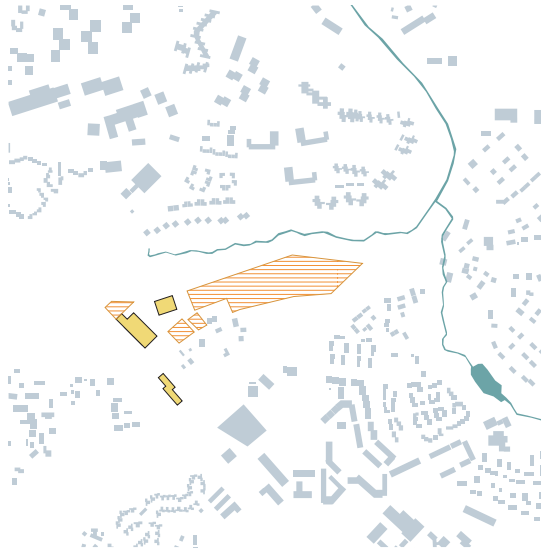


Border Landscapes





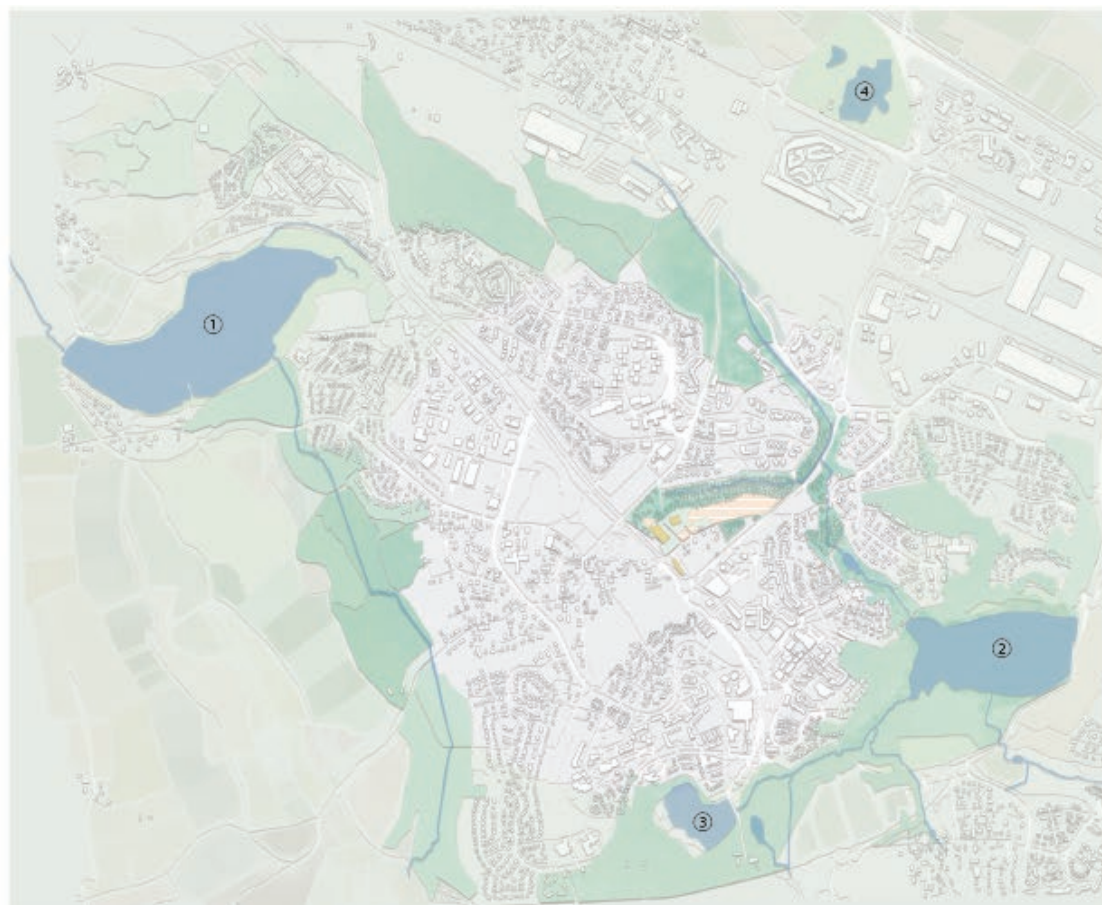
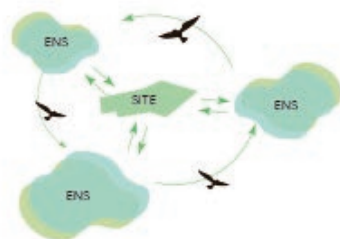
LOCATION



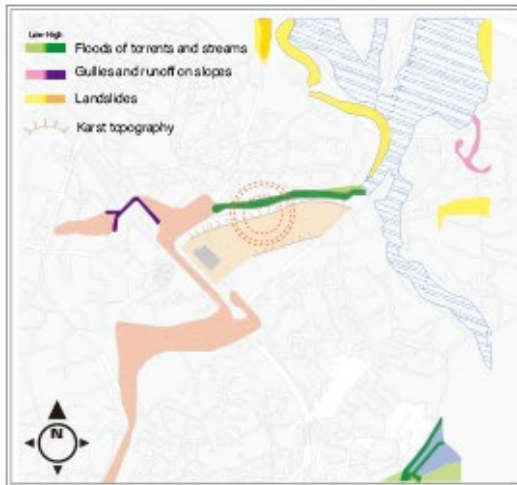
The Villefontaine site is an elongated plot with a west-to-east downward slope, positioned adjacent to existing facilities to extend their functions. Characterized by unobstructed southwestern winds and bordered by a northern plantation that serves as an urban-nature buffer, the site naturally functions as a transition zone between built and natural environments.

