



**ARCHITECTURE STUDENT CONTEST**  
**20<sup>th</sup> INTERNATIONAL EDITION, NORD ISÈRE 2025**

# CHAMP D'ATELIERS

FRANCE, NORD-ISERE

  
Lumière  
des Maîtres

Team n° 9

Viktoriiia Dukhina | UKRAINE

  
SAINT-GOBAIN

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## ABSTRACT

Chimilin & Villefontaine

Champ d'Atelier is a dual-site architectural project rooted in the Nord-Isère region, east of Lyon. It links two complementary interventions: the adaptive reuse of a former school in Chimilin and the development of a new residential-office campus in Villefontaine.

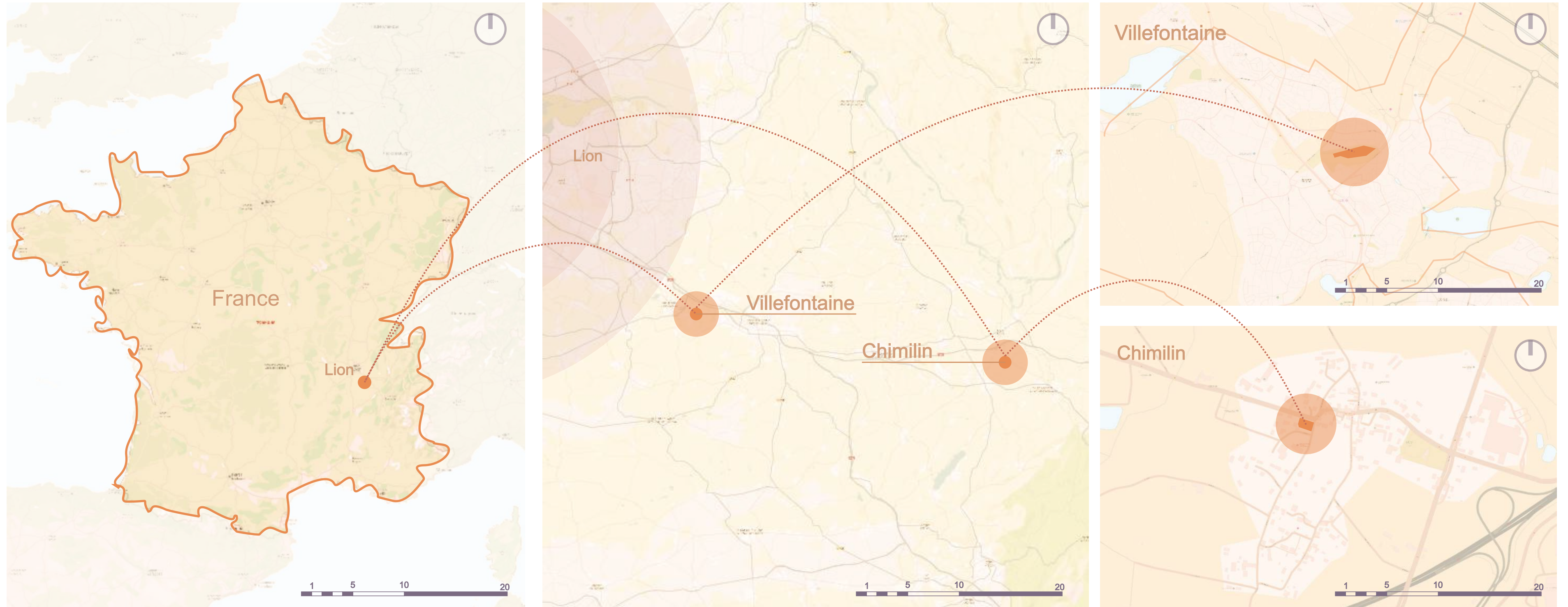
In Chimilin, the existing structure is reinforced and reimagined as a civic and administrative center.

The project retains the original façade, introduces a vertical extension, and reconfigures the interior with modular layouts and improved accessibility. Future plans include converting an adjacent hangar into a public hall.

In Villefontaine, the new campus—Lumière des Maîtres—extends the Les Grands Ateliers complex. It responds to the sloped, forest-adjacent terrain with a terraced layout, integrating co-creation labs, flexible living units, and solar-equipped rooftops. The design emphasizes natural materials such as hempcrete and CLT, high acoustic comfort, and passive environmental systems.

Together, the two sites reflect a shared commitment to sustainability, adaptability, and regional identity—where architecture supports creative practice and future-ready infrastructure in a rural context.

# SITUATION PLAN Nord-Isère



The projects in Chimilin and Villefontaine reflect two scales of regeneration in Nord-Isère. In Chimilin, a former school is transformed into a civic center, offering space for local associations and community life. In Villefontaine, a residential-office campus next to Les Grands Ateliers supports academic residencies and creative production, using sustainable timber and hempcrete construction. Both sites demonstrate how architecture can foster social, cultural, and ecological renewal.

