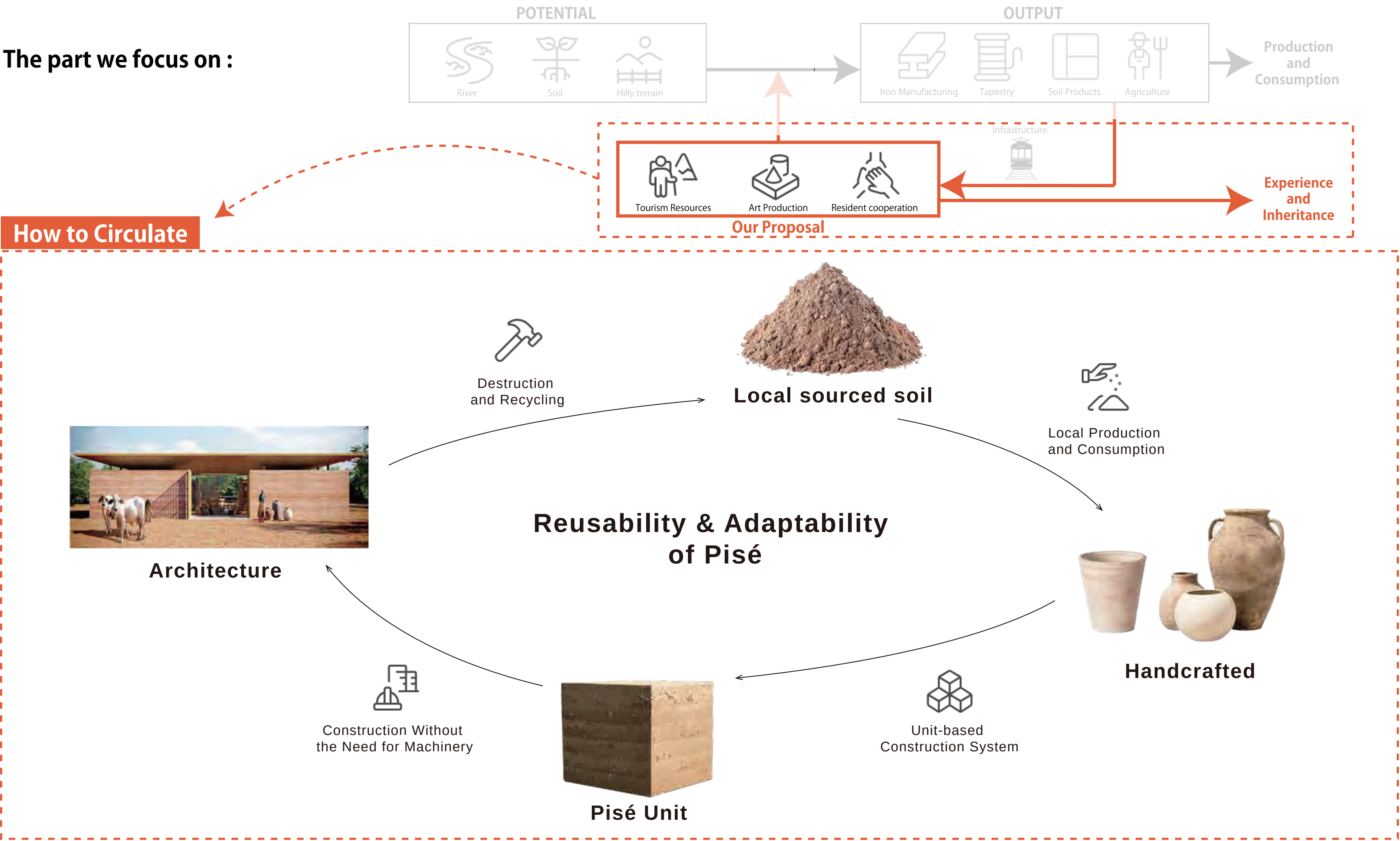


1. SITE ANALYSIS - For the 2 subject sites -





# 1. SITE ANALYSIS - Reuse Cycle of PISE -



1/10000

S C A L E A D J U S T

1/100

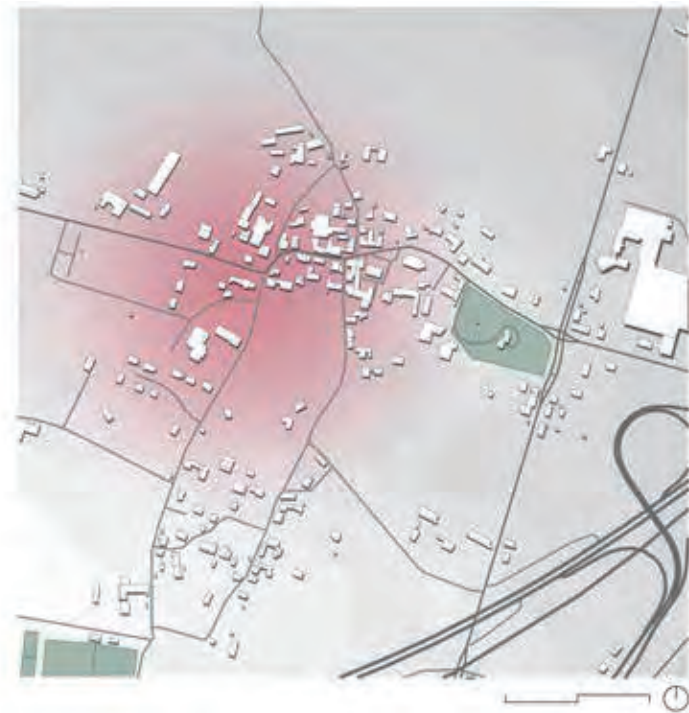


# 1. SITE ANALYSIS - Environmental Analysis -

1/10000

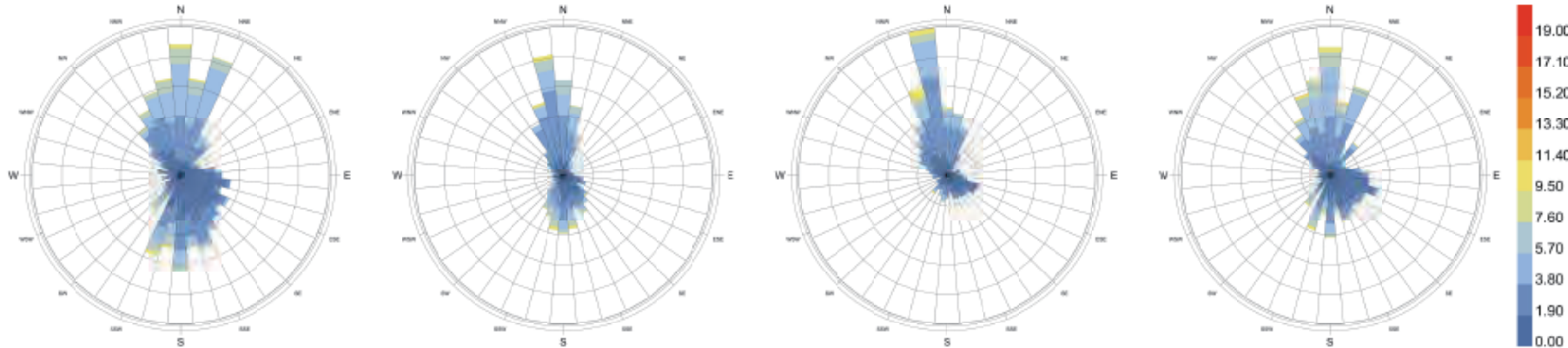
S C A L E A D J U S T

1/100

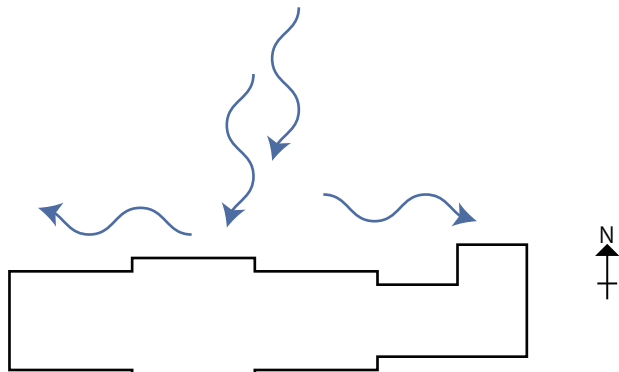
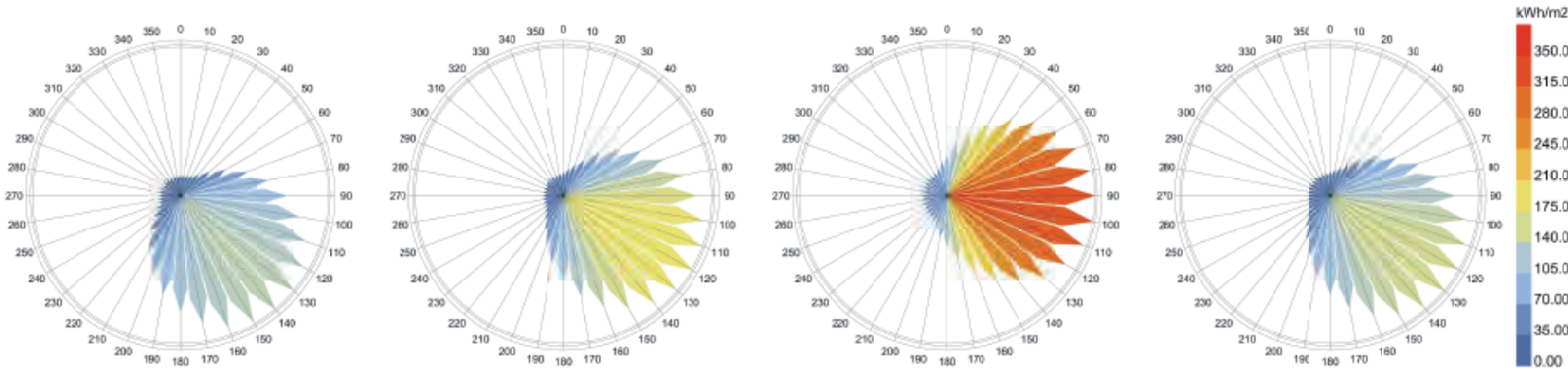


CHIMILIN

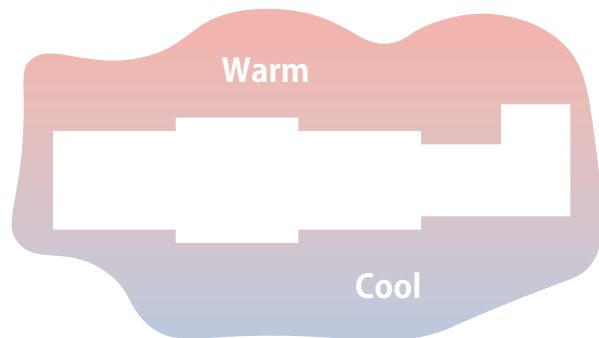
Seasonal Wind Diagram



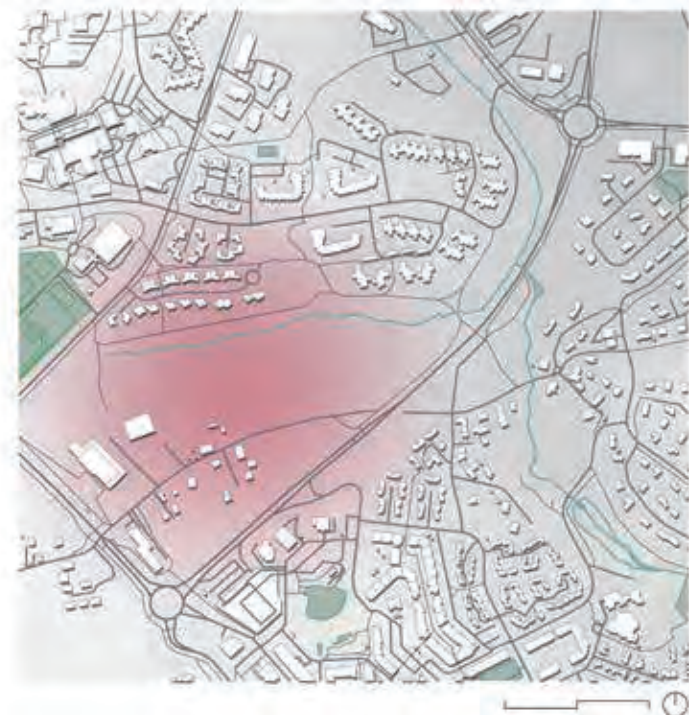
Seasonal Solar Diagram



Receive wind to the front

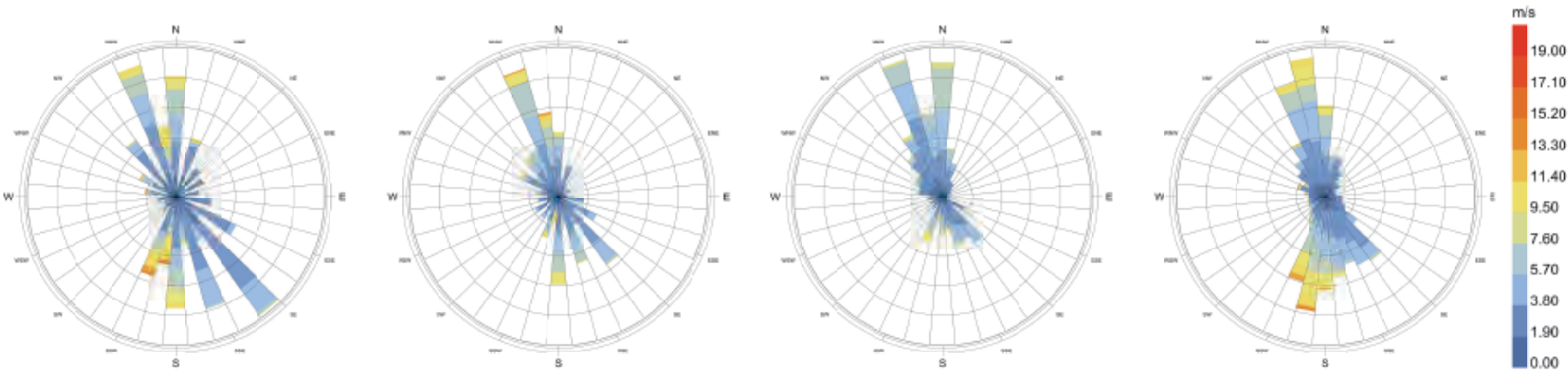


Temperature difference around building

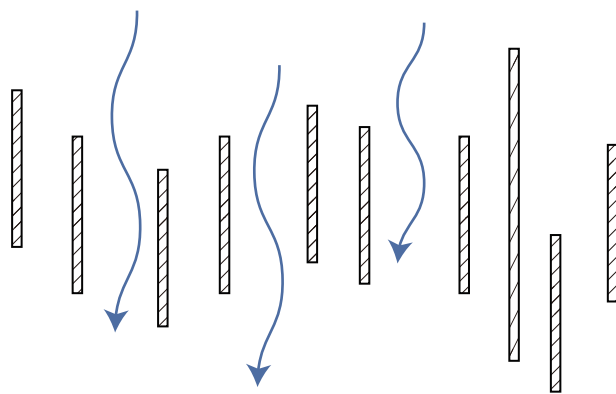
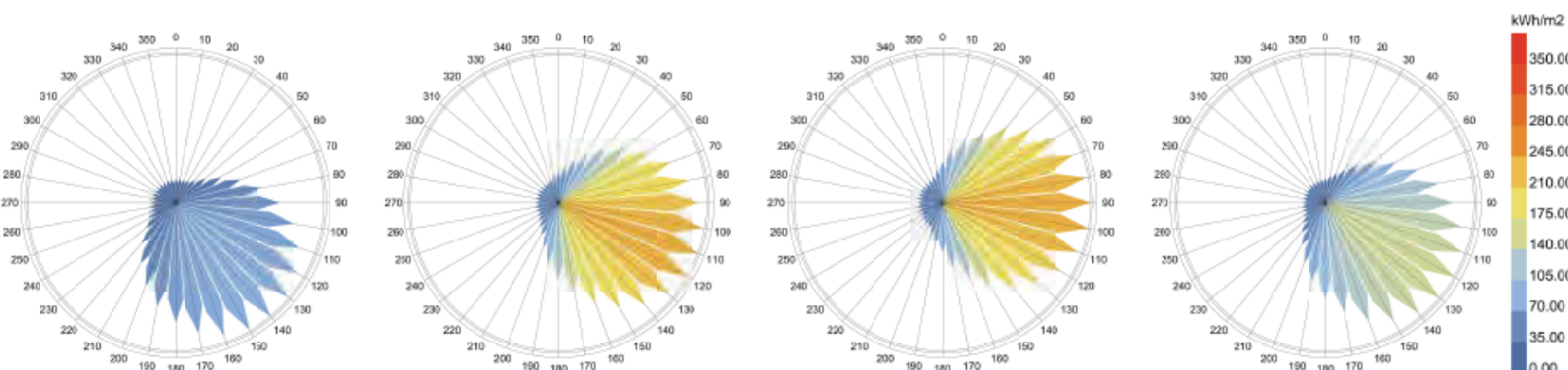