Abstract: ENS Greenbelts on Local Biodiversity

Espaces Naturels Sensibles (ENS) refers to a category of natural areas in France, managed primarily by departmental authorities, and is best understood as "Sensitive Natural Areas" or "Protected Natural Spaces."



Natural Environmental Hazard



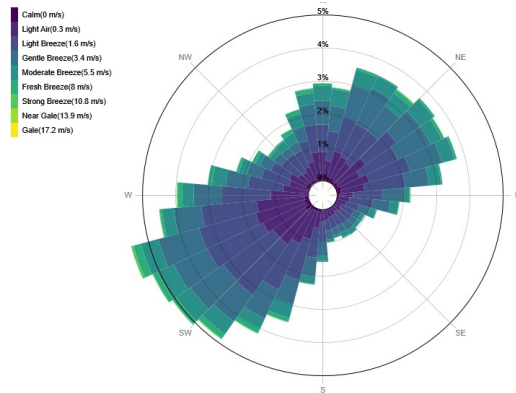
Site analysis: Historical shift



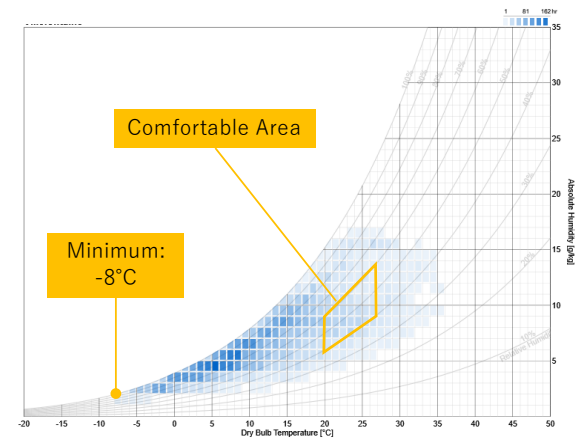
Villefontaine Climate Data Analysis



Yealy Wind Speed



Yealy Humidity and Dry Bulb Temperature



Ventilation Plan

Villefontaine's site is exposed to wind from the south with a high probability throughout the year. In this plan, southwestern and north eastern window will be opened, and natural circulation will be generated.

Also, if there is no wind, by arranging the wind turbines along the slope of the site in a cascade manner, it creates a high-low difference inside the building, and it carries out gravity circulation.

Passive Heating System

Since the temperature drops to -5°C in winter, it is greatly outside the comfort zone, so by releasing the solar heat during the day to store heat in the wall at night, you can do a passive heating plan and realize a comfortable indoor environment that does not depend on the heating system.



Border Landscapes in Villfontaine

2075

Master Plan

In Villefontaine, we dissolve the boundary between urban and natural environments, creating spaces of mutual permeation. By incorporating surrounding nature reserves and viewing the region holistically, boundaries blur, developing into a Habitat that serves as a biological corridor hub. We reinterpret topographical variations and natural hazards as architectural elements that simultaneously foster human interaction and wildlife movement. This evolving environment explores new forms of coexistence between city and nature.







Corridor

Dormitory

Corridor

A

B

E

C

D

CLT Wall & Wooden Floor
廊下が熱を密閉する。

Rammed Earth Wall & Wooden Floor
夜間に居室内へと放熱される。

Rammed Earth Wall & Floor
版築壁と土造床が太陽熱を蓄熱する。

ISOVER
SAINT-GOBAIN



- 0.4mm Metal roofing with galvanized steel
- 1mm Asphalt roll roofing
- 12mm Structural plywood
- 220mm Insulation: Saint Gobain ISOVER Glass wool**
- 12mm Structural plywood
- 40×60mm@455mm Pine wood rafter

- 22mm Wooden facade with Moelven Thermowood
- 120mm Insulation: Sainst Gobain ISOVER Glass Wool**
- Air Gap (Vapour Control)
- 100mm Insulation: Sainst Gobain ISOVER Glass Wool**
- 0.2mm Sainst Gobain ISOVER: VariokM Duplex
- 90mm CLT element

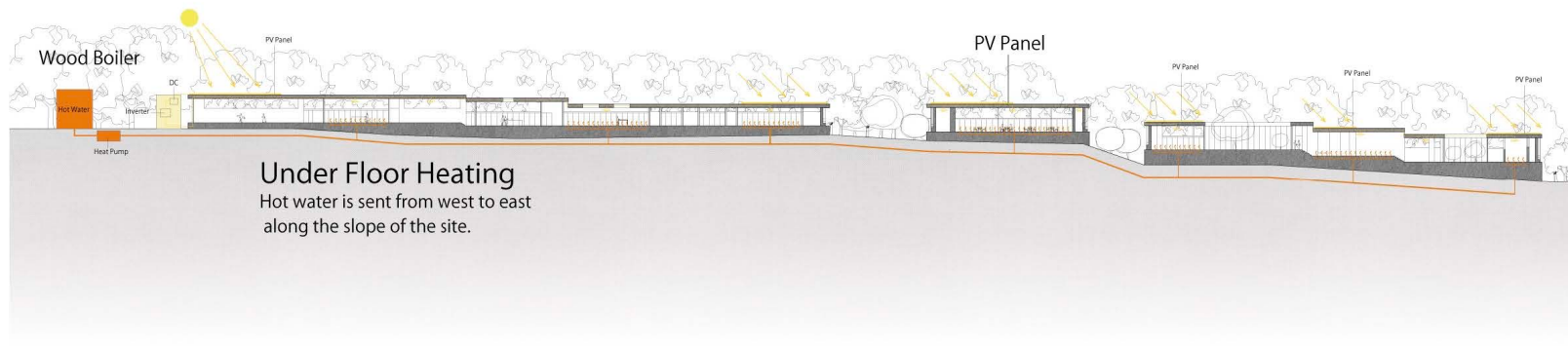
Technical drawing of a roof cross-section. It shows a concrete slab (hatched with diagonal lines) supported by a structure. Above the slab is a layer of insulation (hatched with cross-hatching) and a waterproofing layer (indicated by a line with a cross-hatch pattern). The drawing is labeled with '1' and '2'.