# CŒUR DE CHIMILIN

## CHIMILIN

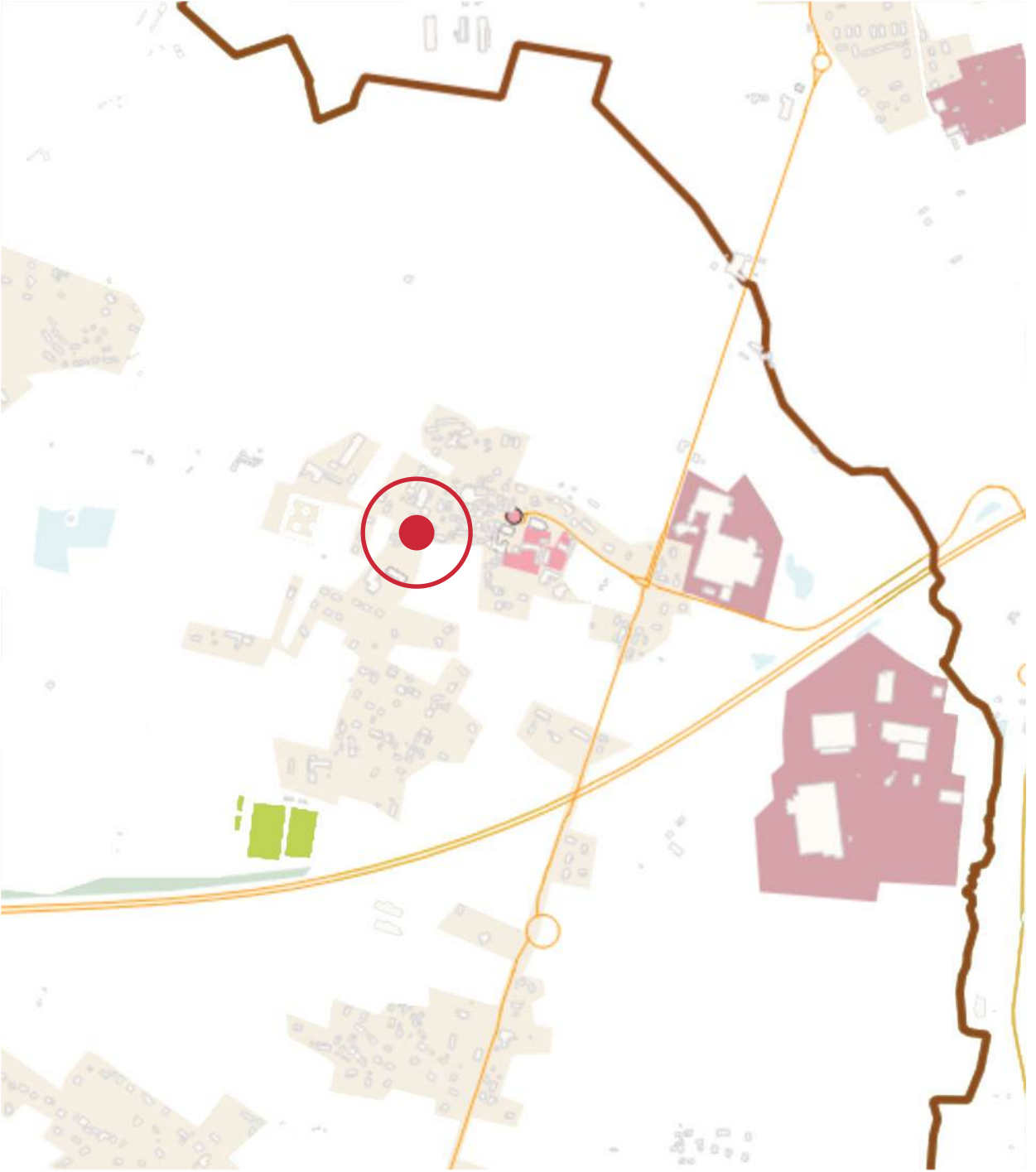


# SITE ANALYSIS Chimilin

Greenary and agriculture fields layer



Functional zoning



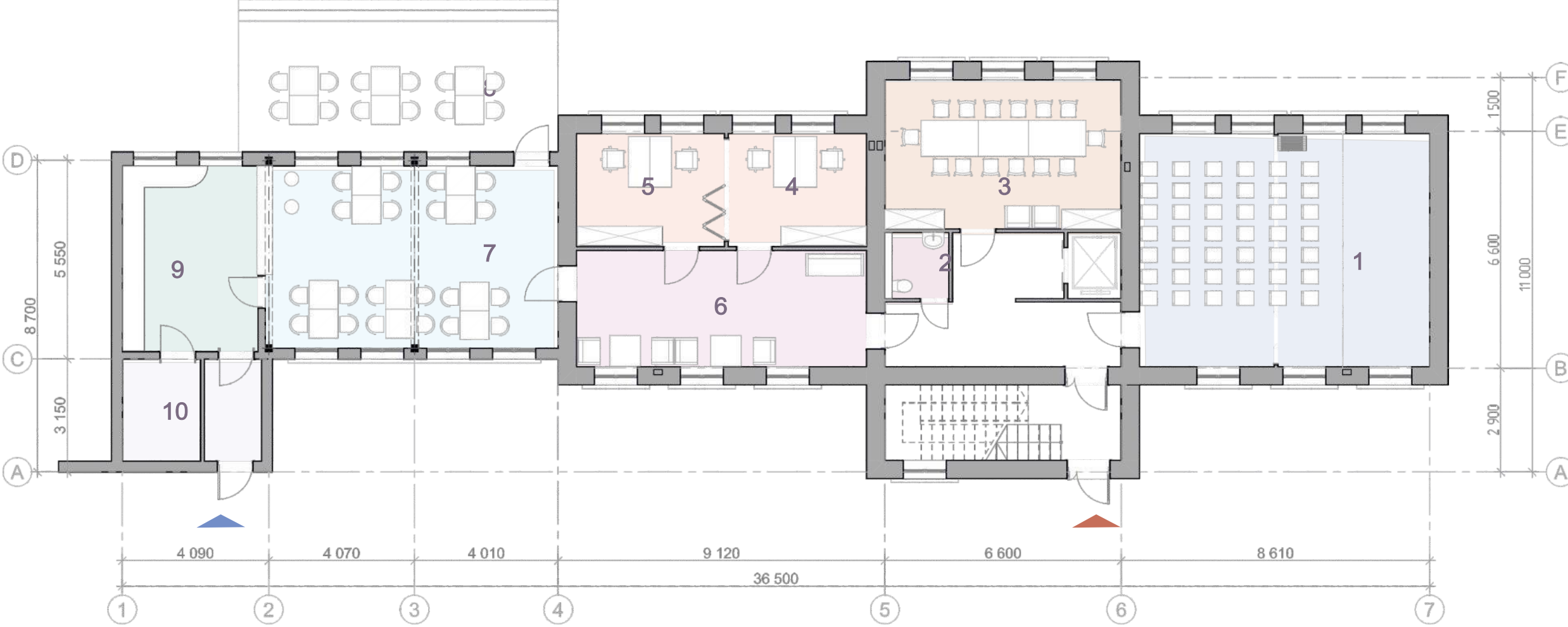
Transport system



Cœur de Chimilin. Master Plan Chimilin



# Cœur de Chimilin. Building plans Chimilin



1F plan

- 1. Multi-purpose room
- 2. Sanitary unit
- 3. Meeting room
- 4. Office space
- 5. Office space
- 6. Waiting and rest area
- 7. Cafeteria
- 8. Terrace
- 9. Kitchen
- 10. Cafeteria loading



# Cœur de Chimilin. Building plans Chimilin



2F plan

- 1. Office
- 2. Sanitary unit
- 3. Multi-purpose area (office space)
- 4. Meeting room
- 5. Multi-purpose area (office space)
- 6. Multi-purpose area (office space)
- 7. Waiting area
- 8. Office space
- 9. Meeting room
- 10. Hall

Cœur de Chimilin. Building plans Chimilin



Attic plan

- 1. Conference Hall 1
- 2. Storages
- 3. Sanitary unit
- 4. Conference Hall 2
- 5. Hall

Meeting room (attic)



Conference hall (hangar, for future development)



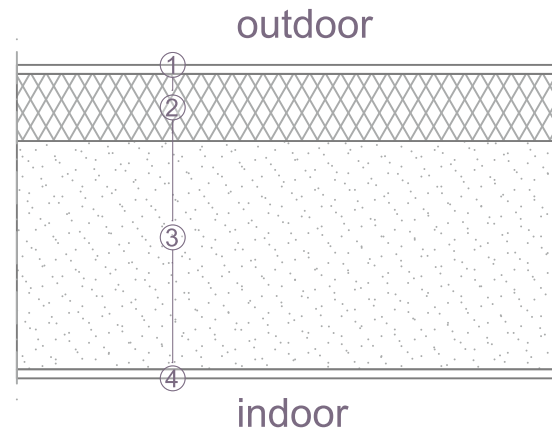
Cœur de Chimilin. Facades

Chimilin





# DETAIL SECTION Chimilin



## EXTERNAL WALL

1. Lime plaster
2. 150 mm **Isover Isonat FLEX 55**
3. 500 mm Dauphiné adobe (existing)
4. **Weber Tradical Premium Natural N650**

The renovated wall of the Chimilin school consists of a breathable and efficient build-up: natural lime plaster, 150 mm of Isover Isonat FLEX 55 insulation, the existing 500 mm Dauphiné adobe wall, and an interior finish of Weber Tradical Premium N650.