VILLEFONTAINE

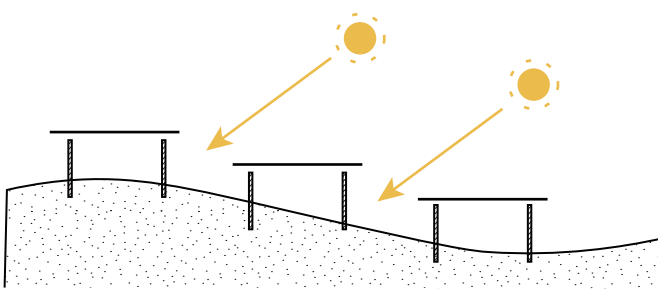
Seasonal Wind Diagram



Seasonal Solar Diagram



Pisé walls aligned with the north-south wind

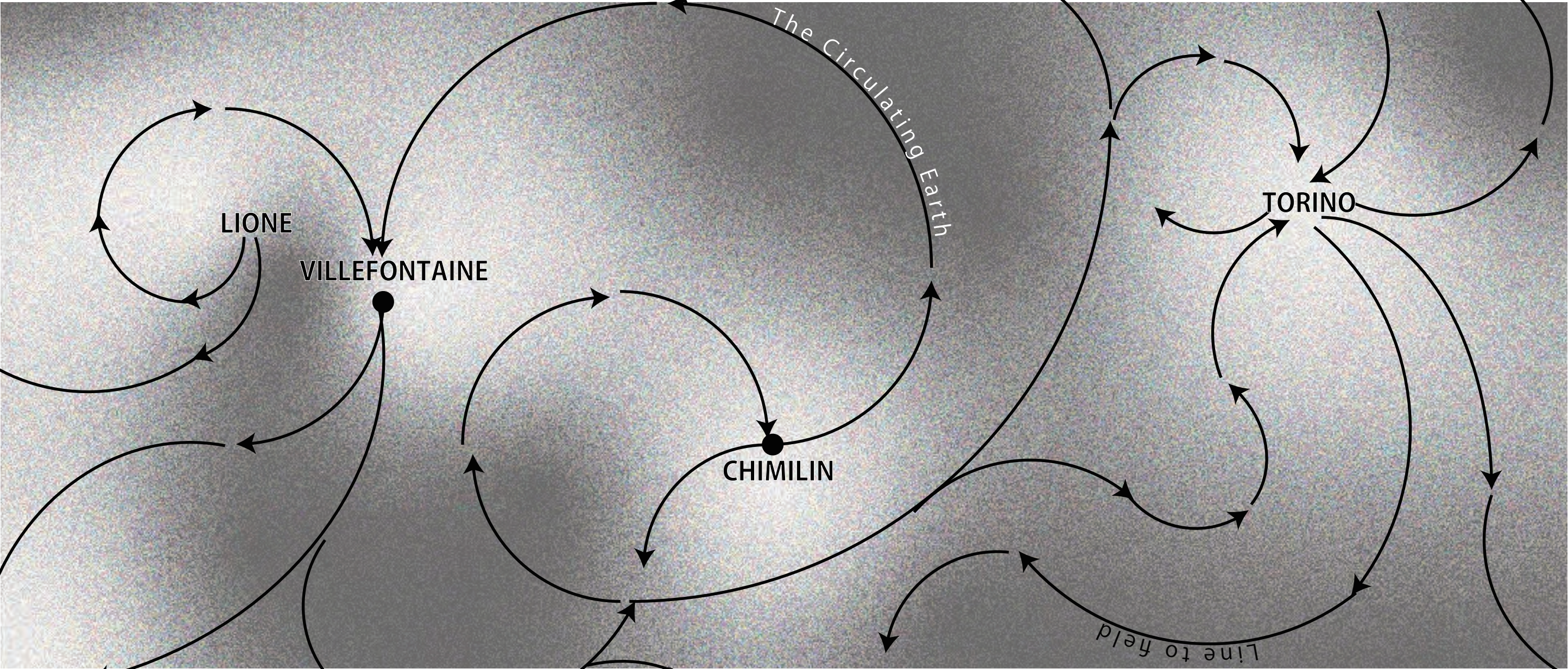


A roof that captures sunlight from the east



2. Outline of Proposal -Conceptual Image-

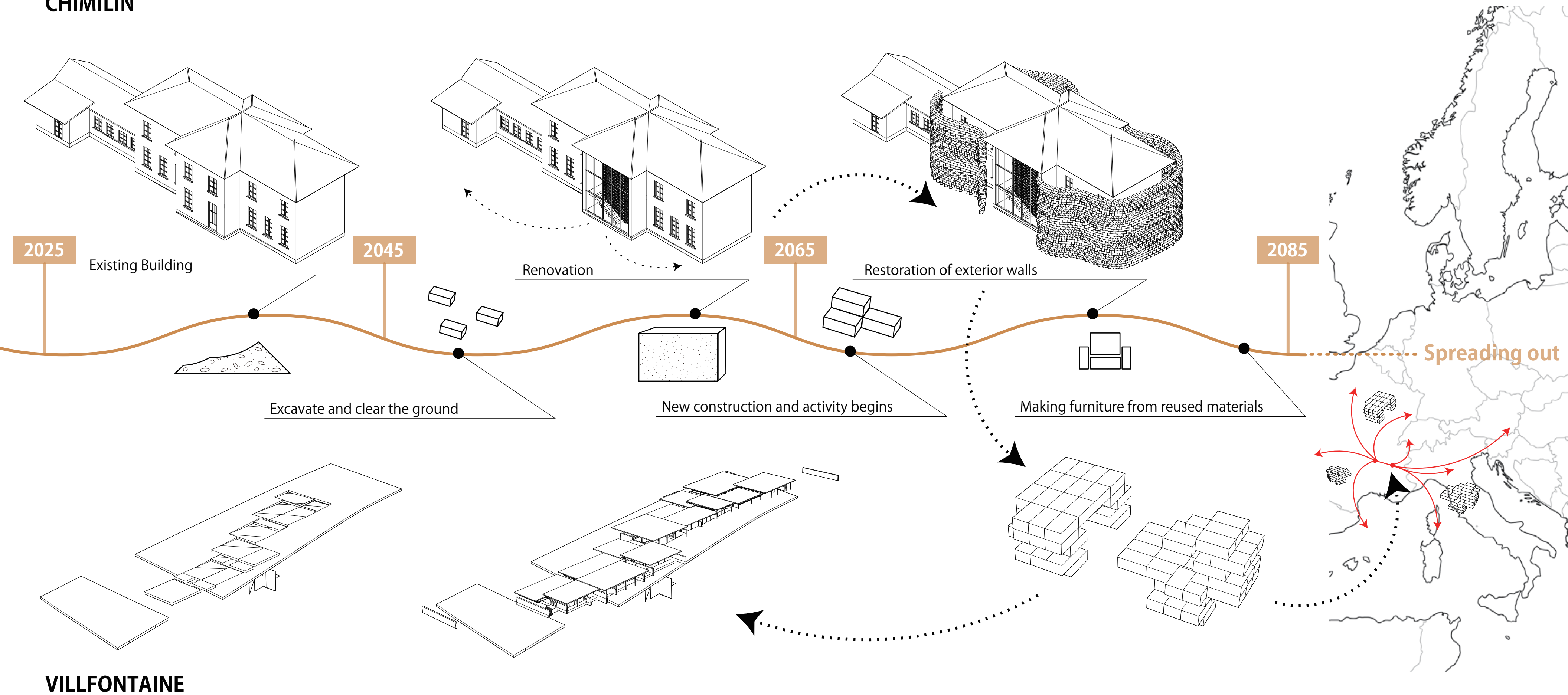
RE: PU BLIC  
└→ BRICK





2. Outline of Proposal -Long-term vision-

CHIMILIN



VILLFONTAINE



### 3. Proposals (zone A: modification)





### 3. Proposals (zone A: modification)



#### BEFORE

Old school building made of Pise.  
It is no longer in use due to deterioration of the walls.  
It is divided into small rooms, making it difficult to let light into the interior.

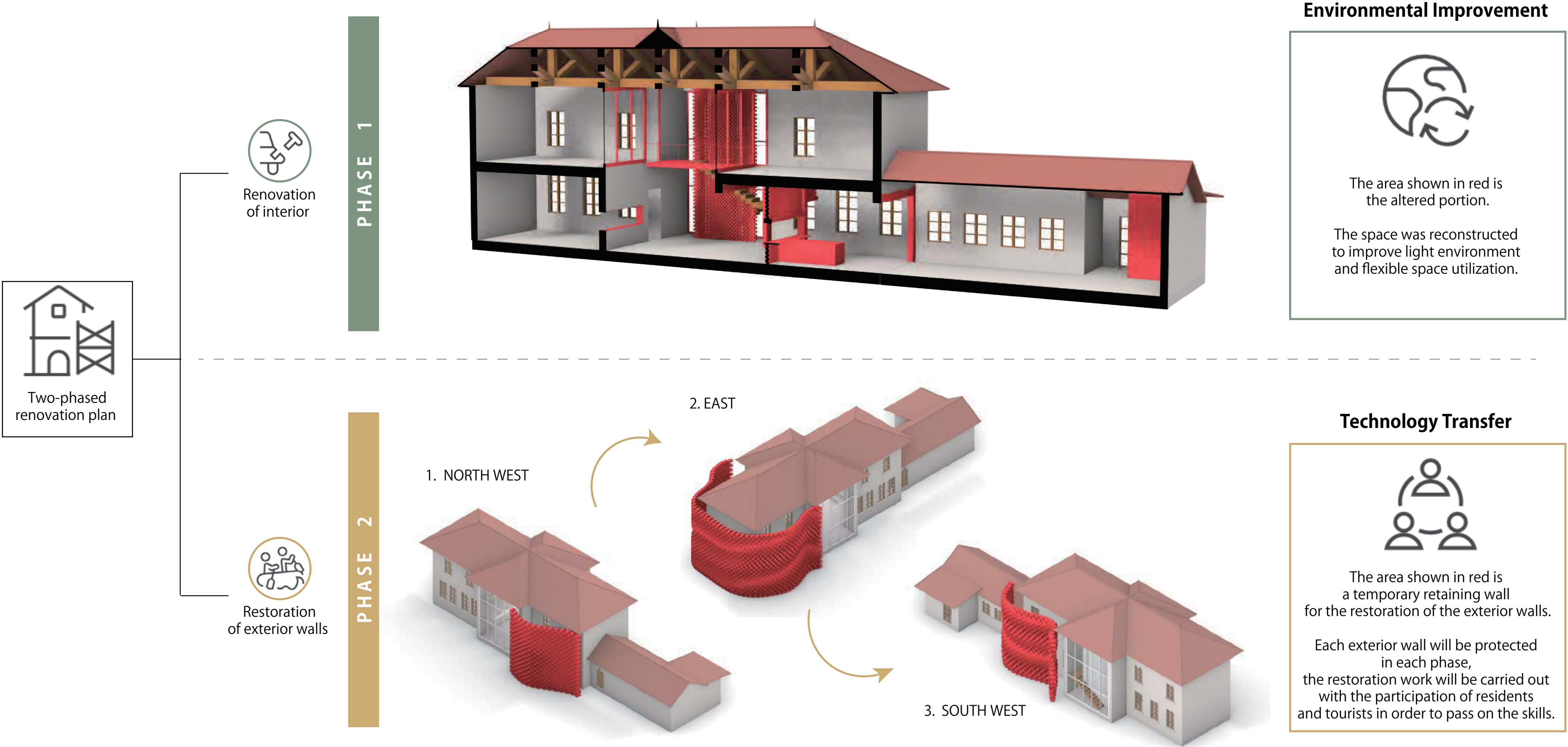
#### AFTER

Minimal changes for maximum change.  
Significant renovation of the central volume to bring light indoors.  
Meanwhile, excessive solar radiation is avoided by brick walls with coarse and dense variations.





### 3. Proposals (zone A: modification)

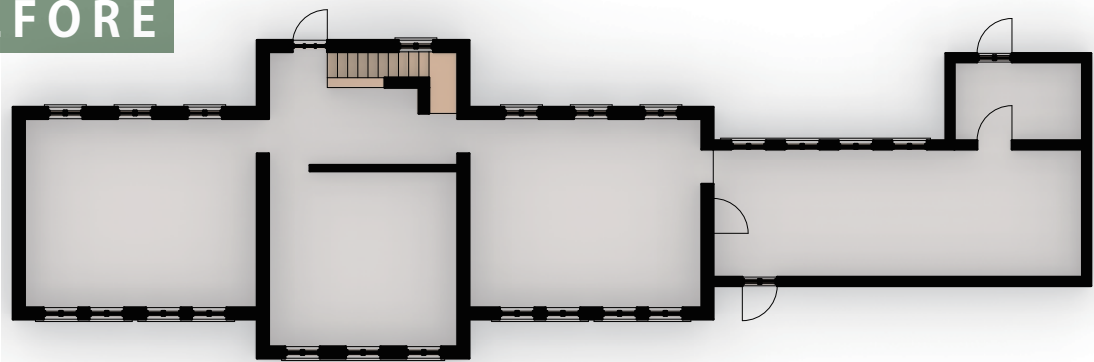




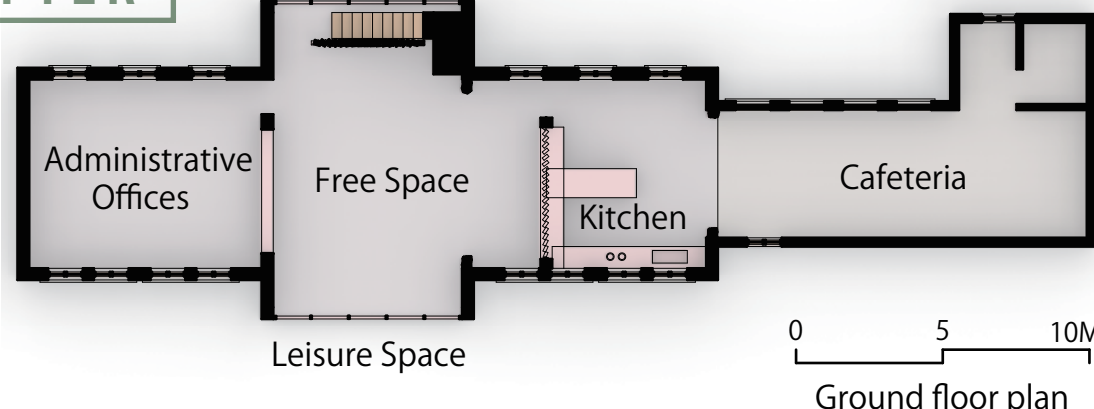
### 3. Proposals (zone A: modification)