1. 20mm Floor finishing with natural pine solid wood
2. 12mm Waterproof plywood
3. **90mm Timber stud with mortar: Saint Gobain WEBER: webertherm ETICS mortar**
4. 120mm Concrete Foundation
5. **230mm Insulation: Saint Gobain ISOVER XPS**

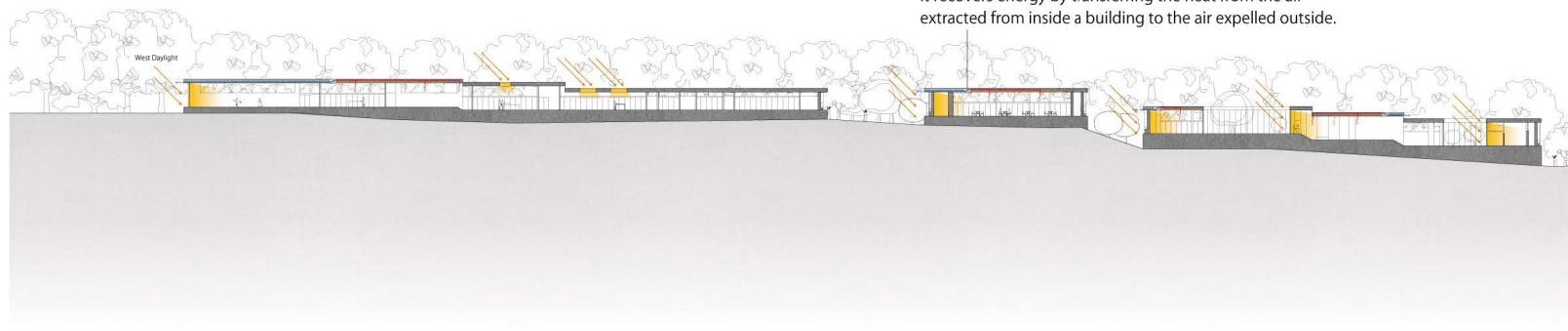
1. 12mm Floor finishing with linseed oil
2. 30mm Earth Mortar
3. 120mm Concrete Foundation
4. **230mm Insulation: Saint Gobain ISOVER XPS**

1. 300mm Rammed Earth with limewashed paint
2. 12mm Plywood
3. **120mm Insulation: Saint Gobain ISOVER Glass Wool**
4. Air Gap (Vapour Control)
5. **100mm Insulation: Saint Gobain ISOVER Glass Wool**
6. 22mm Wooden facade Moelven Themowood