Cracks in the adobe were stabilized using lime-based grout and earth mortars. Larger openings were repaired with compatible masonry and lime. Monitoring was done with plaster markers. All materials were chosen to preserve the wall's vapor permeability and structural integrity.









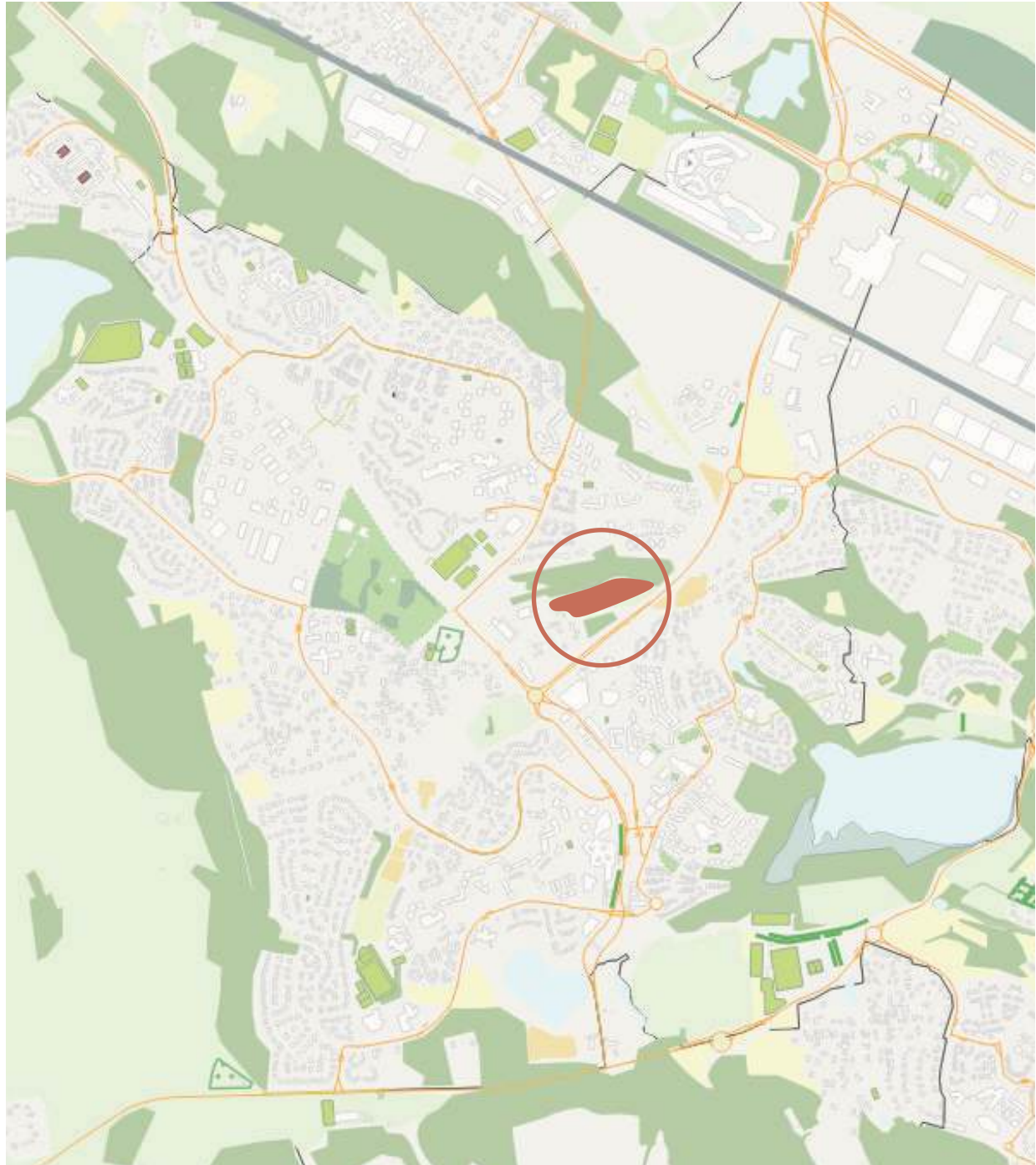
# LUMIÈRE DES MAÎTRES

FRANCE, VILLEFONTAINE

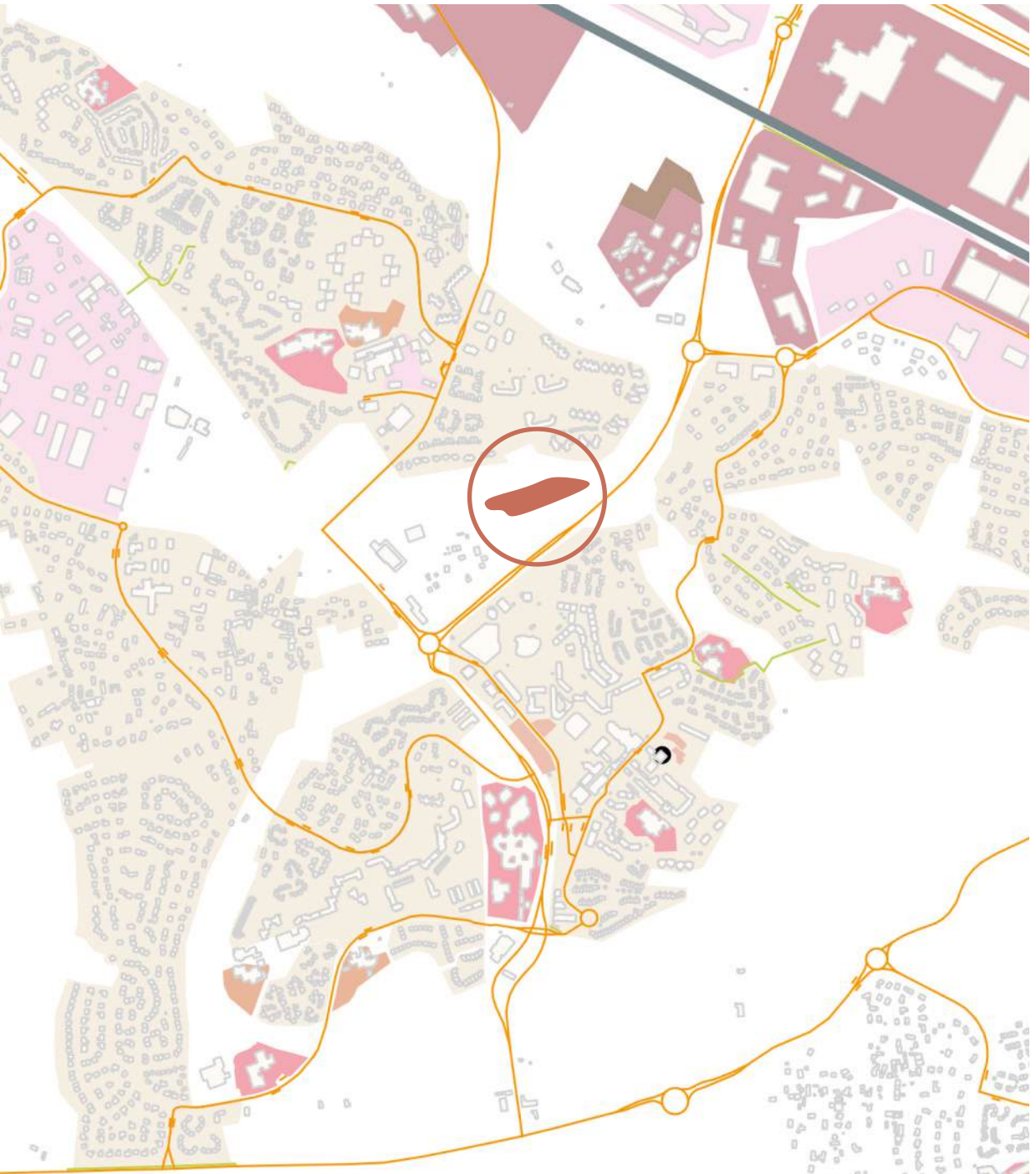


# SITE ANALYSIS Villefontaine

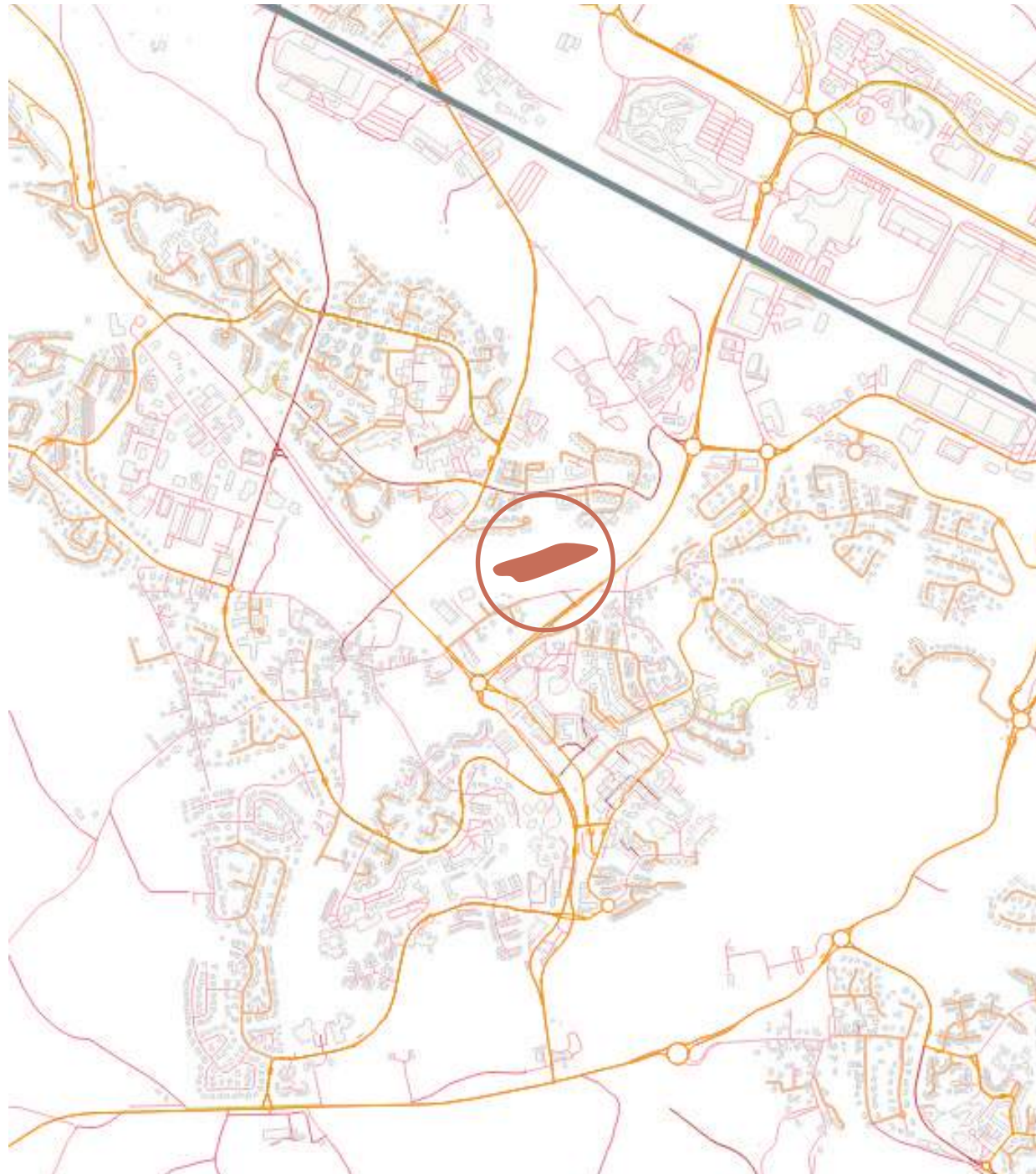