PHASE 1

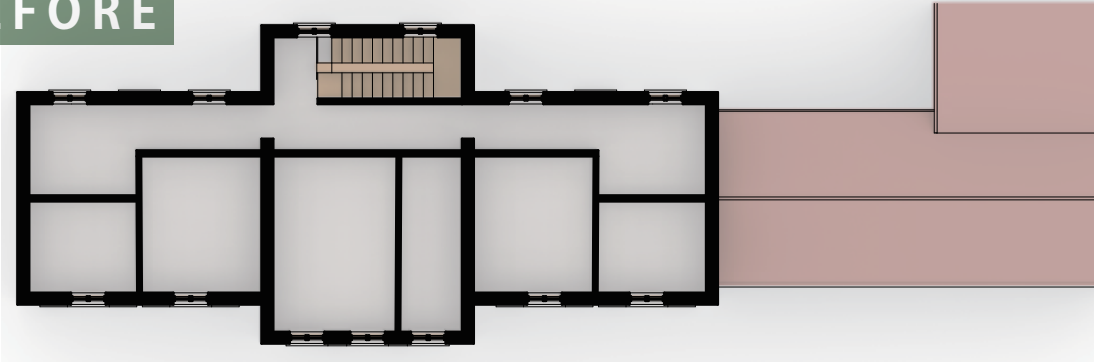
BEFORE



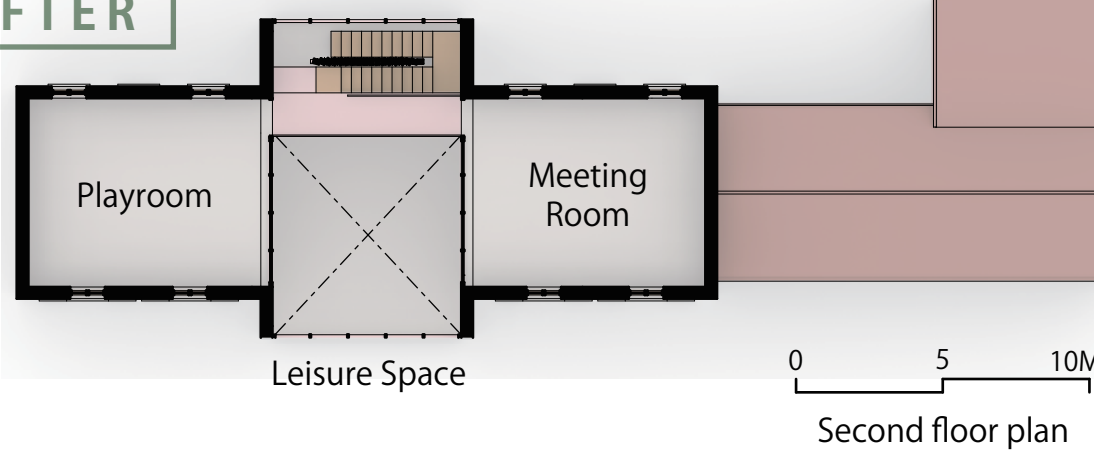
AFTER



BEFORE



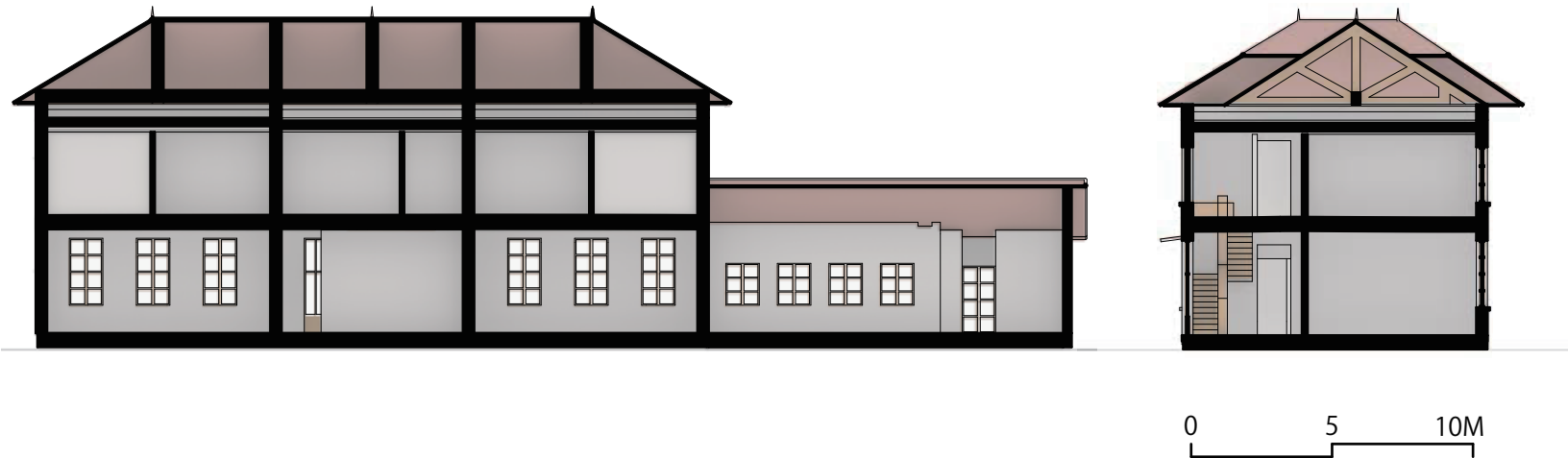
AFTER



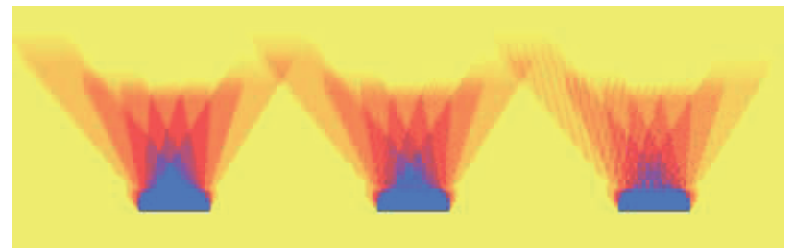


### 3. Proposals (zone A: modification)

BEFORE



COARSE ← → DENSE

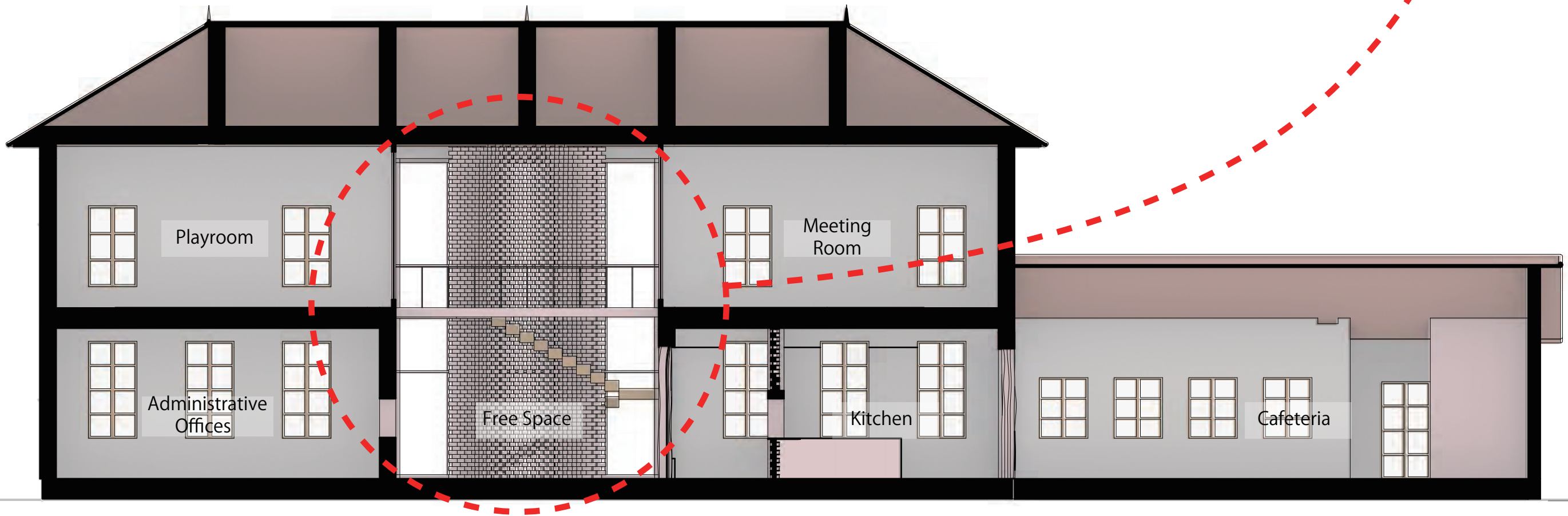


Simulation of heat dispersion

Pise bricks are arranged in a gradient of coarse and dense to block direct sunlight while maintaining visibility.

The bricks are a standard size of 210\*100\*60 and are less intimidating and more integral to the design than a dense array of bricks.

AFTER

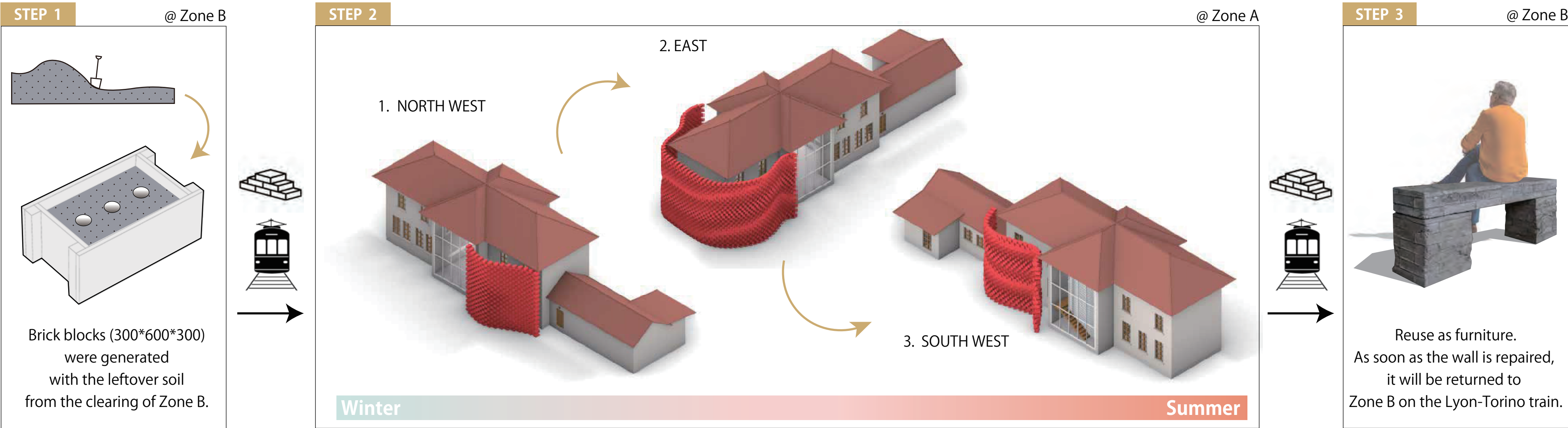


0 5 10M

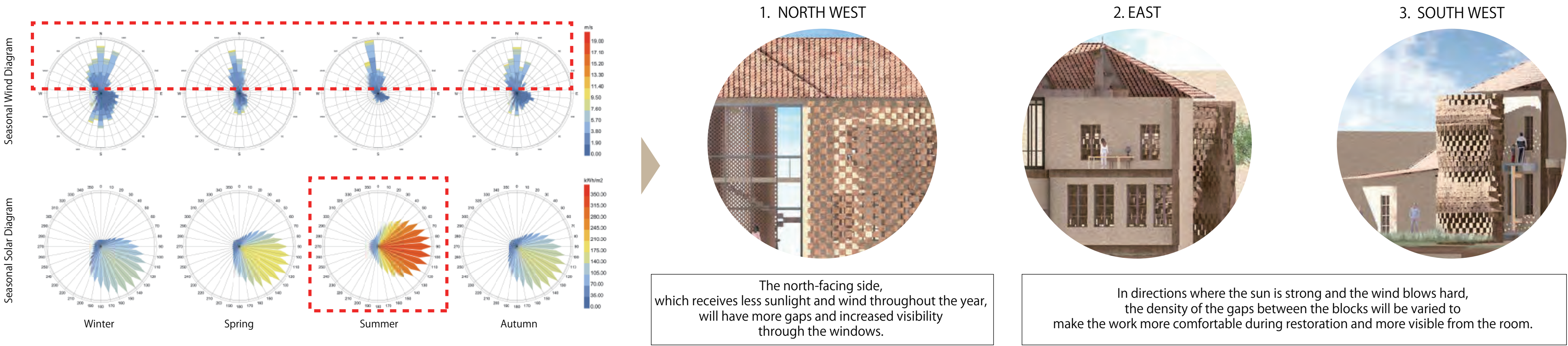


# 3. Proposals (zone A: modification)

Circulation of Pise Blocks

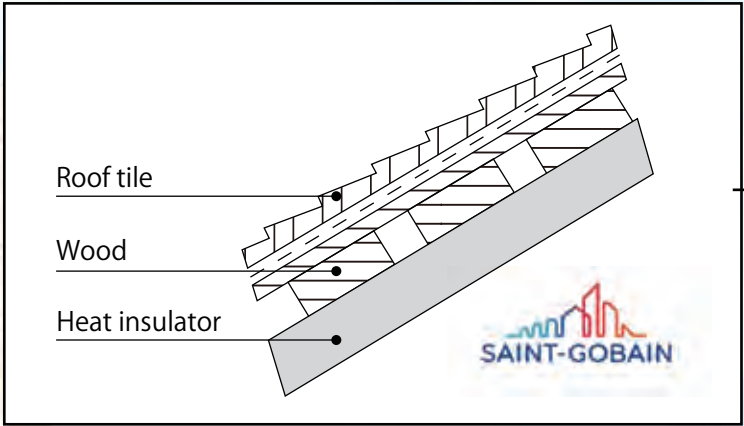
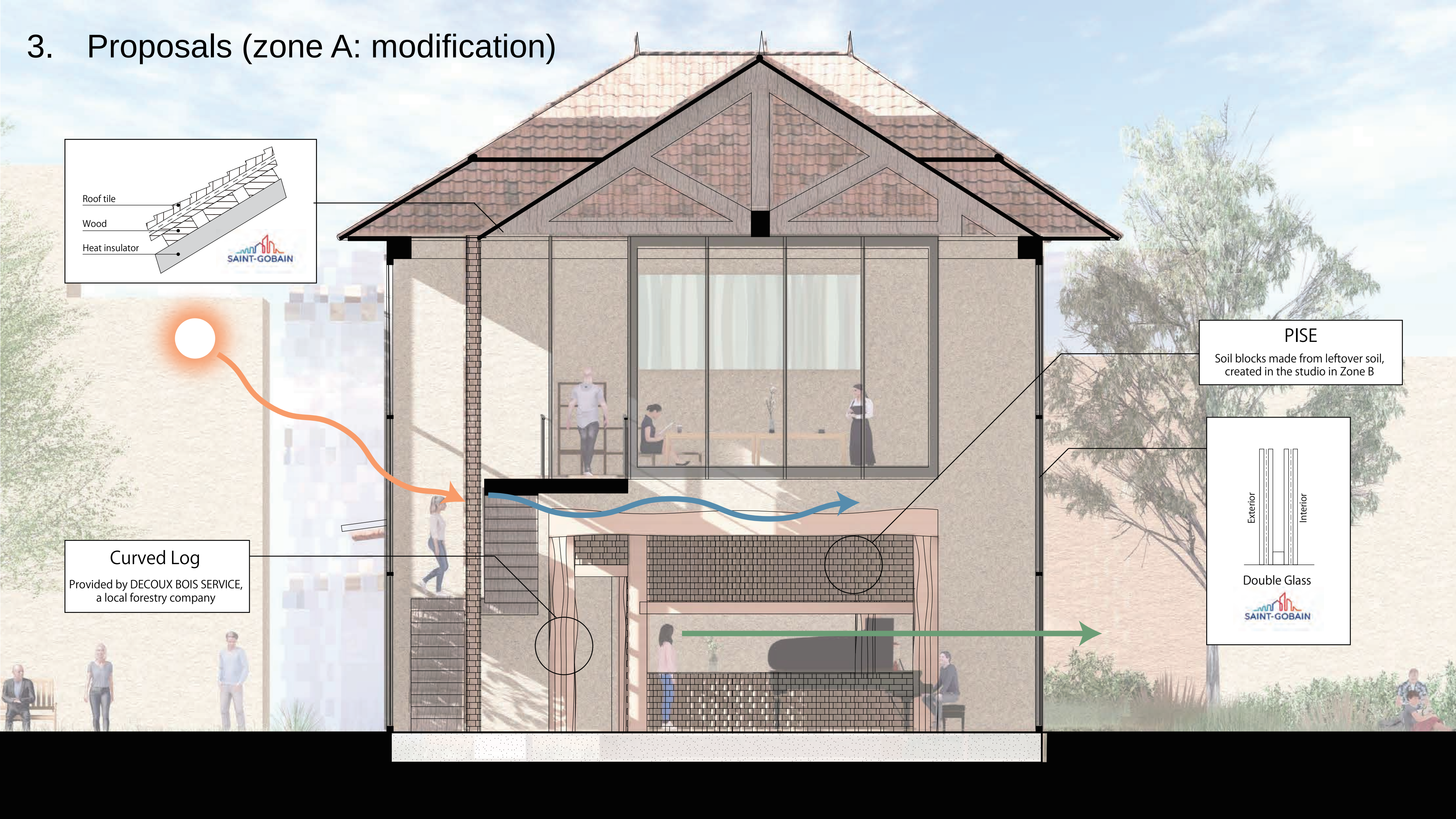


How to design





### 3. Proposals (zone A: modification)

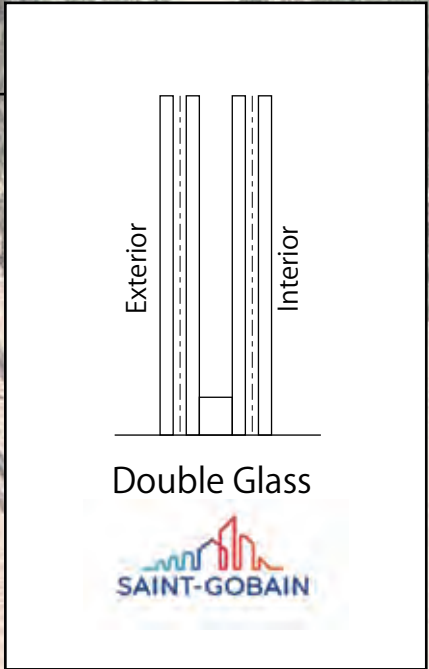


Curved Log

Provided by DECOUX BOIS SERVICE,  
a local forestry company

PISE

Soil blocks made from leftover soil,  
created in the studio in Zone B





#### 4. Proposals (zone B: new construction)





# 4. Proposals (zone B: new construction)

The site is bordered by a railway to the east and key public facilities to the south. The area is also surrounded by schools and sports facilities.