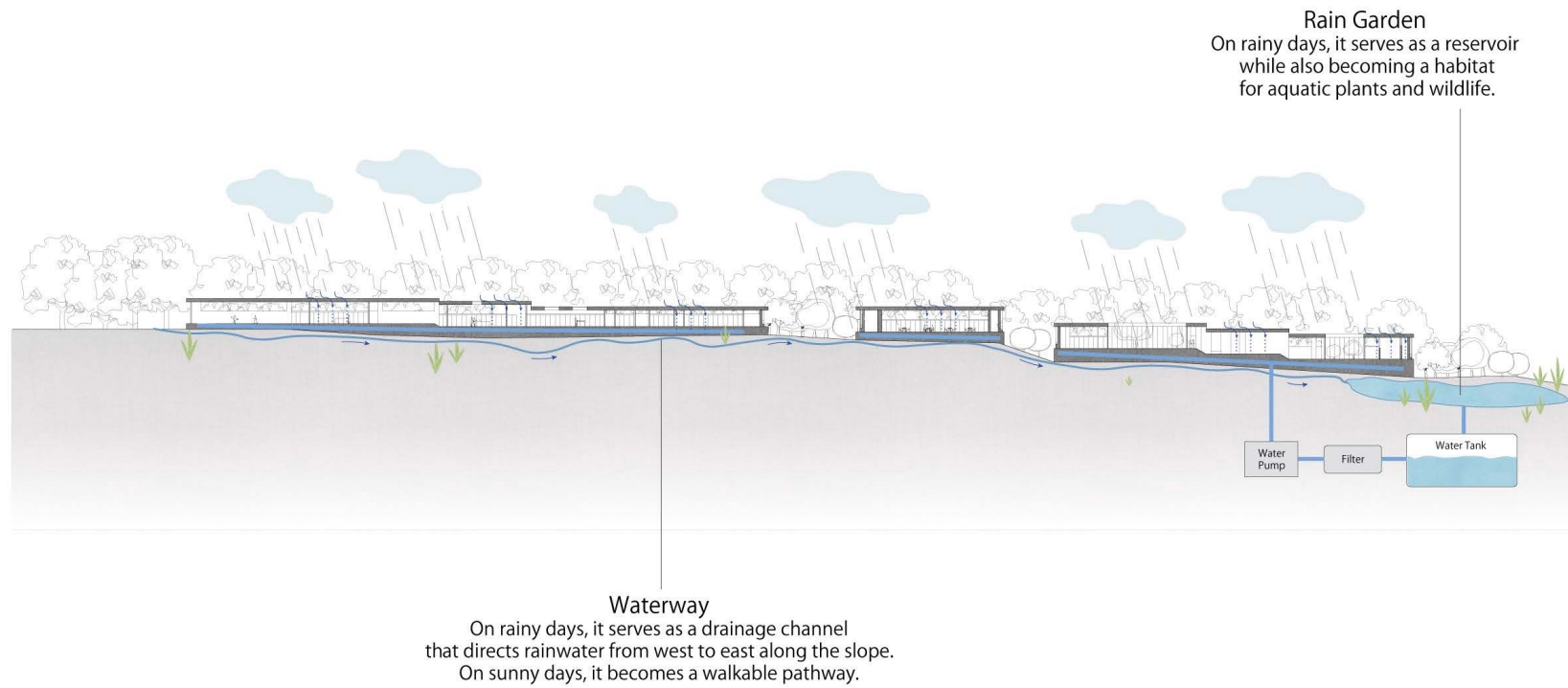
Energy Solution



Ventilation & Daylight



Water Treatment



Sustainable Materials

Timber Structure

Reduce Carbon Emission
Timber reduces carbon emissions
in the building life cycle.

Wooden Roof Structure

Wooden Pillar

CLT Wall

Flexibility and Adaptability

Movable CLT Wall

By opening and closing the movable
CLT walls, the size of the room can be
flexibly changed according to the
purpose and number of occupants.

Concrete

Low Carbon Concrete Foundation

CHRYSO EnviroMix, which is made with
ash, slag, etc, reduces CO2 emission
up to 50% during producing.

Heat Storage

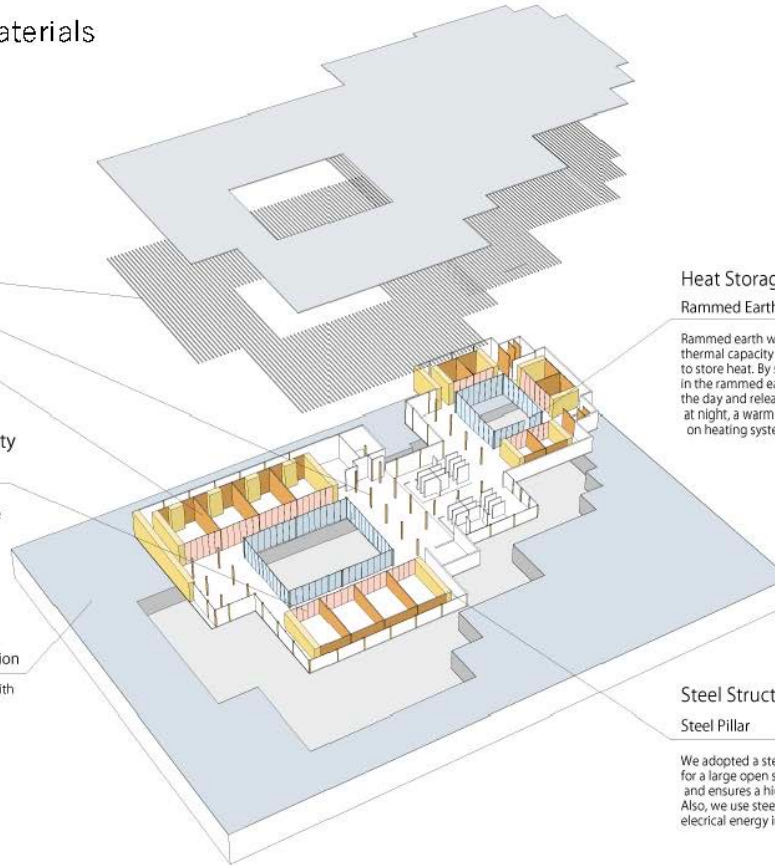
Rammed Earth Wall

Rammed earth walls have a large
thermal capacity and have the ability
to store heat. By storing solar heat
in the rammed earth walls during
the day and releasing it into the room
at night, a warm space independent
on heating system can be created.