Greenary and agriculture fields layer



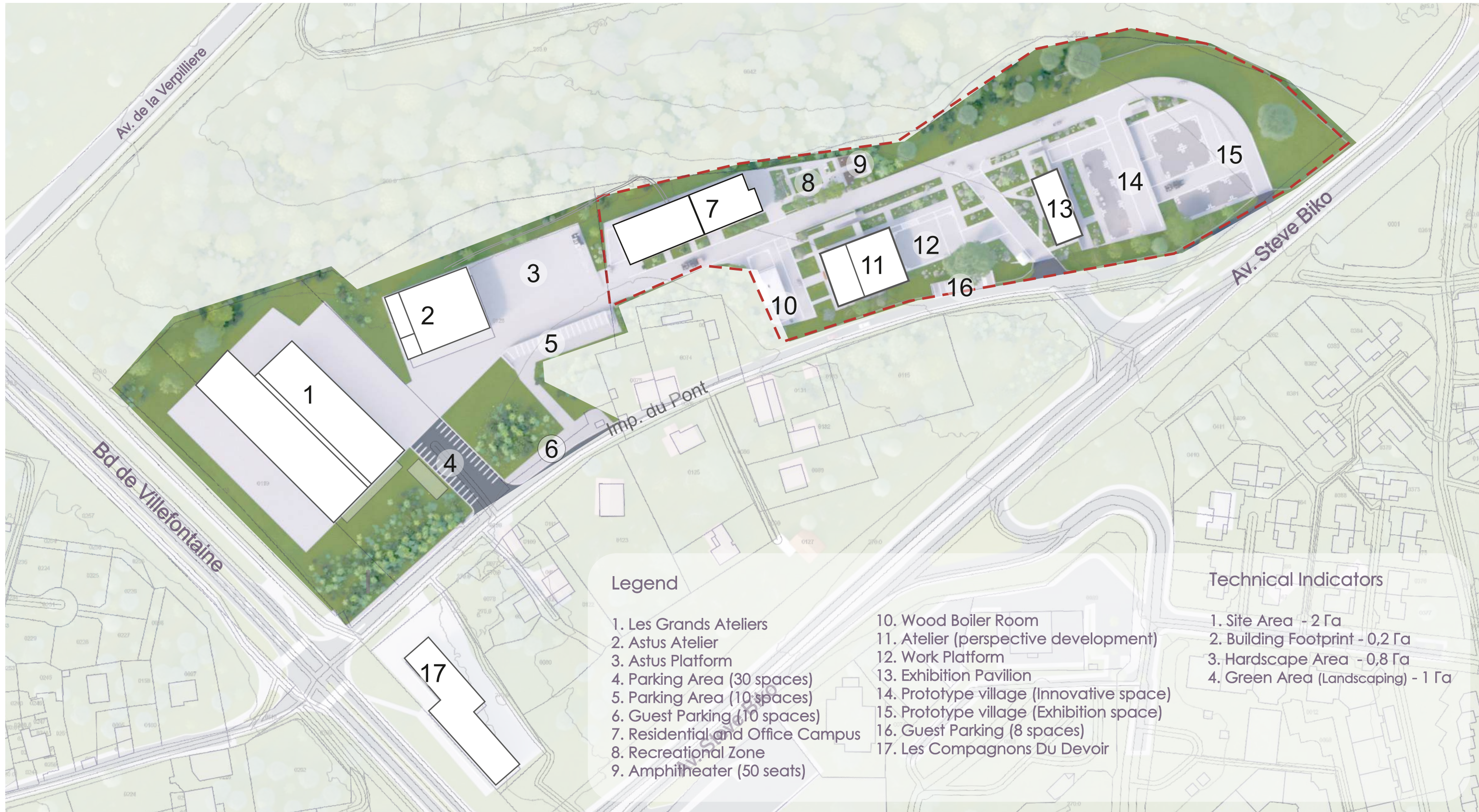
Functional zoning



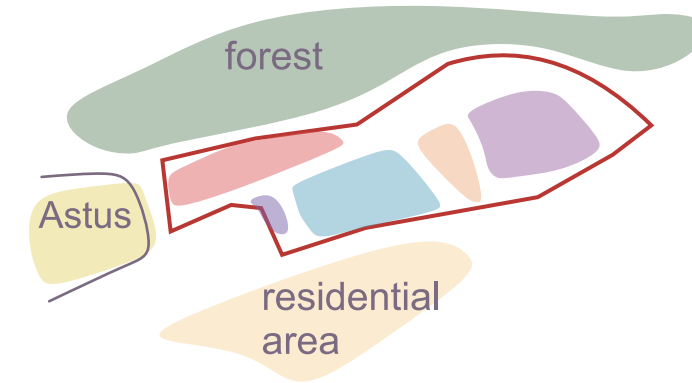
Transport system



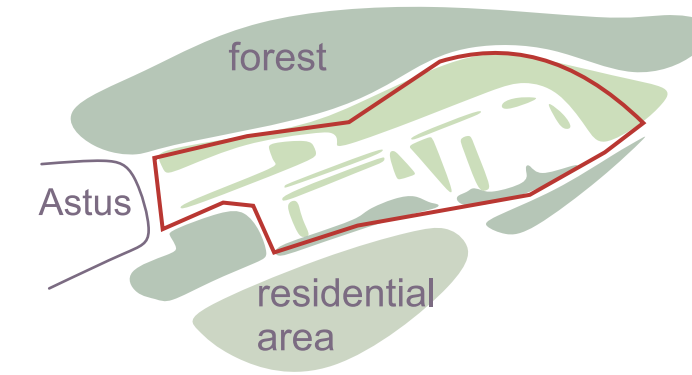
# Lumière des Maîtres. Master Plan Villefontaine