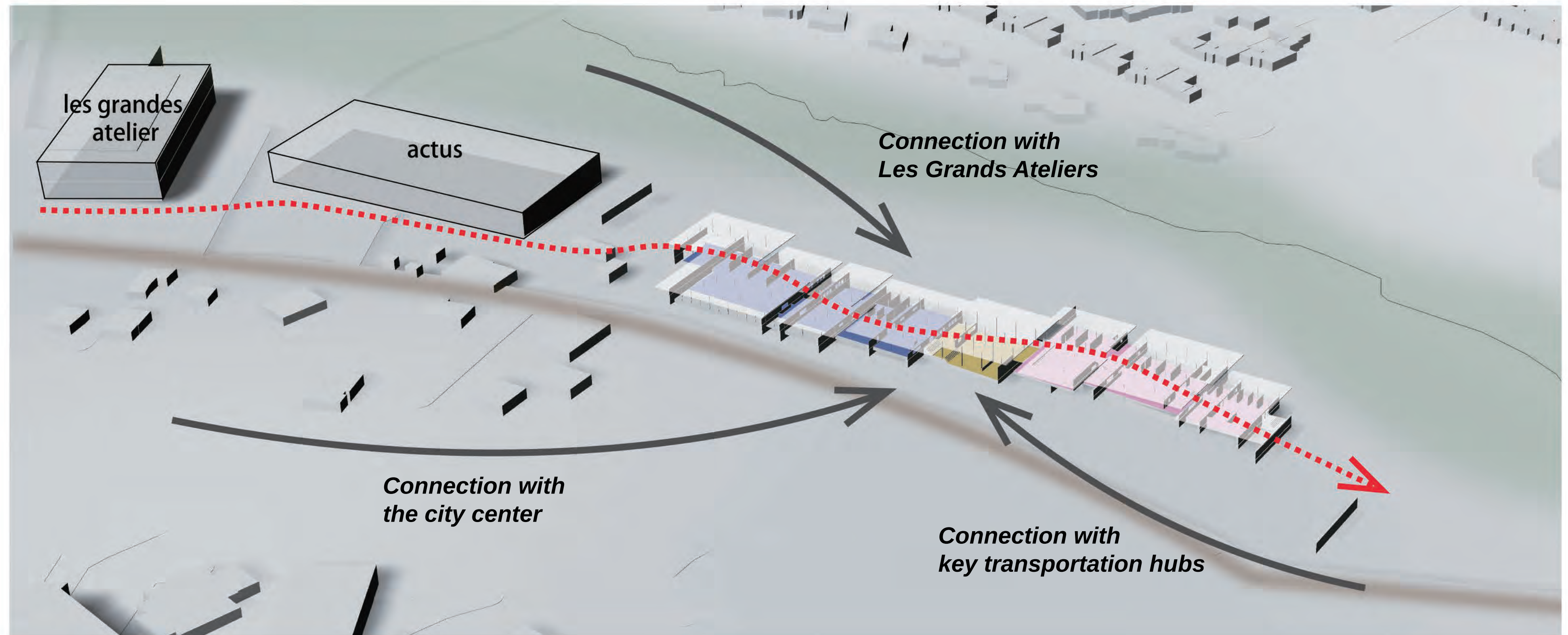
Many schools and sports facilities are located in the vicinity, aiming for an architecture that is open to the public.

- RESIDENTAL AREA
- CENTRAL FUNCTION AREA
- EDUCATION FUNCTION AREA
- WORKPLACE AREA
- COMMERCIAL BUILDINGS AREA
- GREEN AREA
- SPORT AREA
- TRAM LINE



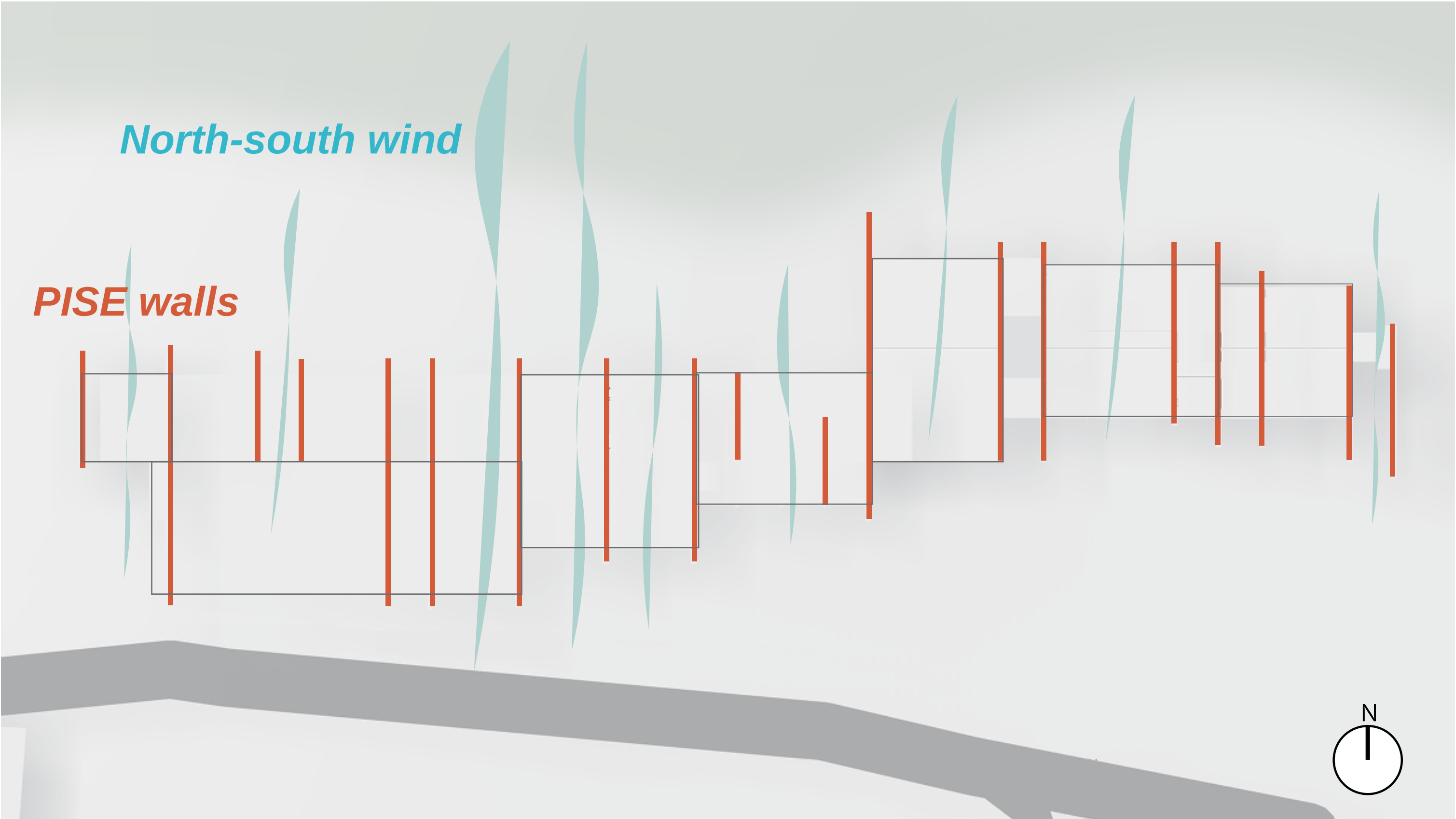
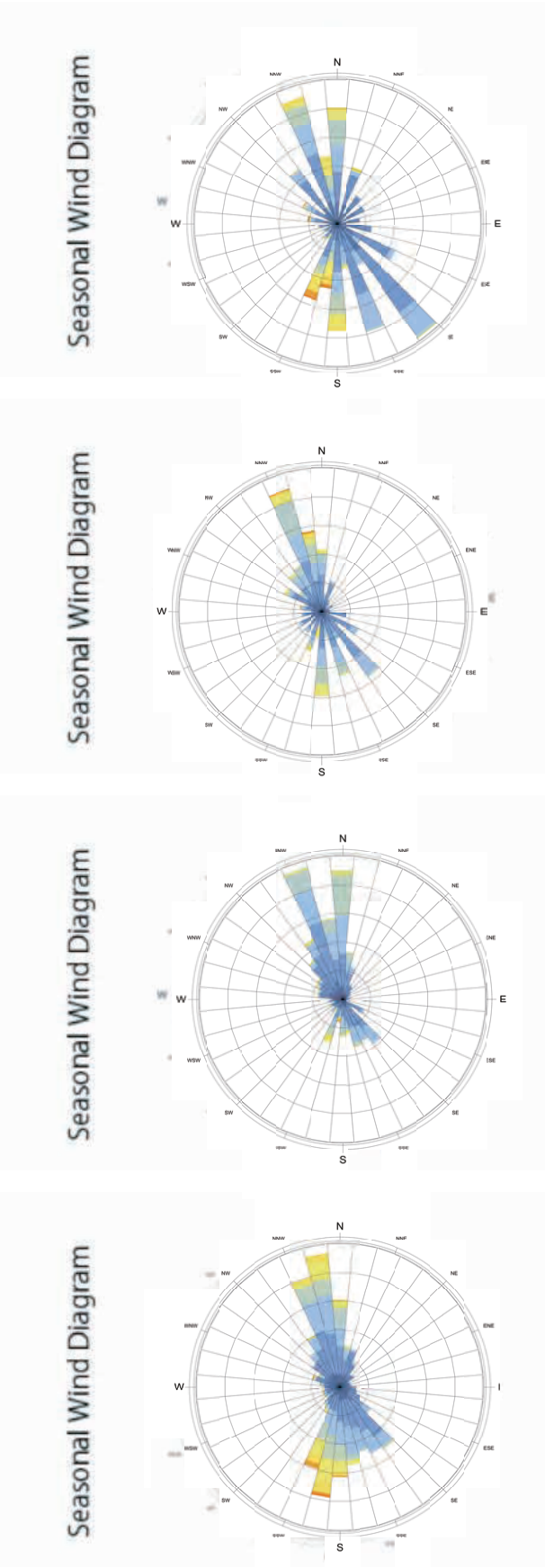


#### 4. Proposals (zone B: new construction)





4. Proposals (zone B: new construction)



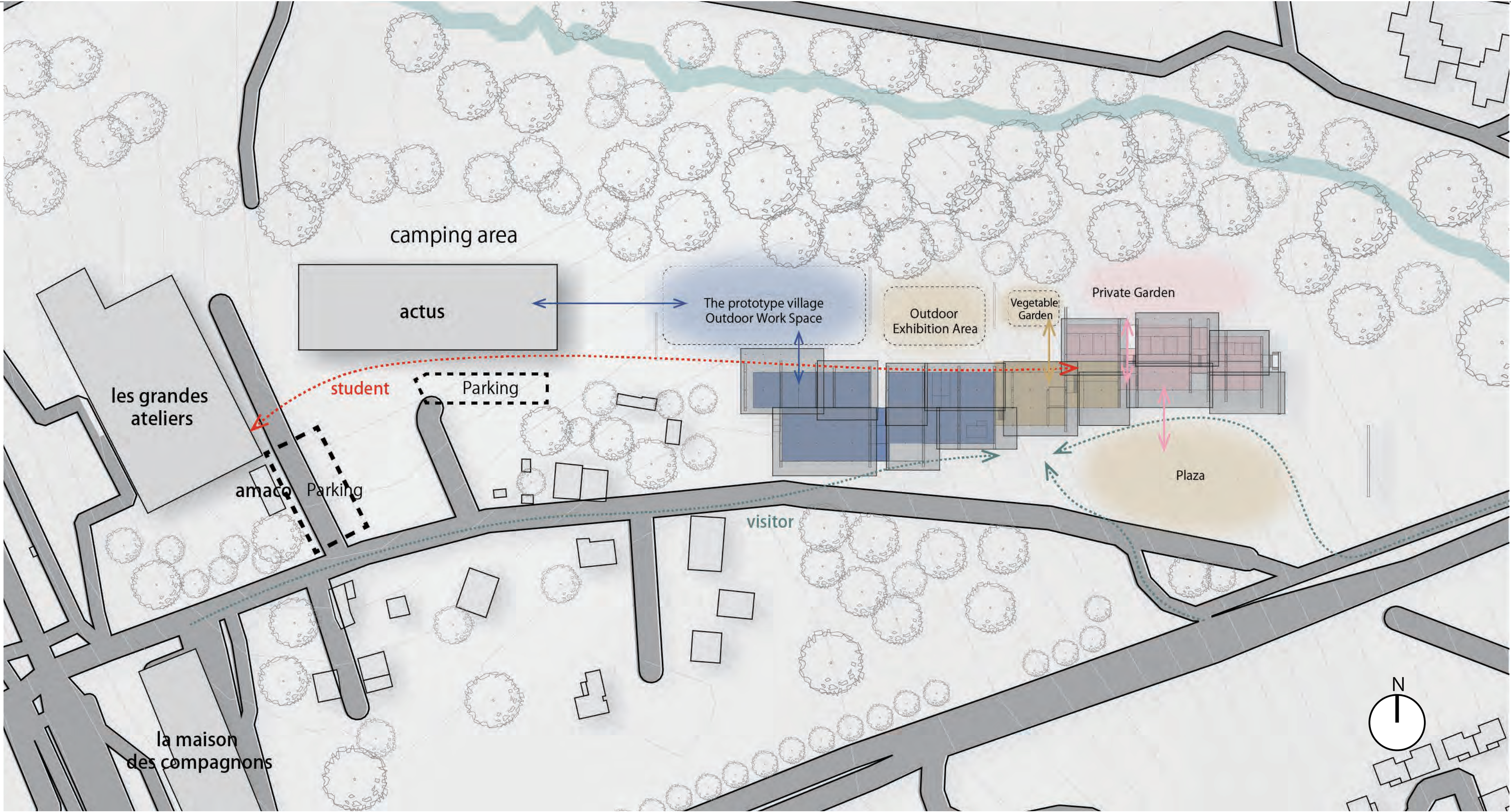
North-south winds blow throughout the year