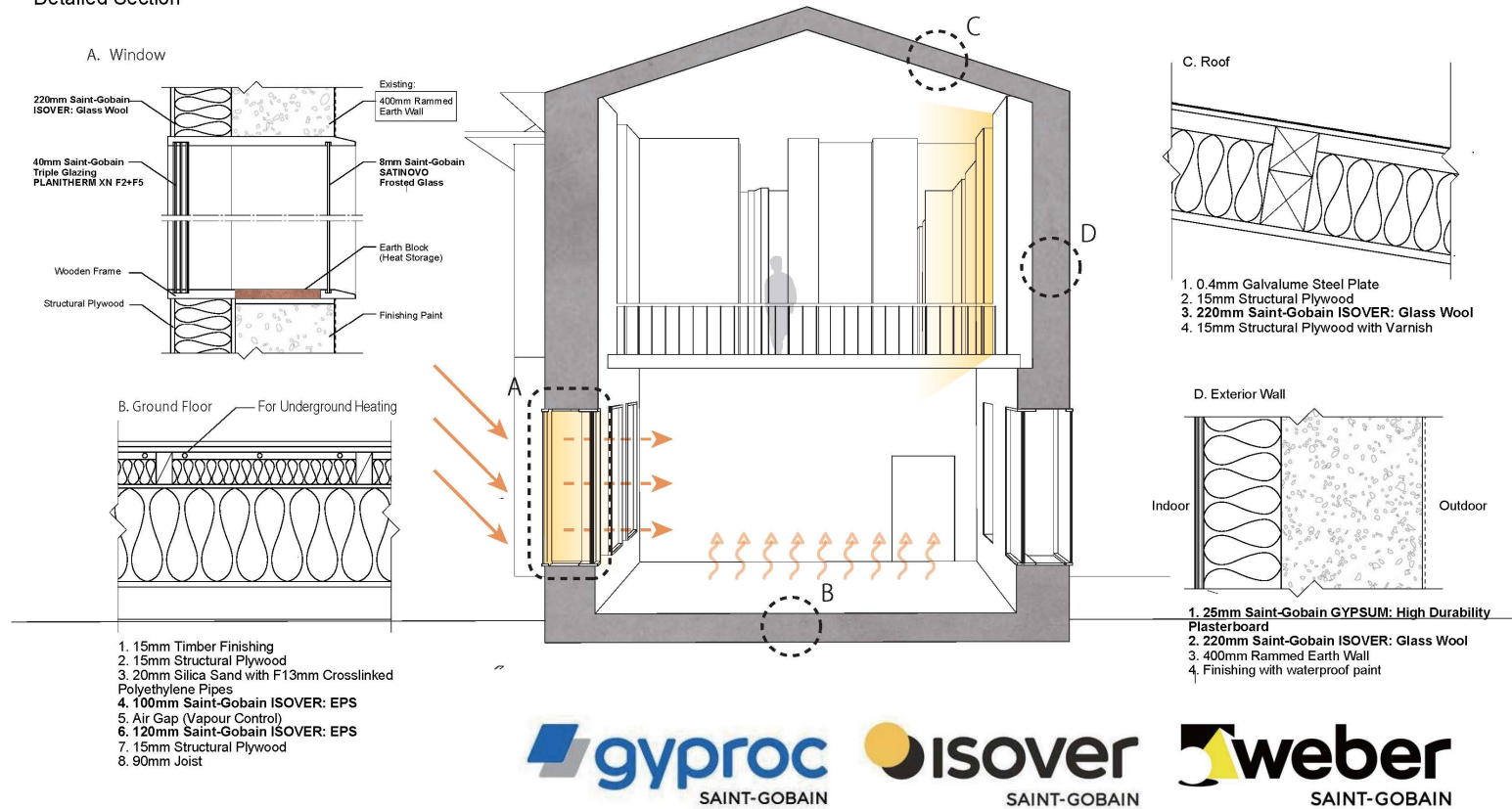
Steel Structure

Steel Pillar

We adopted a steel structure that allows
for a large open space with long spans
and ensures a high recyclability.
Also, we use steel produced using
electrical energy instead of fossil fuels.