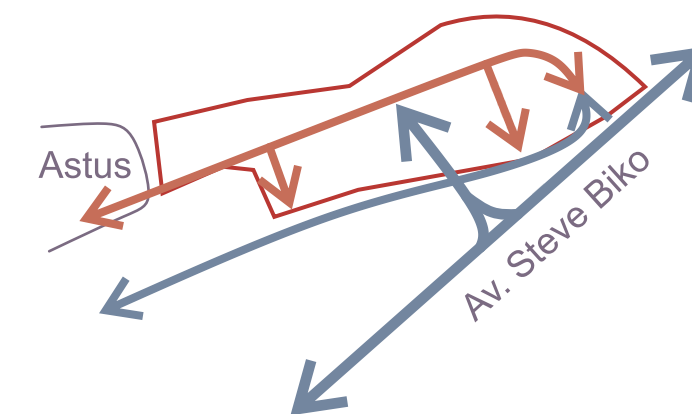
## Functional diversification



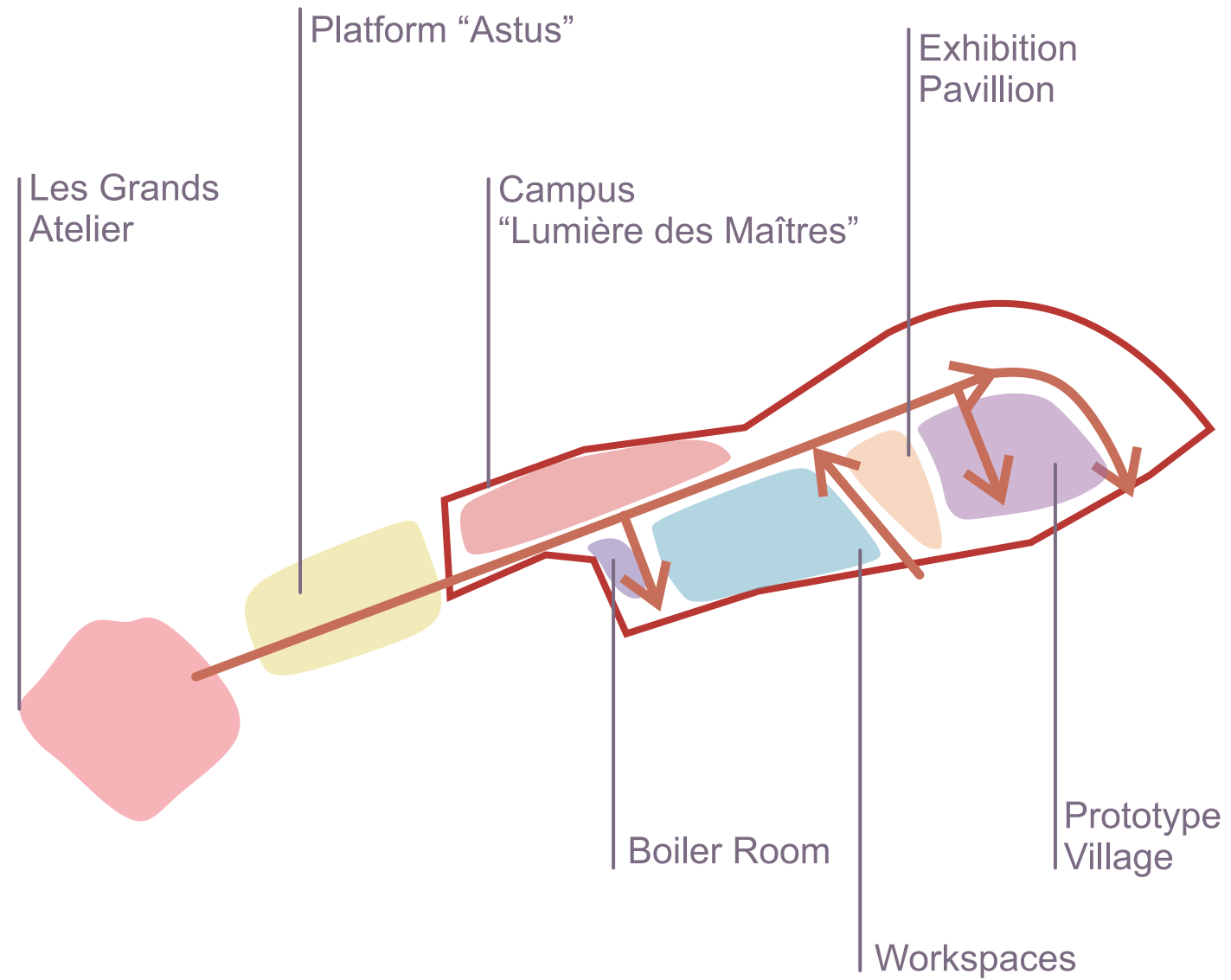
## Landscaping



## Site connections

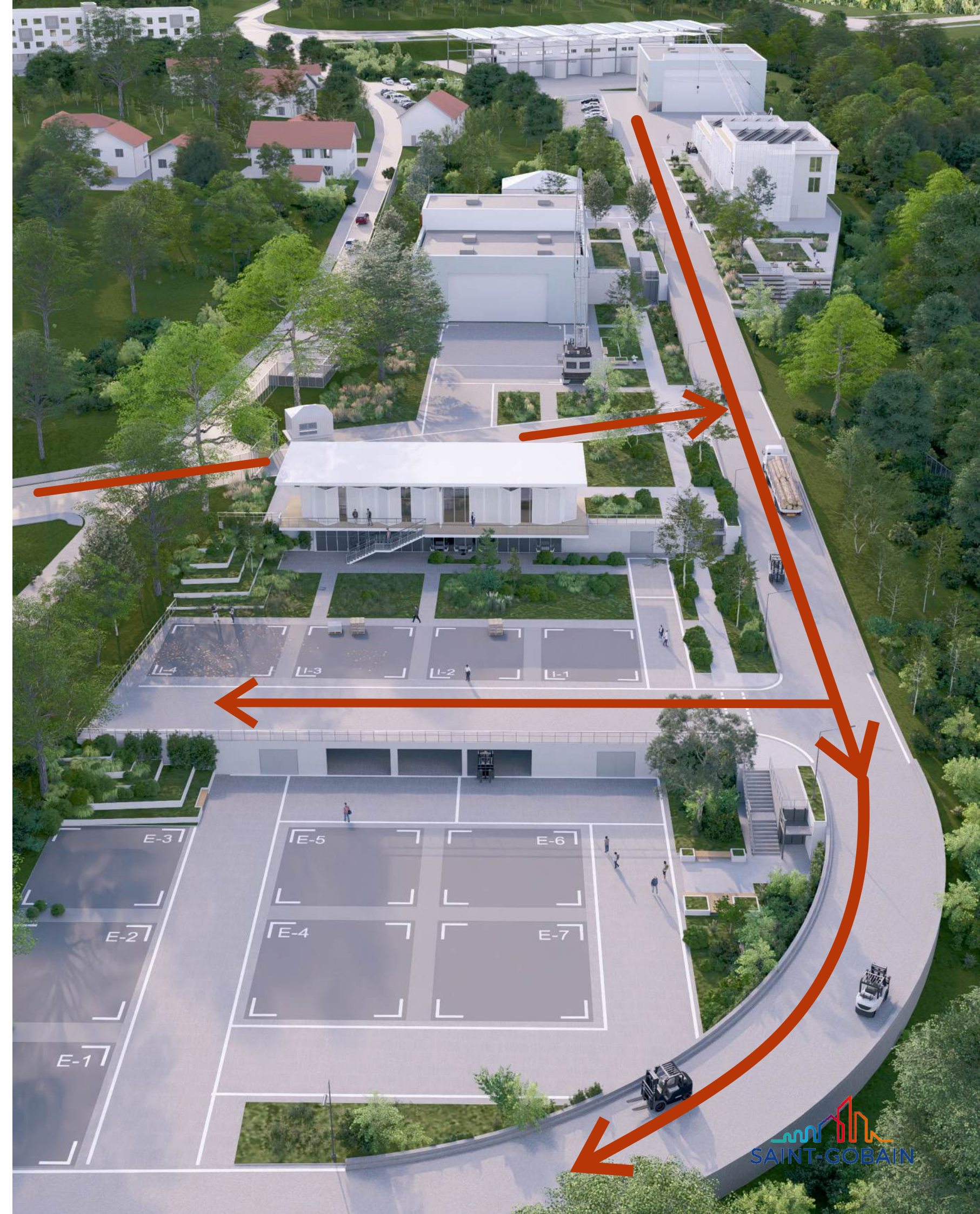


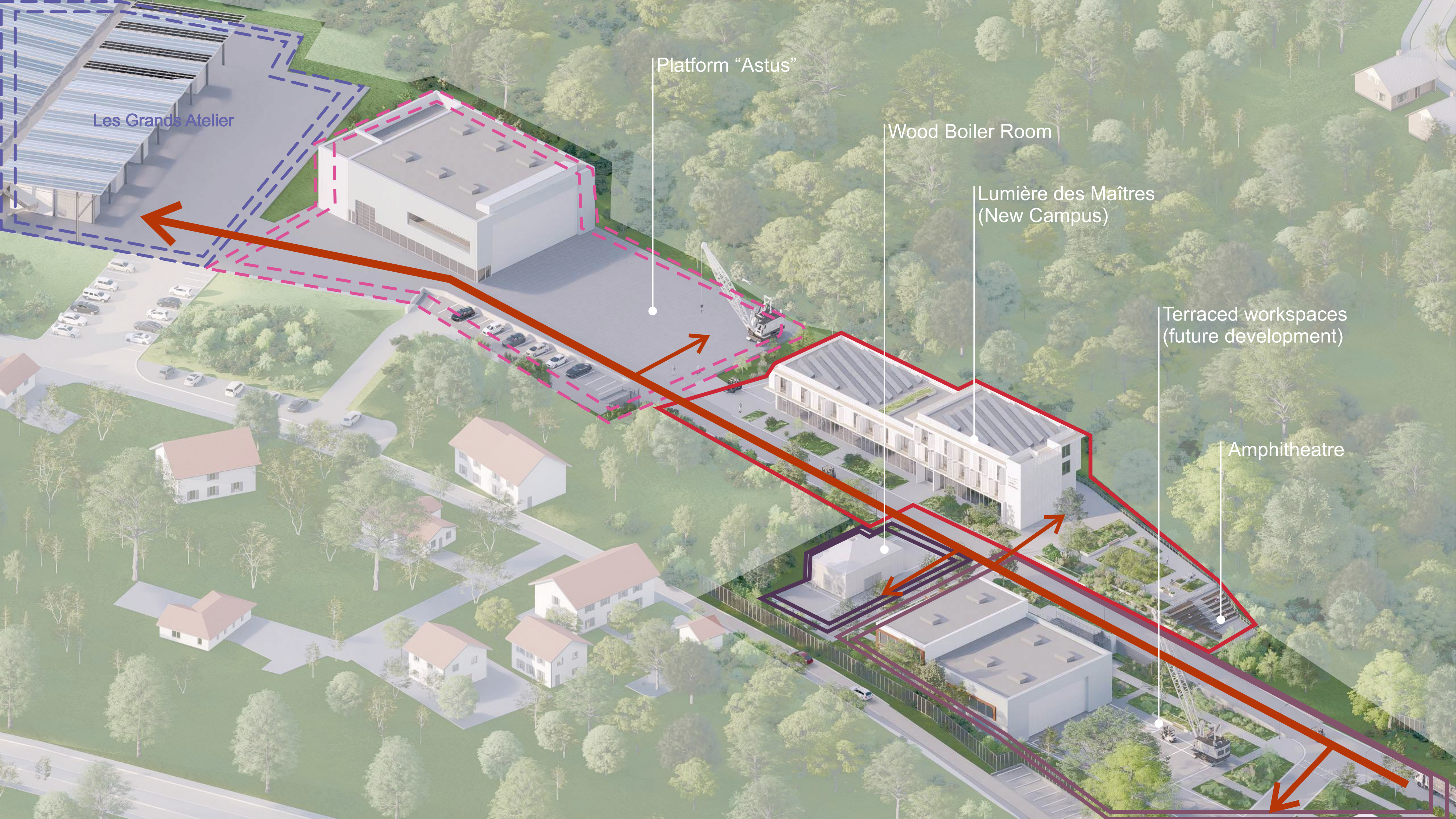
# Lumière des Maîtres. Functional diversification Villefontaine



The site is structured along a main axis running from the southwest to the northeast, following the natural topography with a 5% slope. To accommodate working and exhibition spaces, four terraces have been introduced, with level differences ranging from 3 to 5 meters. All key functions are aligned along this central axis, extending outward from Les Grands Ateliers.