locate the PISE walls along the north-south wind direction



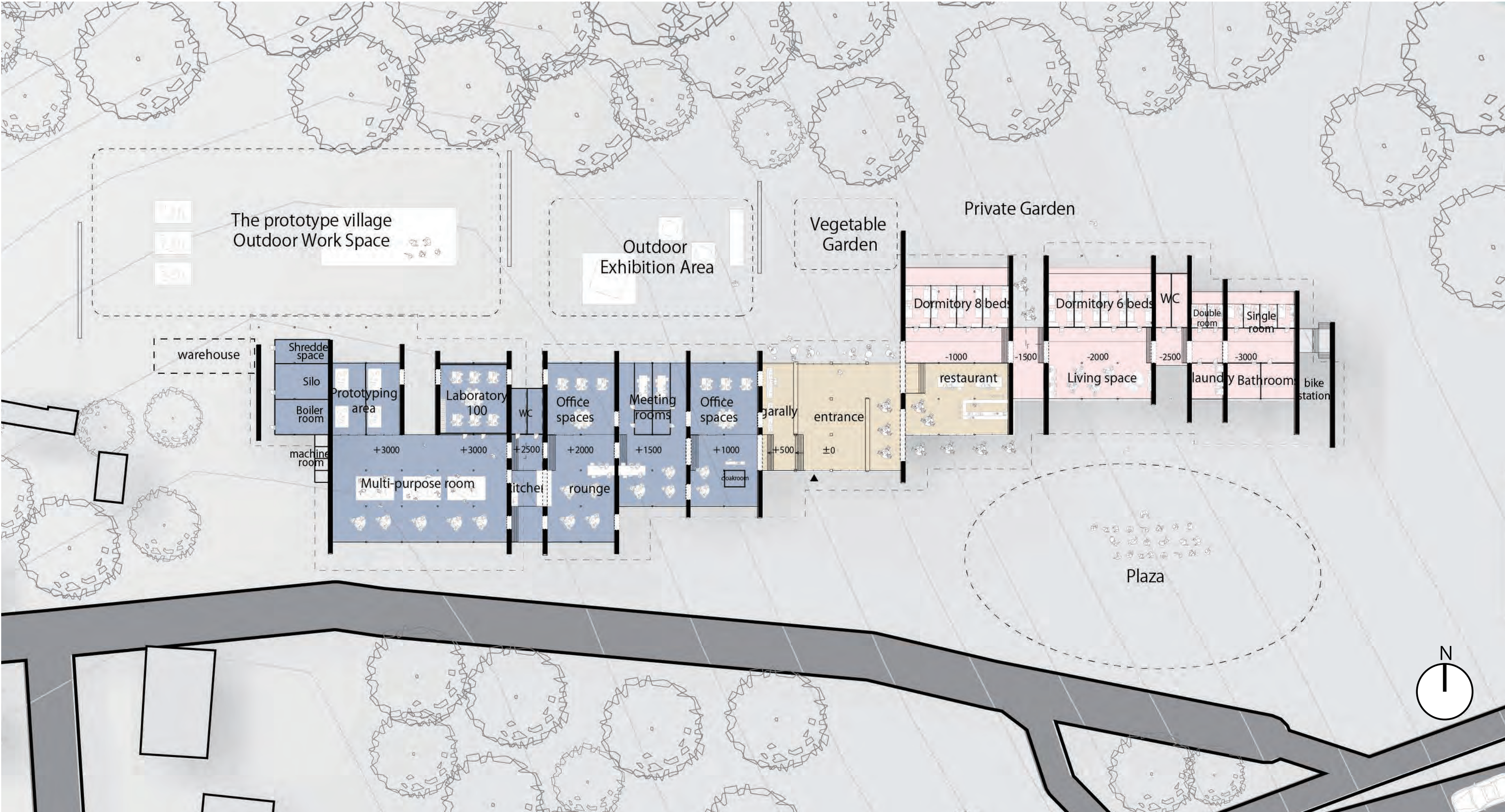
4. Proposals (zone B: new construction)

1/10000  
SCALE  
ADJUST  
1/100





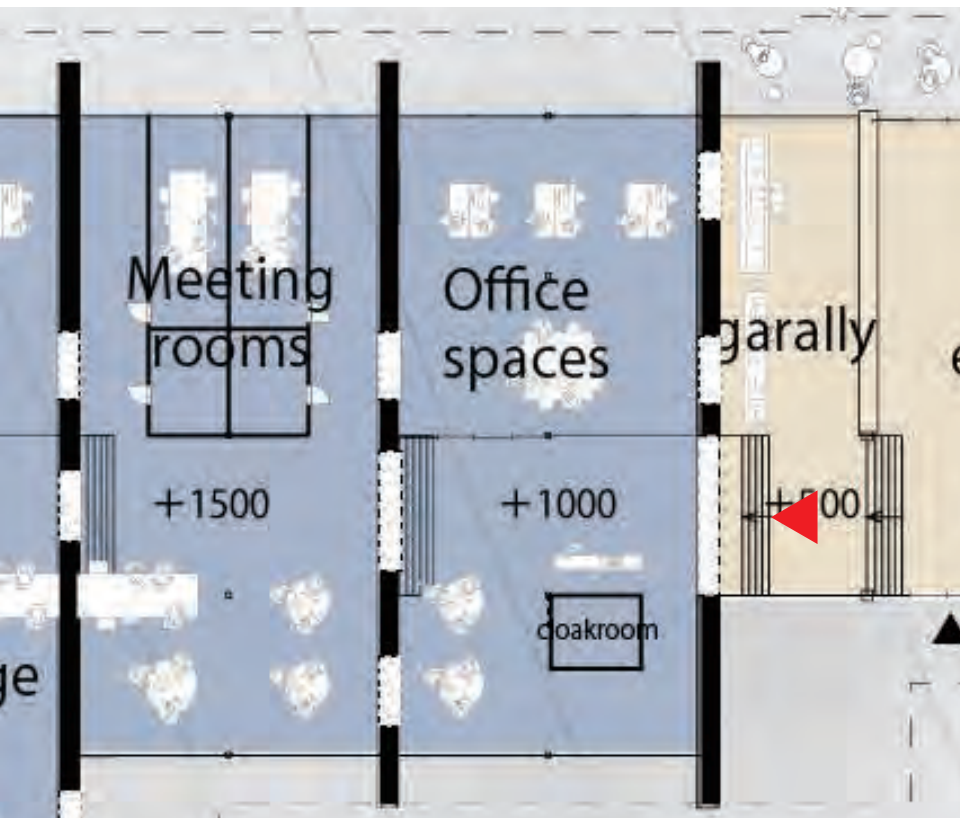
4. Proposals (zone B: new construction)





## 4. Proposals (zone B: new construction)

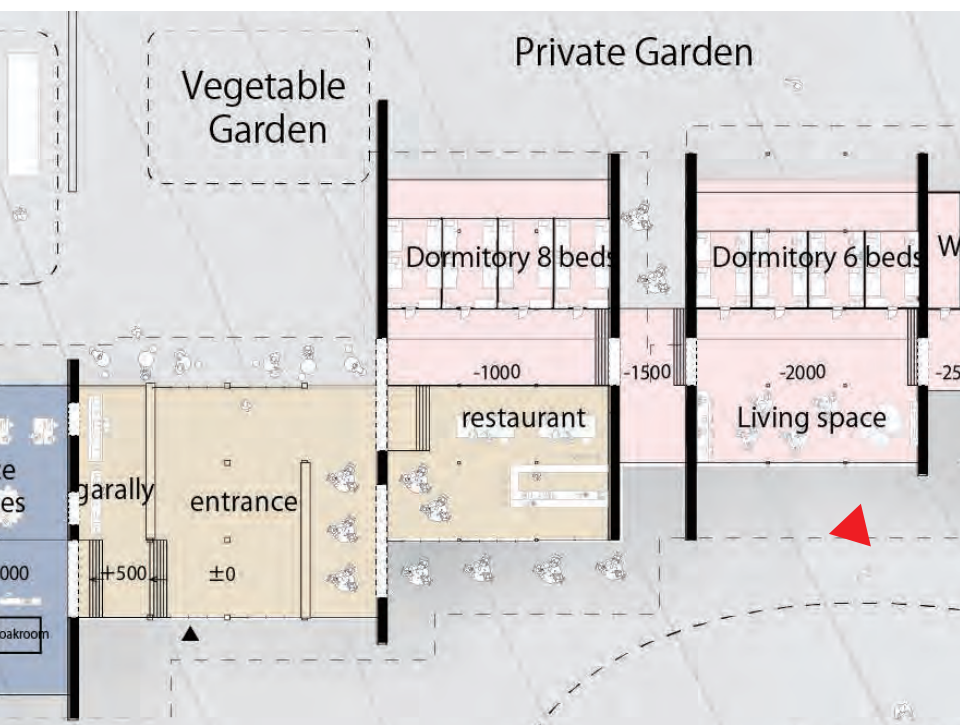
The offices are continuously connected to the large roofed plaza. Local residents, students, and office workers stimulate each other through activities that can be seen through the hole in the pizze. Workers can view the workshops while working, and students can experience their work close to their daily lives.





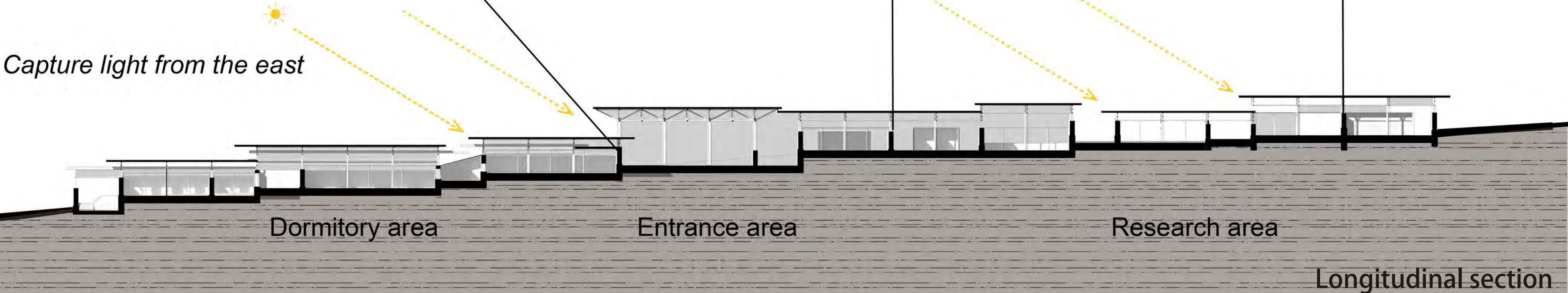
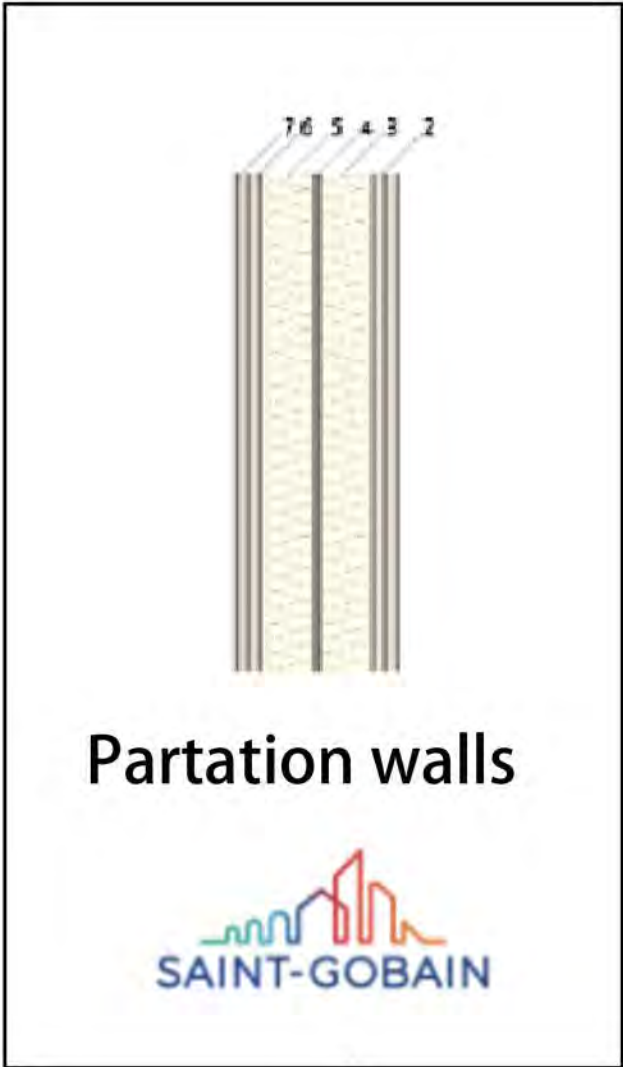
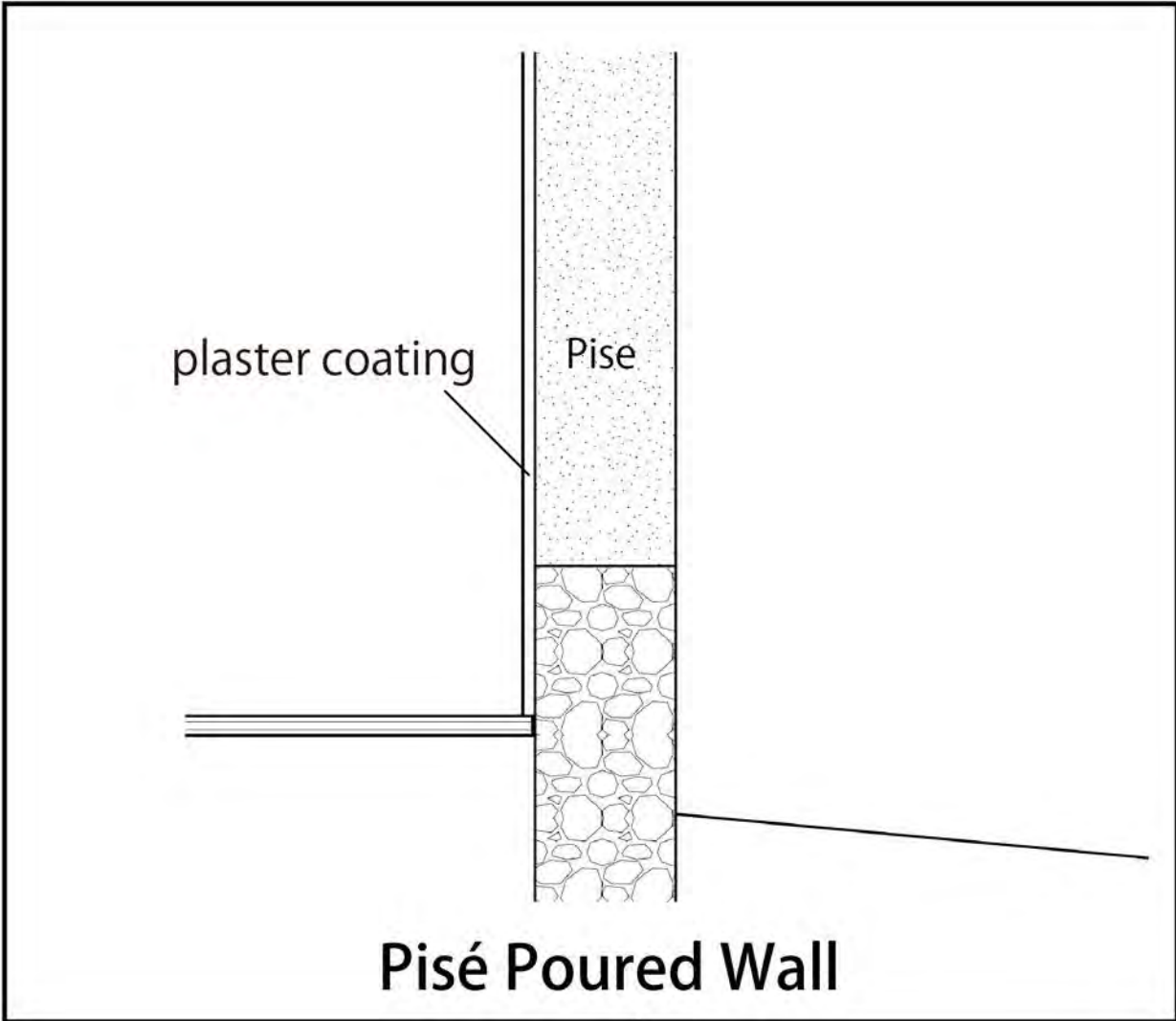
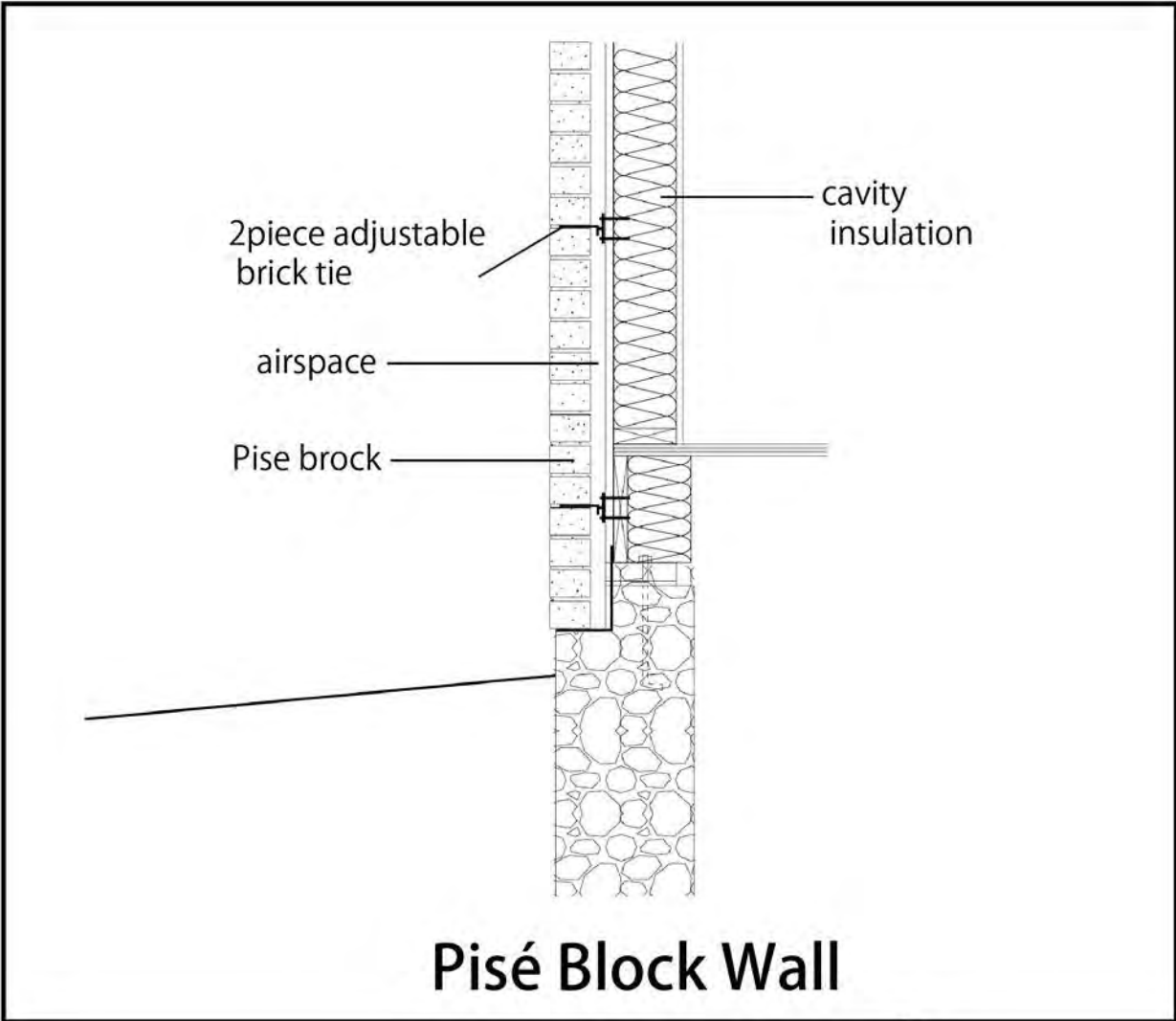
## 4. Proposals (zone B: new construction)