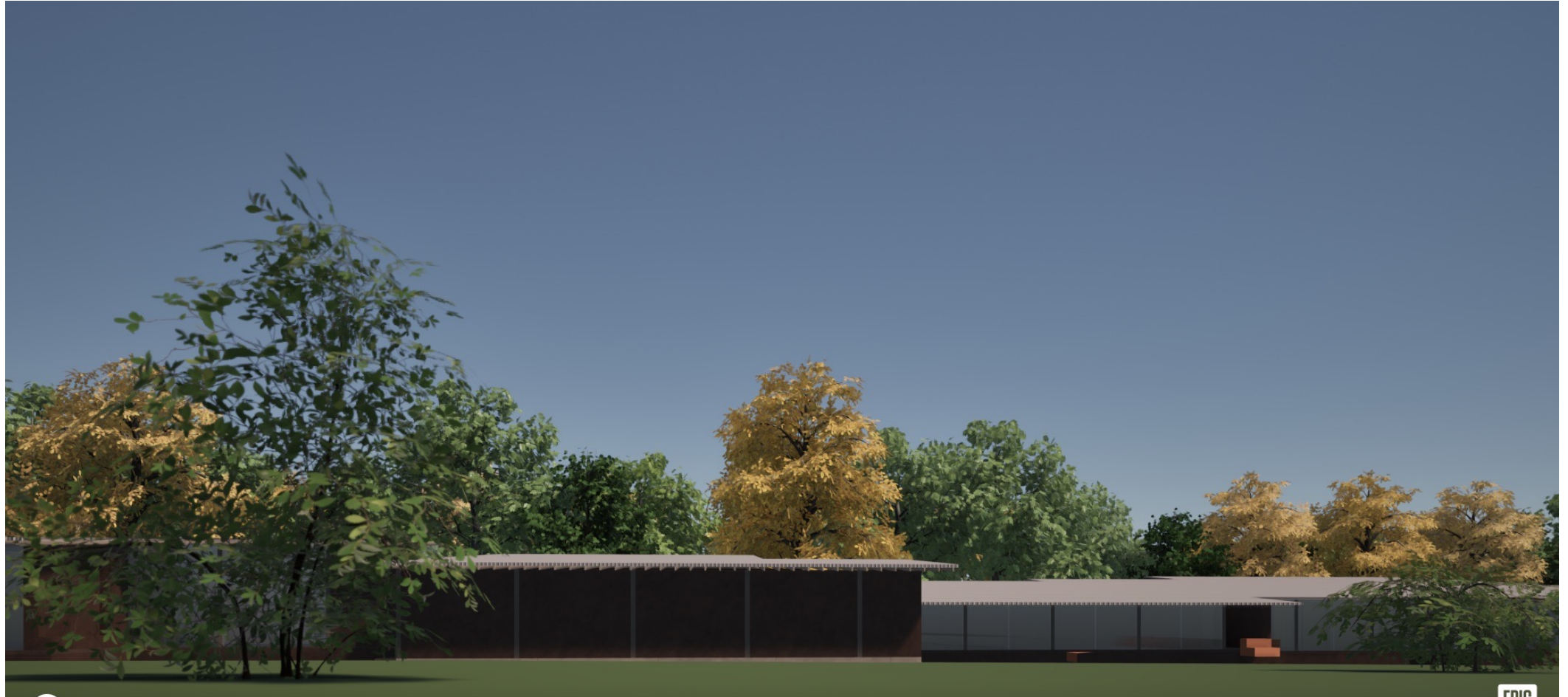


Detailed Section









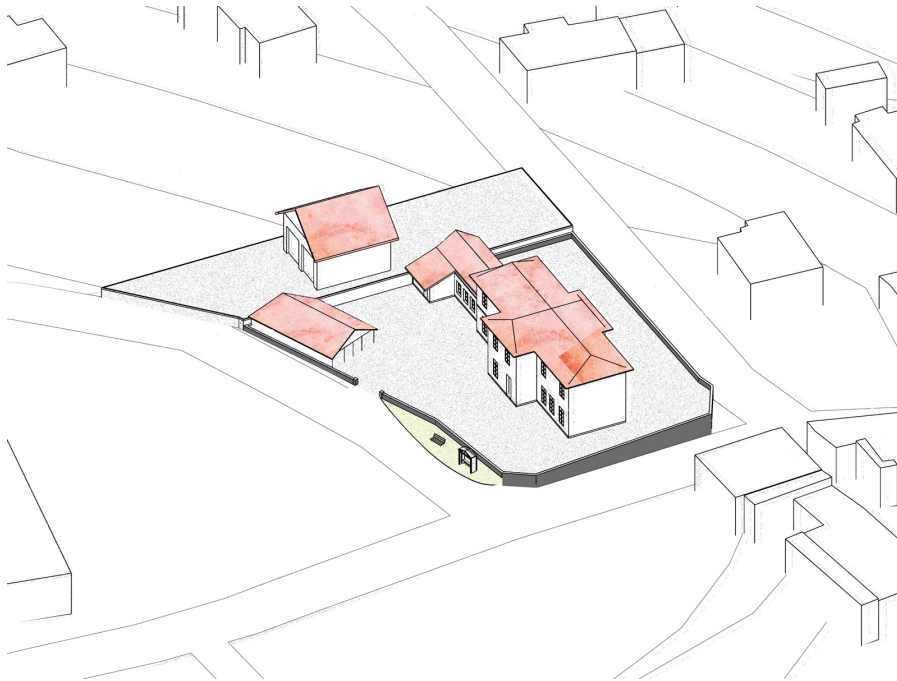


Border Landscapes in Chimilin

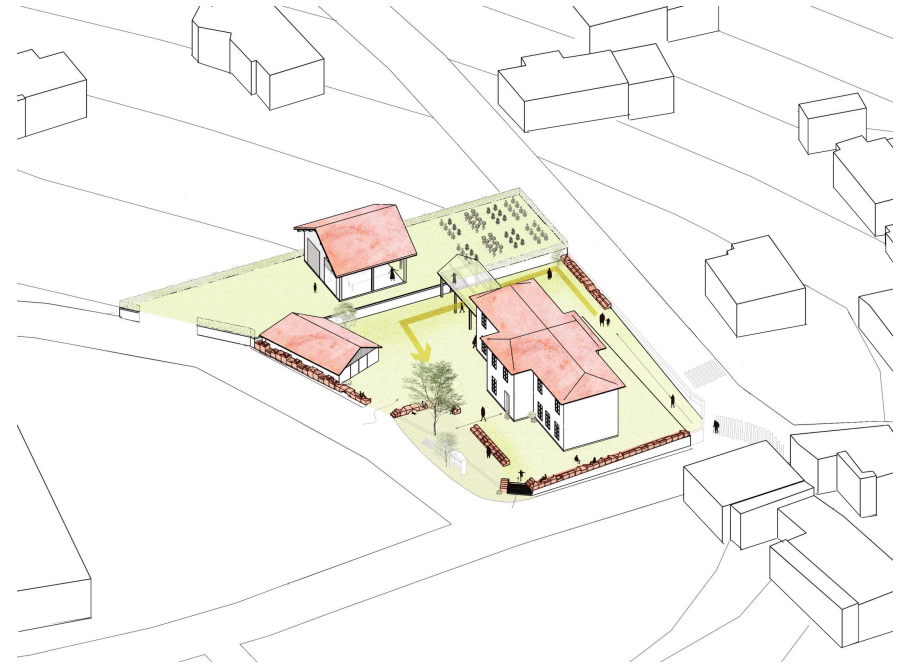
Location



Current state

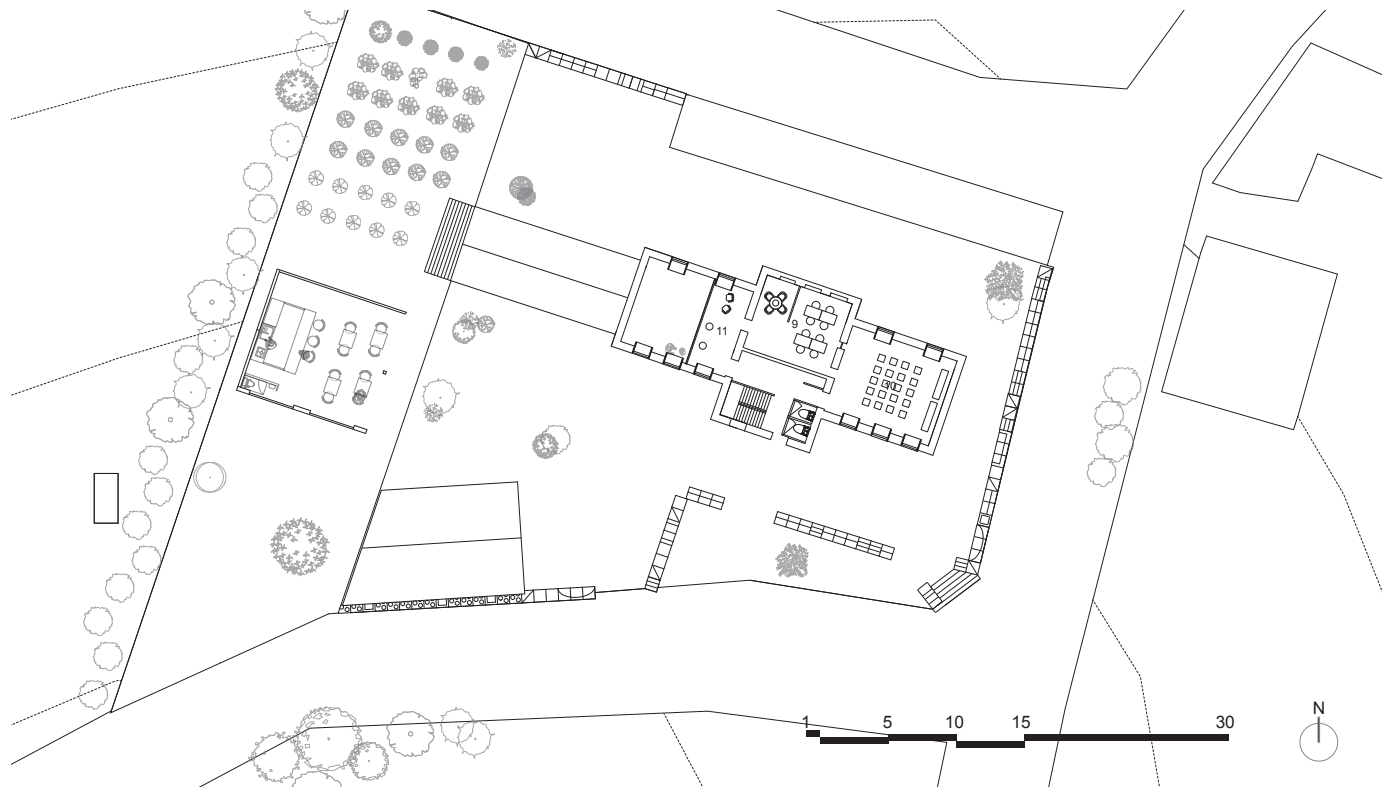


After renovation/changes



1st Floor plan



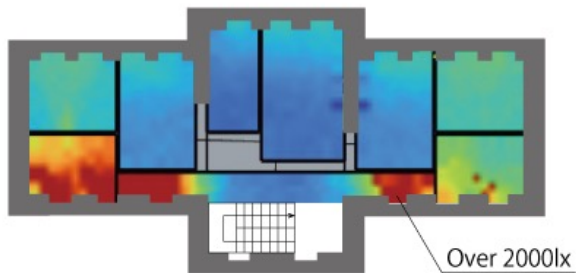




Daylight Treatment

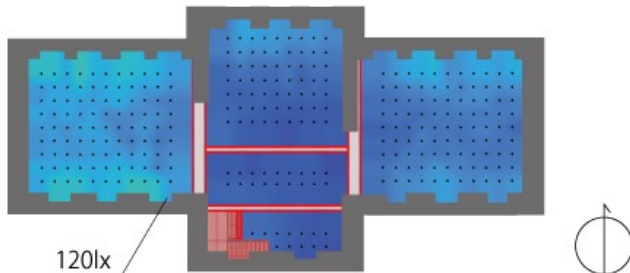
Existing Building

The direct sunlight floods the south-facing window, making the room overly bright.