The functional sequence includes: **new Campus «Lumière des Maîtres»**, adjacent to the Astus Platform; **Wood Boiler Room**, providing sustainable energy support; a future **Atelier** for expanded workshop activities; a dedicated **Exhibition Pavillion**; the **Prototype Village**, divided into two zones - **Innovative area** for new innovative prototypes and **Exhibition area** for showcasing other prototypes





Les Grands Atelier

Platform "Astus"

Wood Boiler Room

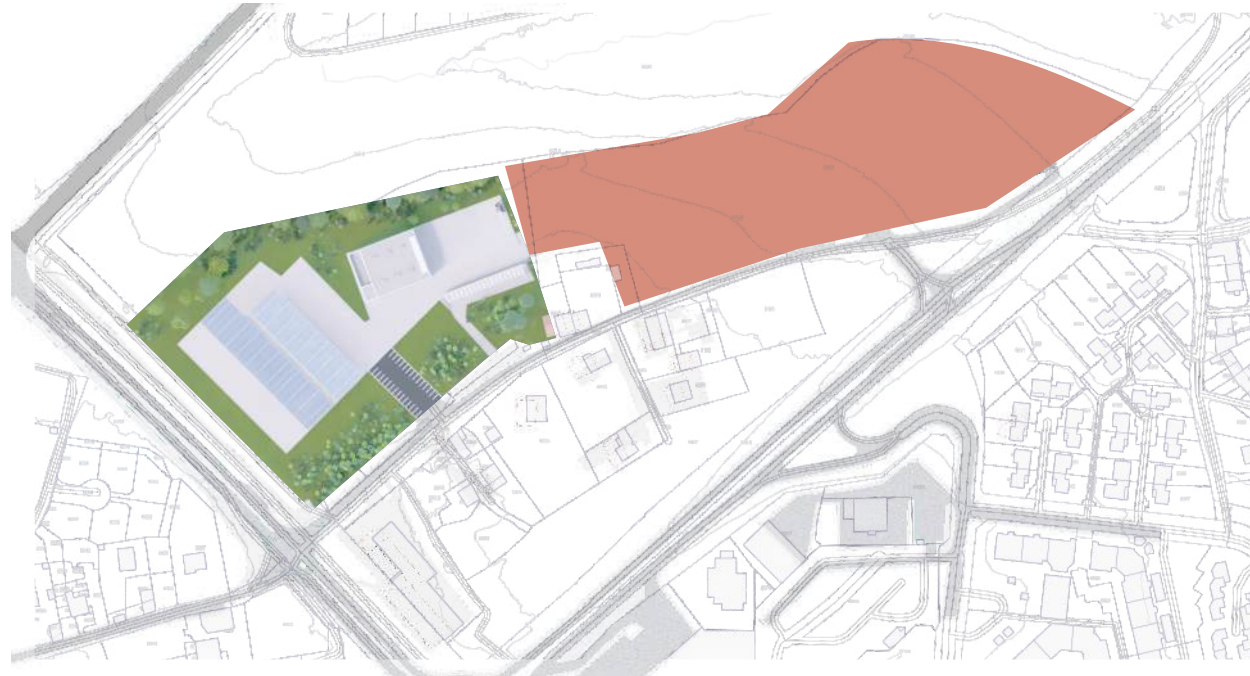
Lumière des Maîtres  
(New Campus)

Terraced workspaces  
(future development)