The living room, located in front of the students' rooms, provides a space for students to play extensively while at the same time exhibiting their work. The private line of flow is hidden behind the Lyon fabric brought in by train, and the south side facing the outside is largely made of Saint-Gobain glass, which can be transformed into an open exhibition space.



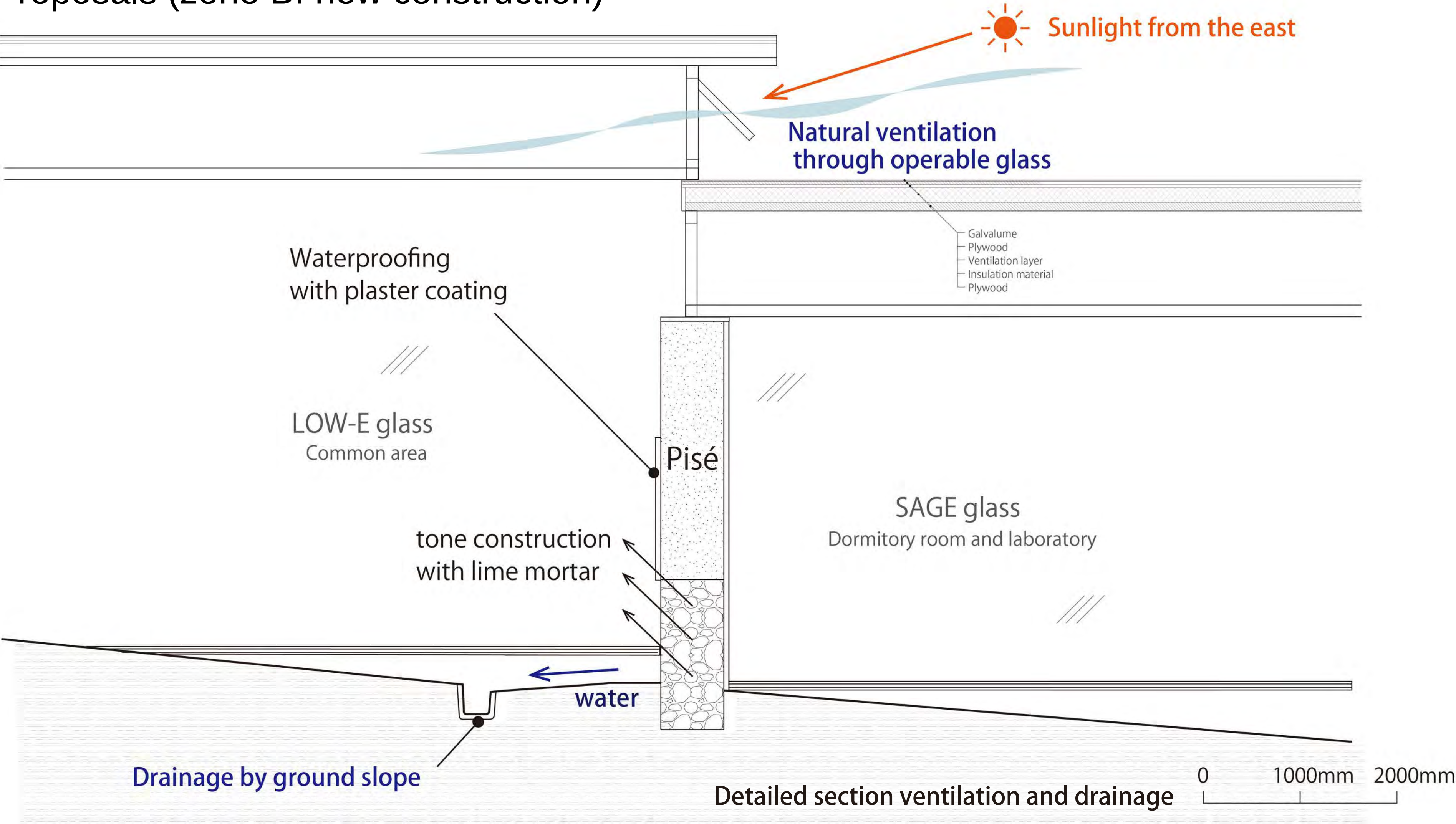


4. Proposals (zone B: new construction)



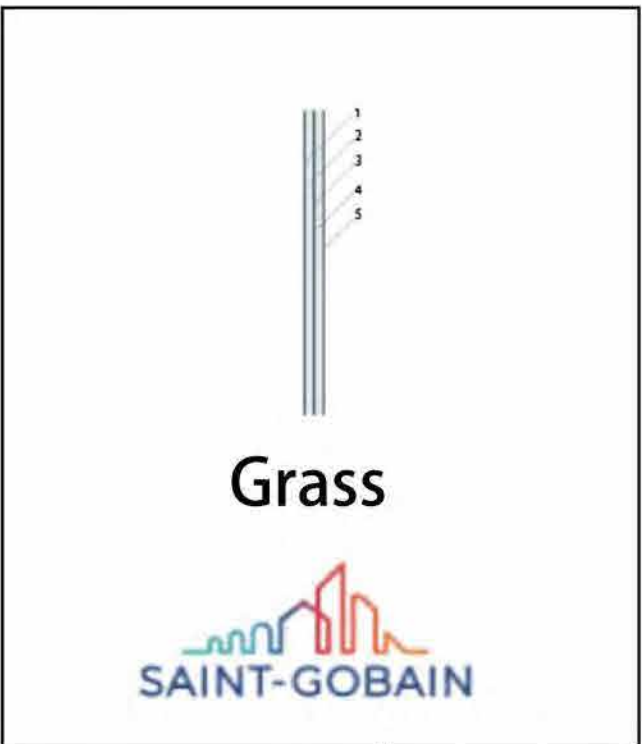
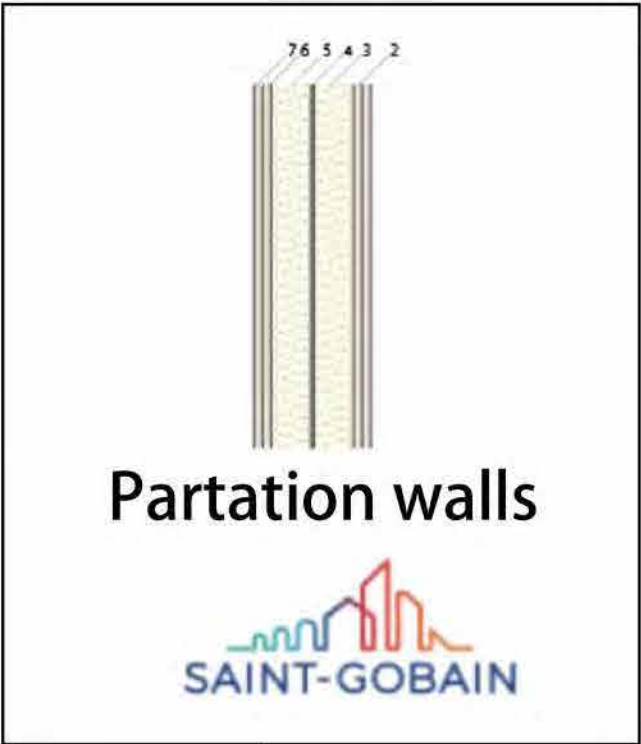