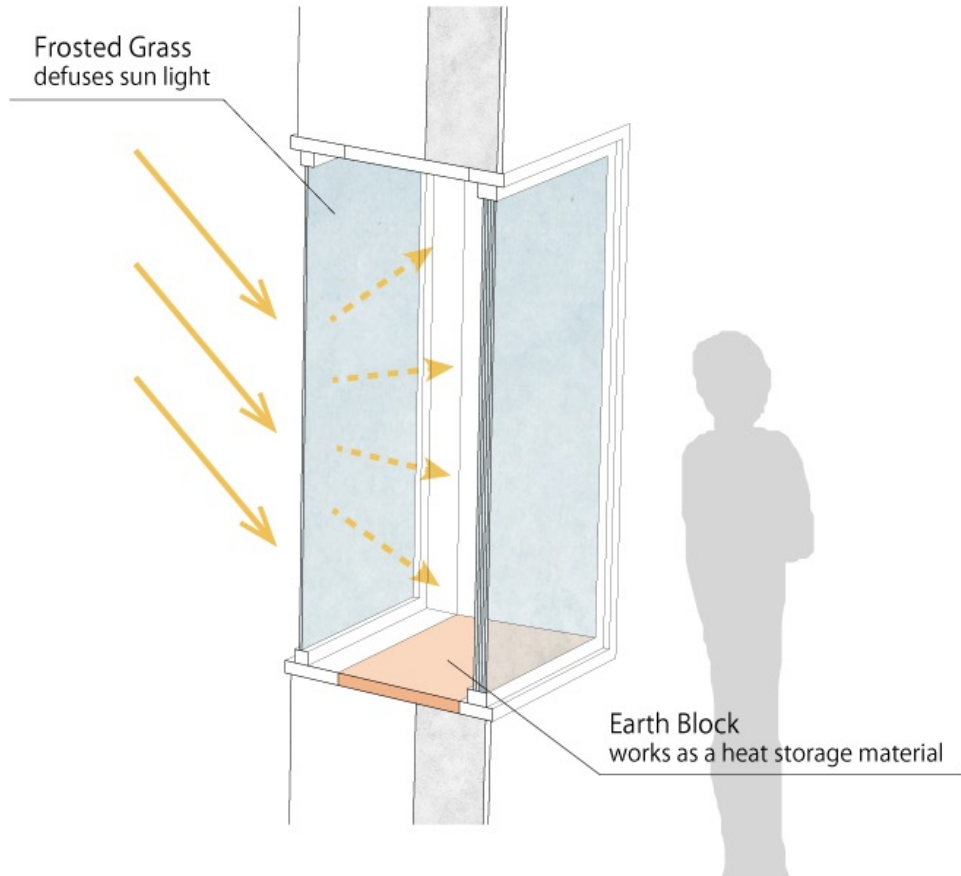
Our Plan

Install frosted glass and triple-glazed glass into the existing openings to diffuse direct sunlight.



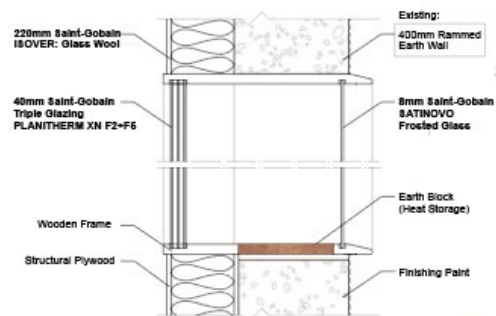
Materials & Environmental Effects

Frosted Glass
defuses sun light

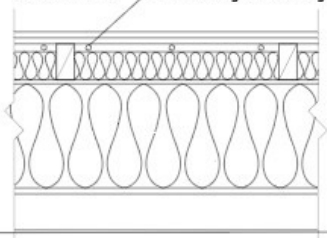


Detailed Section

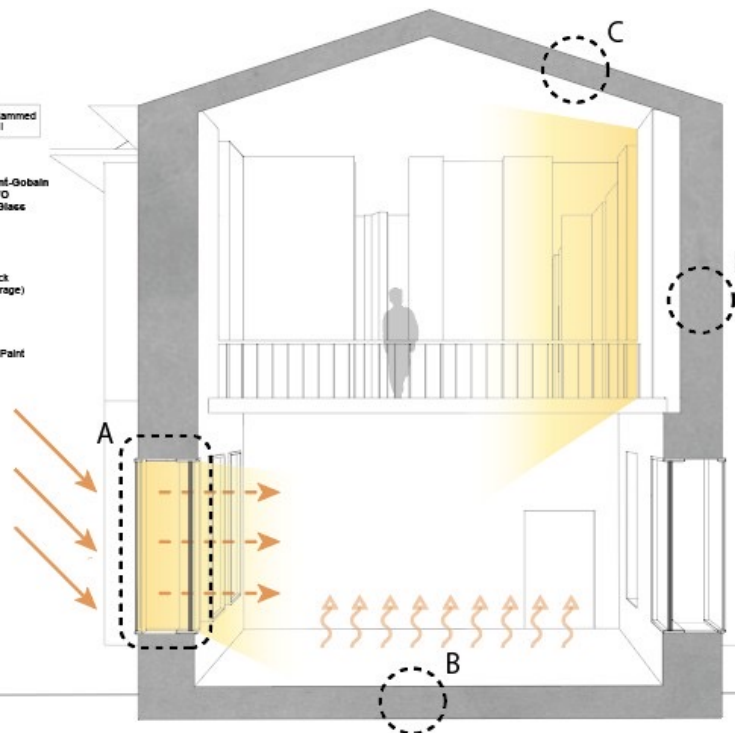
A. Window



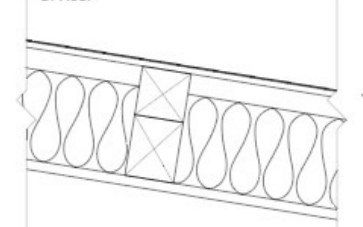
B. Ground Floor



1. 15mm Timber Finishing
2. 15mm Structural Plywood
3. 20mm Silica Sand with F13mm Crosslinked Polyethylene Pipes
4. 100mm Saint-Gobain ISOVER: EPS
5. Air Gap (Vapour Control)
6. 120mm Saint-Gobain ISOVER: EPS
7. 15mm Structural Plywood
8. 90mm Joist

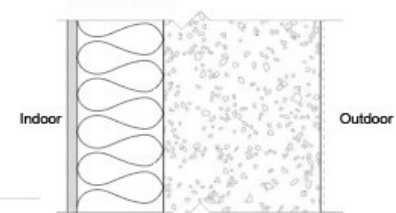


C. Roof



1. 0.4mm Galvalume Steel Plate
2. 15mm Structural Plywood
3. 220mm Saint-Gobain ISOVER: Glass Wool
4. 15mm Structural Plywood with Varnish

D. Exterior Wall



1. 25mm Saint-Gobain GYPSUM: High Durability Plasterboard
2. 220mm Saint-Gobain ISOVER: Glass Wool
3. 400mm Rammed Earth Wall
4. Finishing with waterproof paint

gyproc
SAINT-GOBAIN

isover
SAINT-GOBAIN

weber
SAINT-GOBAIN







Border Landscapes

Satoko KASHIWAGI／Tamaki HAYASHI／Misuzu TERAOKA