4. Proposals (zone B: new construction)

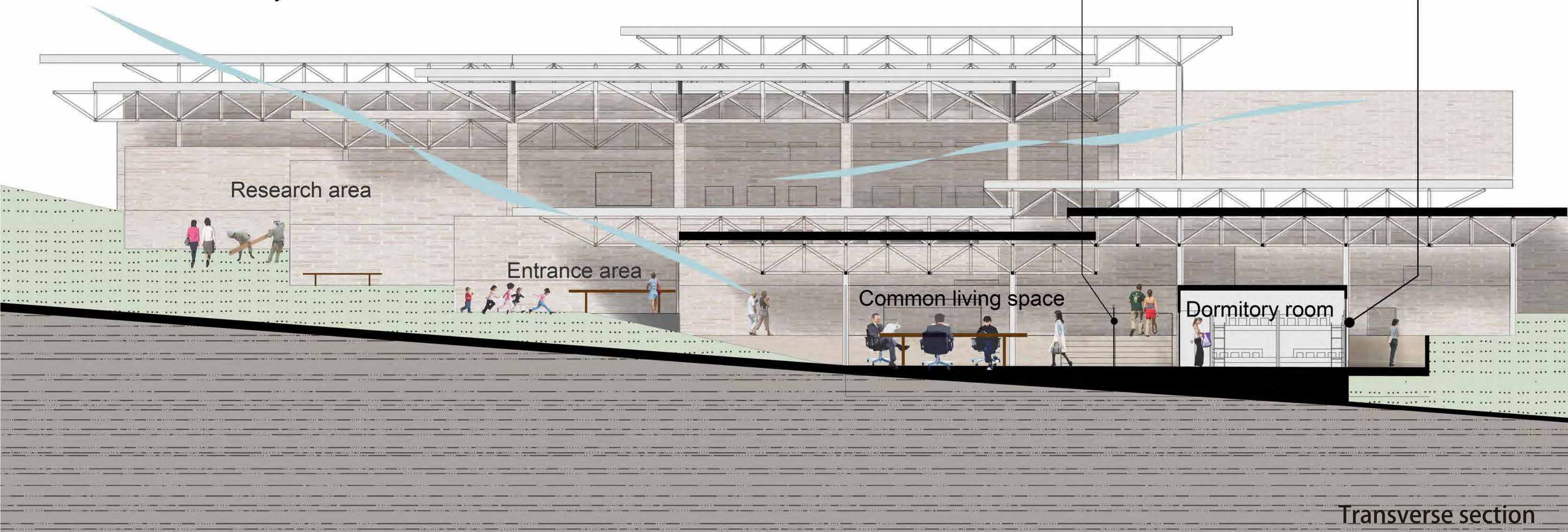




# 4. Proposals (zone B: new construction)

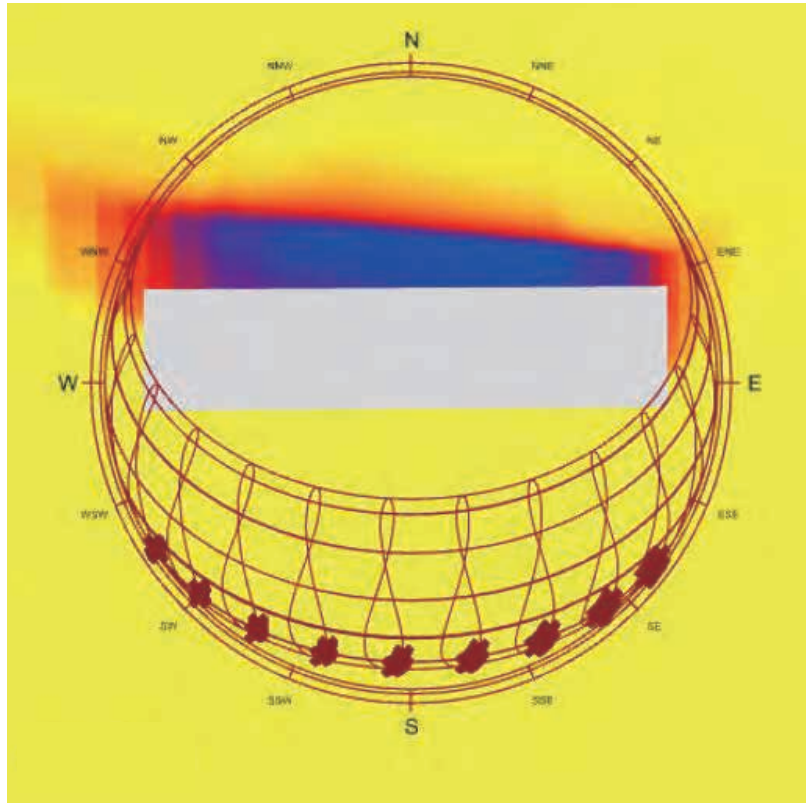


*Ventilated by north-south breezes*

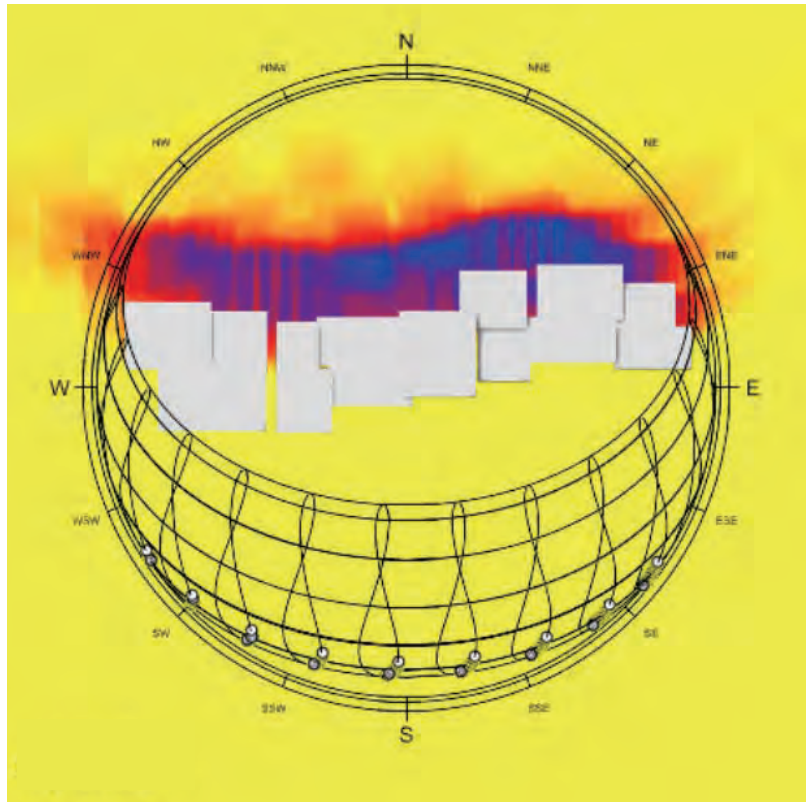




4. Zone B - Thermal comfort

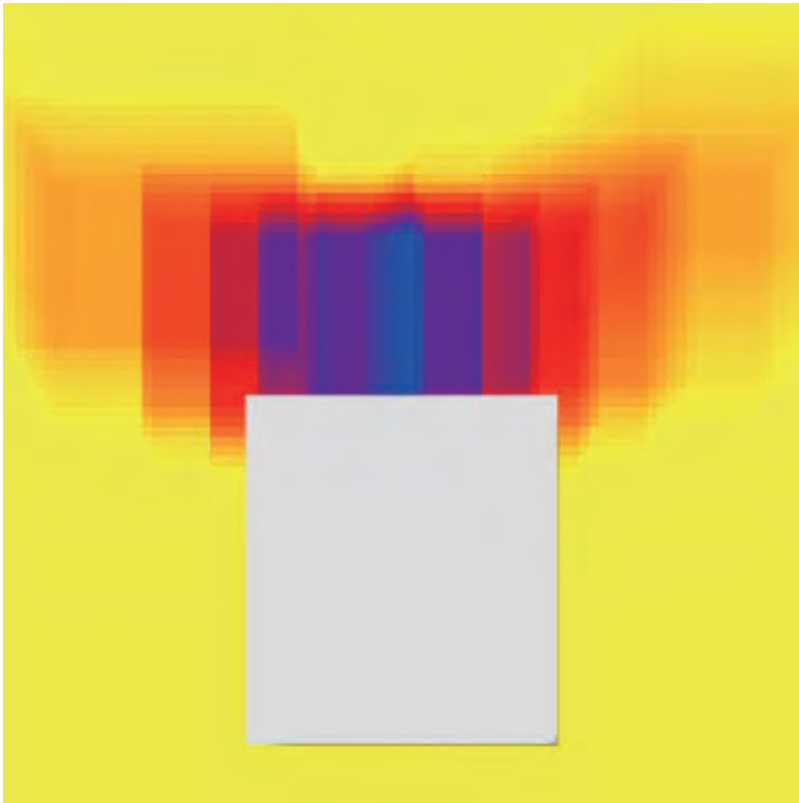


Single roof

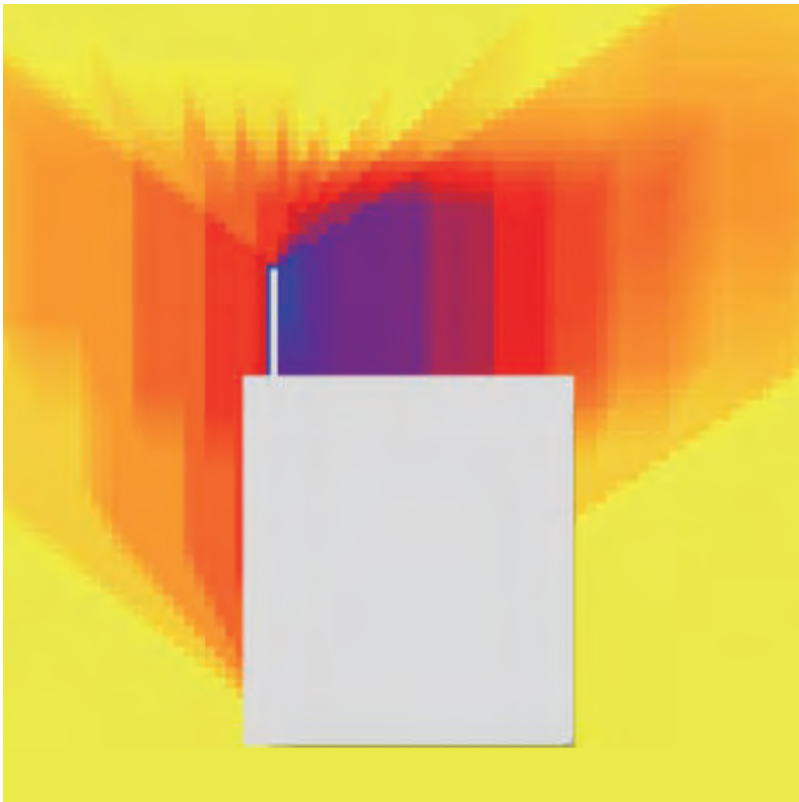


Split roof

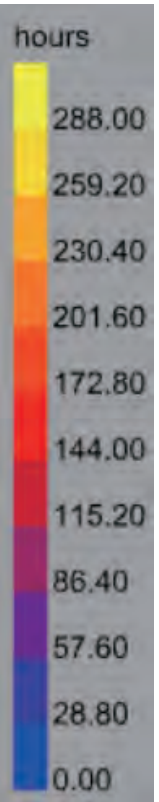
The roof is divided into small sections to allow sunlight and wind to pass through.



only roof



with pisé wall

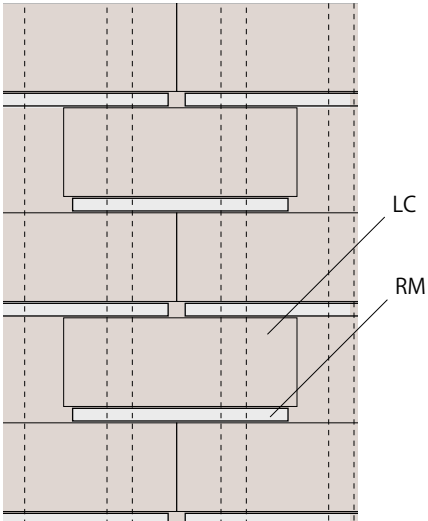
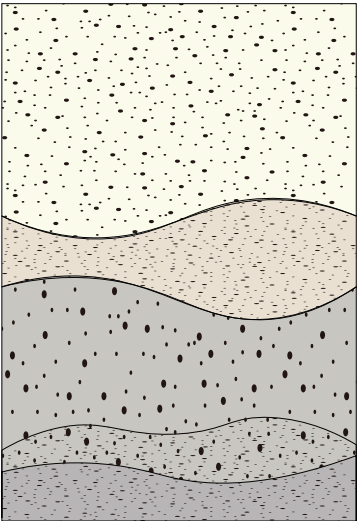


The pisé wall allows for a larger shadowed area, which expands the area for daytime activities.



5. Environmental Performance

Outer Walls (PISE)

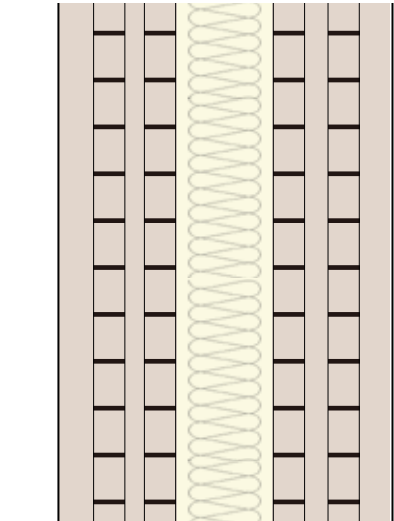


PISE Earthen walls

Earthen wall made from leftover soil excavated for land clearing at the ZOON B site.

PISE Brick walls

LC: Ceramic brick masonry.  
RM: Webertherm AISLATERM mortar.



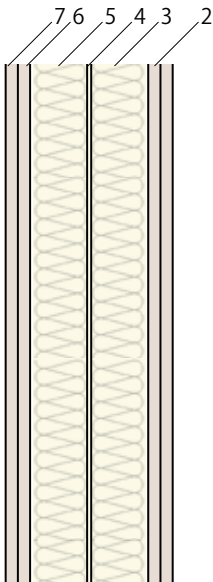
Partition Walls (CLT)

CLT 150mm  
(60mm charred)

ISOVER  
Cavity Wall Board 32  
50mm

CLT 150mm  
(60mm charred)

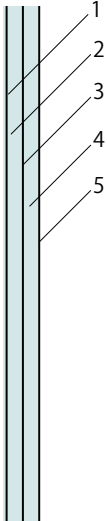
Fire Protection: EI60  
Sound Reduction: Rw 67dB  
Carbon Footprint: 24kg/m2  
Weight: 155kg/m2



Partition Walls

1. 12.5 mm Gyproc GHE 13 Habito@  
2. 2x12.5 mm Gyproc GNE 13 Normal  
3. 45 mm ISOVER Piano@Sound Board  
4. 10 mm Air gap  
5. 45 mm ISOVER Piano@Sound Board  
6. 2x12.5 mm Gyproc GNE 13 Normal  
7. 12.5 mm Gyproc GHE 13 Habito@

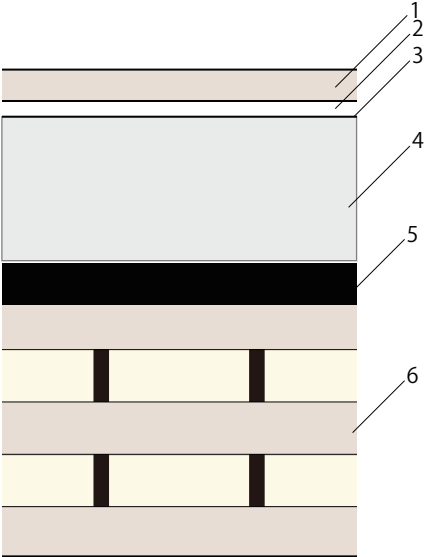
Fire Protection: EI90  
Sound Reduction: Rw 64dB  
Carbon Footprint: 36kg/m2  
Weight: 52kg/m2



Glass

1. 3 mm ECLAZ one  
2. 15mm Argon gass  
3. 3mm FL  
4. 15mm Argon gass  
5. 3 mm ECLAZ one

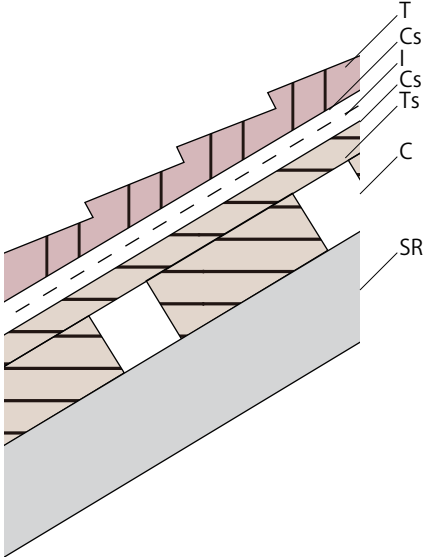
Thermal transmittance U:  
0.61 W/m2K  
SHGC: 0.60  
Visible transmittance: 77.0%  
SC: 0.68



Inner Floor

1. 14 mm Parquet  
2. 12 mm Foam  
3. 120 mm weberfloor 150 dura  
4. 12 mm Aprobo Decibel 4  
5. 20 mm Glava footstep impact sound board  
6. 210 mm CLT element

Fire Protection: EI60  
Sound Reduction: Rw 65dB  
Carbon Footprint: 45kg/ m2  
Weight: 274kg/m2



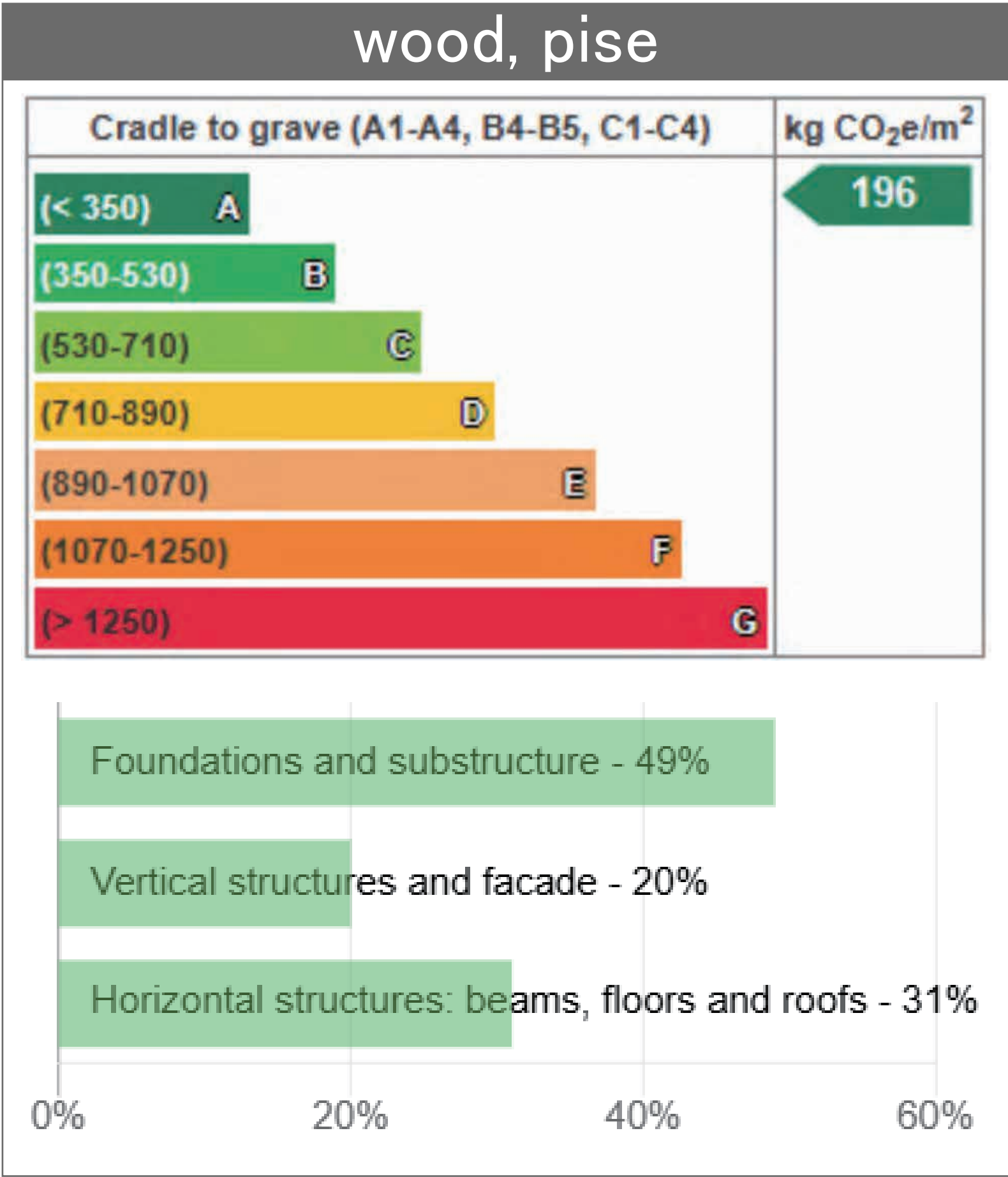
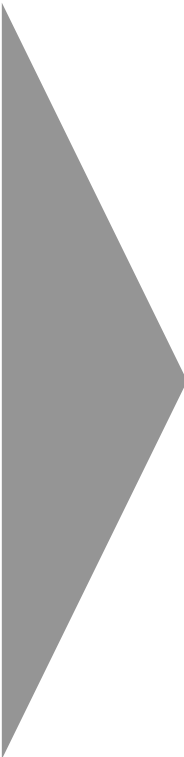
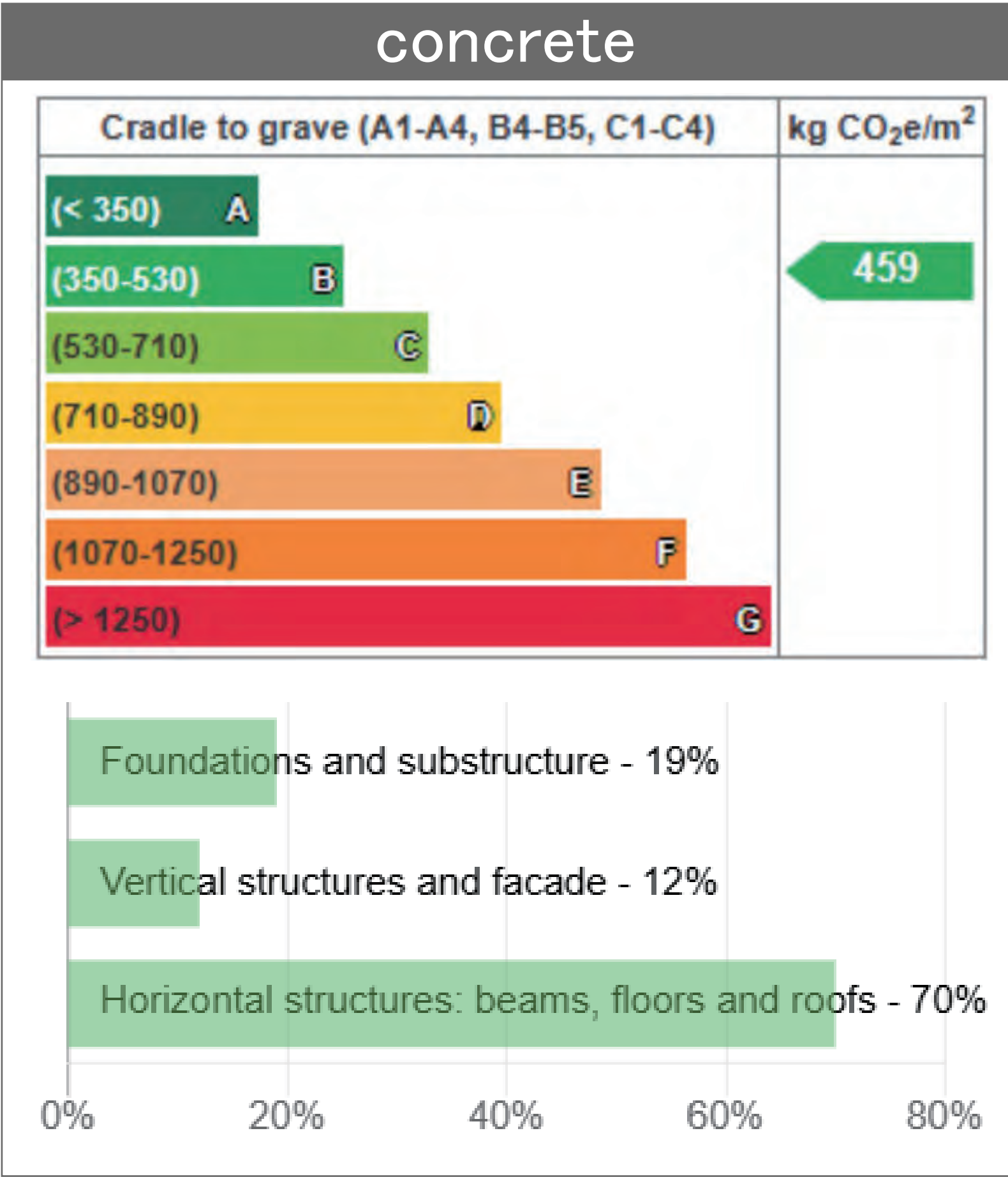
Roof

T : Roof.  
Cs: Separating layer. To be used when adhesion or contact between layers must be avoided.  
I : Weberdry waterproofing IMPERFLEXGEL.  
TS: Wood support board.  
C : Ventilated air chamber.  
SR: Resistant support.





5. Environmental Performance (Zone B - LCA)





# 5. Environmental Performance (Zone B - LCA)

truck

Resource

Rammed earth wall, cement stabilise

CO<sub>2</sub>e

Transport, kilometers

40

Dumper truck, 19 ton

Transport, leg 2, kilometers

0

Train, average

116t - 9%

train

Resource

Rammed earth wall, cement stabilise

CO<sub>2</sub>e

Transport, kilometers

5

Dumper truck, 19 ton

Transport, leg 2, kilometers

35

Train, average

112t - 9%

new material

Resource

Rammed earth wall, cement stabilise

CO<sub>2</sub>e

Transport, kilometers

5

Dumper truck, 19 ton

Transport, leg 2, kilometers

35

Train, average

112t - 9%

reused material

Resource

Rammed earth wall, cement stabilise

CO<sub>2</sub>e

Quantity

1164

m3

Reused material

☐

86t - 7%

Quantity

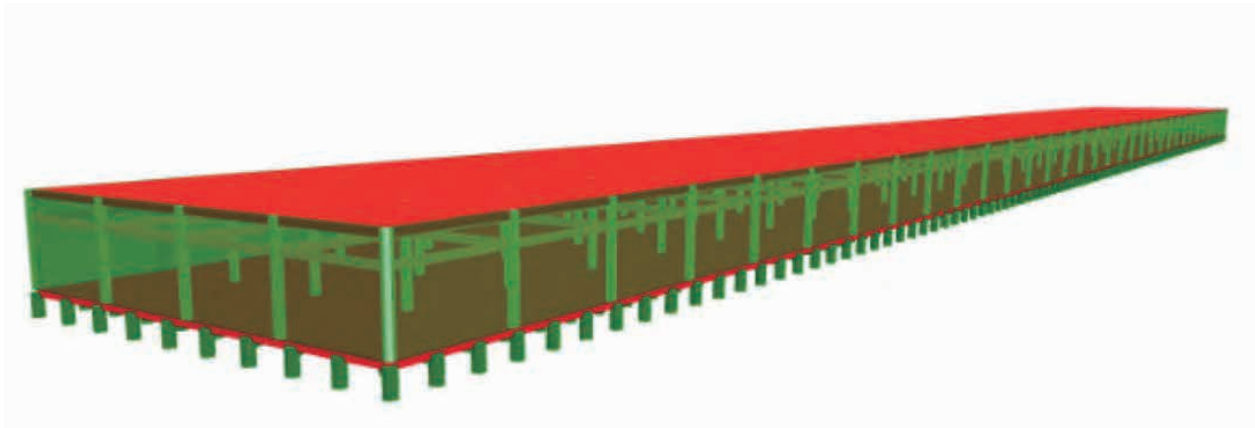
350

m3

Reused material

☒

0,23t - ~0%



By using rail to transport Pis , CO2 emissions were reduced.  
CO2 emissions were also reduced by reusing the Pis  used at Site A at Site B.



# 5. Environmental Performance (Zone A & B - SG SAVE)

ZONE  
A

## Modification

→The reconfiguration of the building into an atrium expanded the opening and improved the interior illumination, but the heating load was overloaded.  
The condition was cleared by increasing the insulation performance of the windows. (Double glazing)

### Compliance

| Indicator                                | Building [kWh/m²] | Limit value [kWh/m²] | Comply     |        |
|------------------------------------------|-------------------|----------------------|------------|--------|
| Heating needs                            | 11,9              | 15,0                 | Yes        |        |
| Cooling needs                            | 4,1               | 15,0                 | Yes        |        |
| Lighting autonomy 300 Lux                |                   |                      |            |        |
|                                          | Autonomy [%]      | Required [%]         | Comply     |        |
| TZ: SPACE 1 DAYLIGHTINGCONTROLS          | 90,8              | 60.0 %               | Yes        |        |
| Summer comfort (overheating % of season) |                   |                      |            |        |
|                                          | Overheating [%]   | Required [%]         | target [%] | Comply |
| TZ: SPACE 1                              | 0,0               | 10,0 %               | 5.0 %      | Yes    |

ZONE  
B

## New construction

→Since lighting cannot be cleared only by side openings, the roof shape was devised to bring in lighting from the ceiling surface.  
(There is a gap between the ceiling and the truss roof. (A permeable material was partially used for the truss roof.)

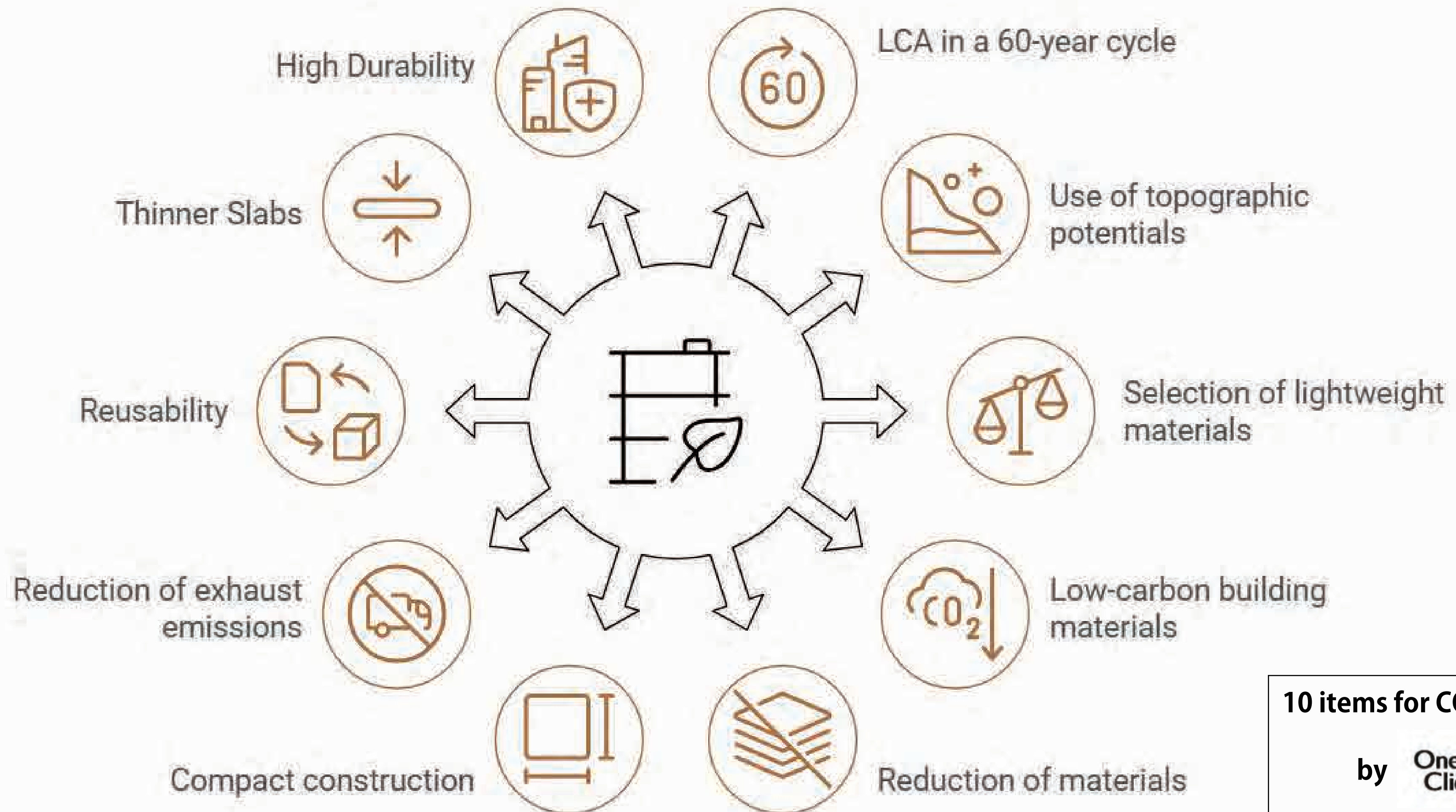
### Compliance

| Indicator                                | Building [kWh/m²] | Limit value [kWh/m²] | Comply       |        |
|------------------------------------------|-------------------|----------------------|--------------|--------|
| Heating needs                            | 13,0              | 15,0                 | Yes          |        |
| Cooling needs                            | 10,7              | 15,0                 | Yes          |        |
|                                          |                   |                      |              |        |
| Lighting autonomy 300 Lux                |                   | Autonomy [%]         | Required [%] | Comply |
| TZ: SPACE 1 DAYLIGHTINGCONTROLS          |                   | 64,0                 | 60.0 %       | Yes    |
|                                          |                   |                      |              |        |
| Summer comfort (overheating % of season) | Overheating [%]   | Required [%]         | target [%]   | Comply |
| TZ: SPACE 1                              | 0,0               | 10.0 %               | 5.0 %        | Yes    |





## 5. Environmental Performance (10 criteria for environmental improvements)



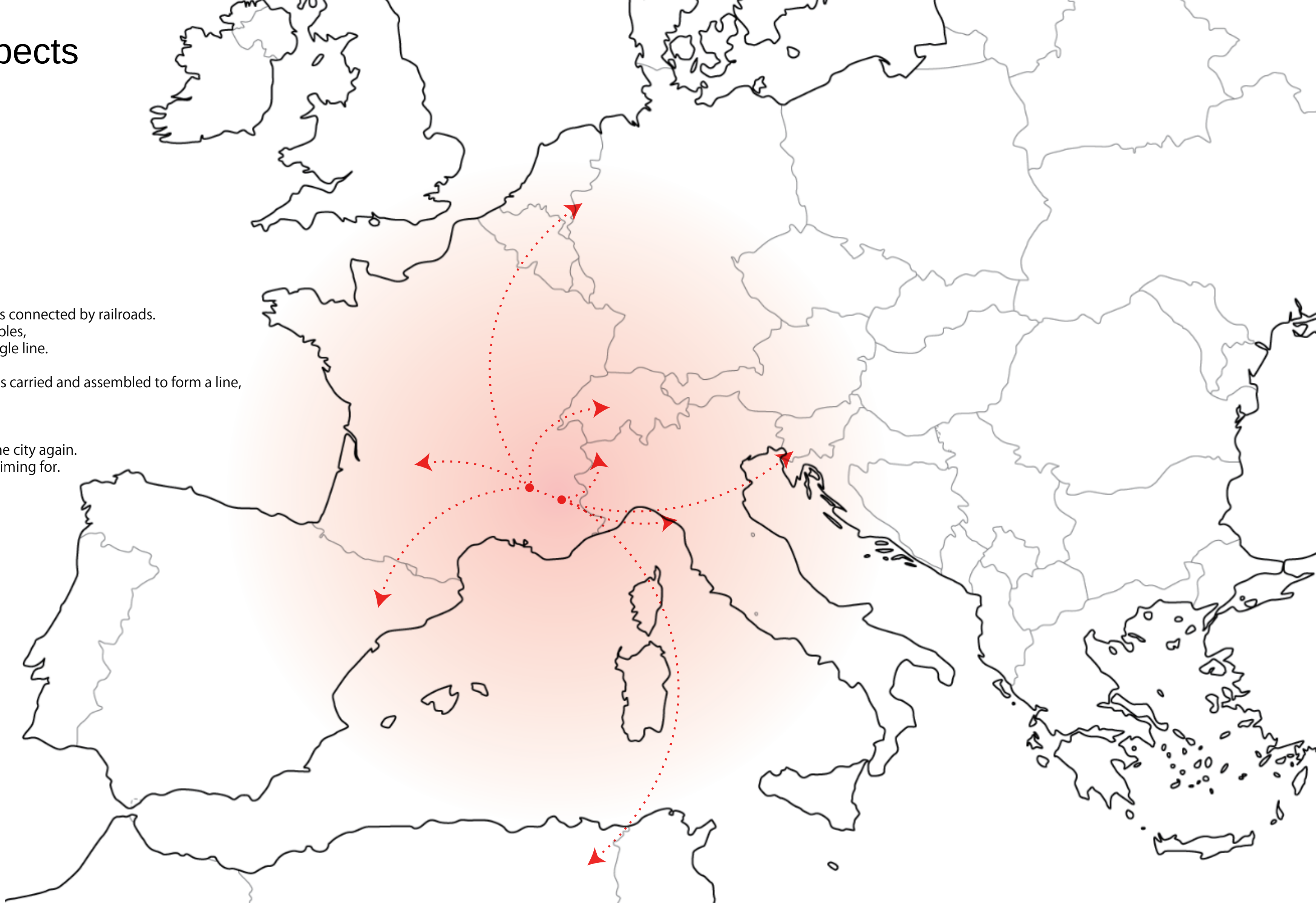


## 6. Future Prospects

Open spaces propagate from the towns connected by railroads.  
It will eventually become a chain of ripples,  
rather than a mere connection on a single line.

The pise-block, born as a point at first, is carried and assembled to form a line,  
which eventually diverges into a city.

Line to Field. Let's open and connect the city again.  
This is the kind of architecture we are aiming for.







RE: PUBLIC  
→ BRICK