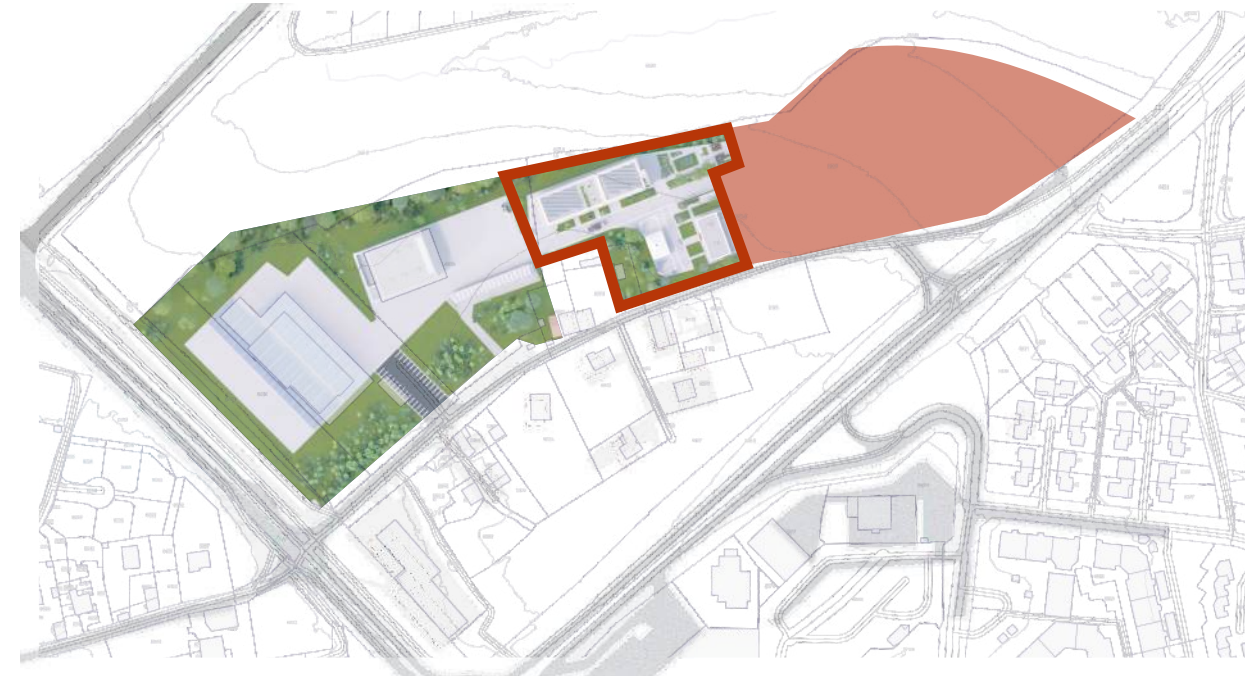
Amphitheatre

# Lumière des Maîtres. Development scenarios Villefontaine

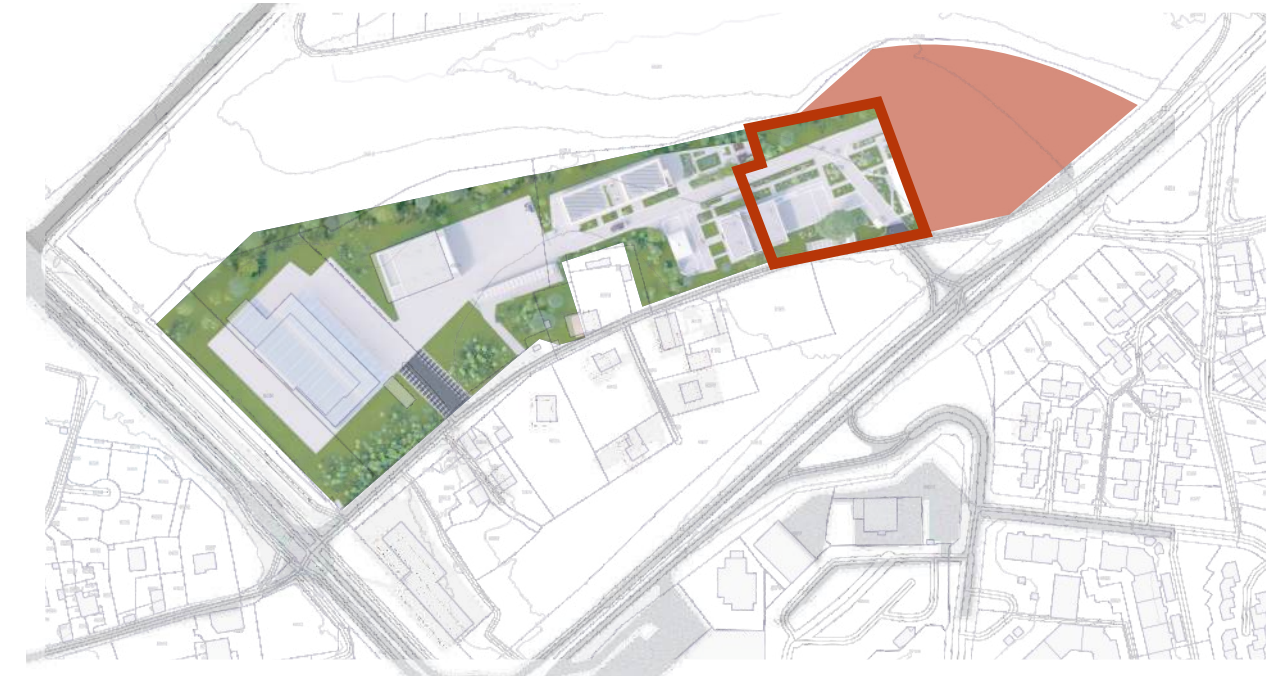
Stage 1. Existing Condition



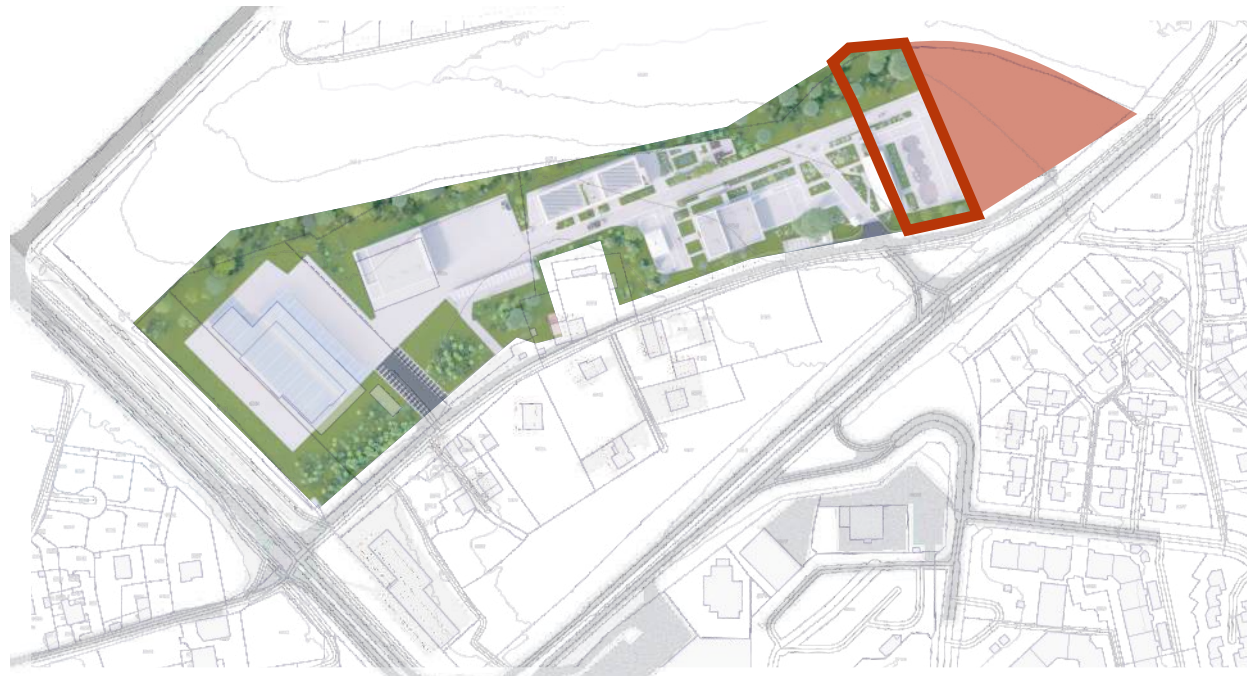
Stage 2. First Terrace – Campus and Boiler Room



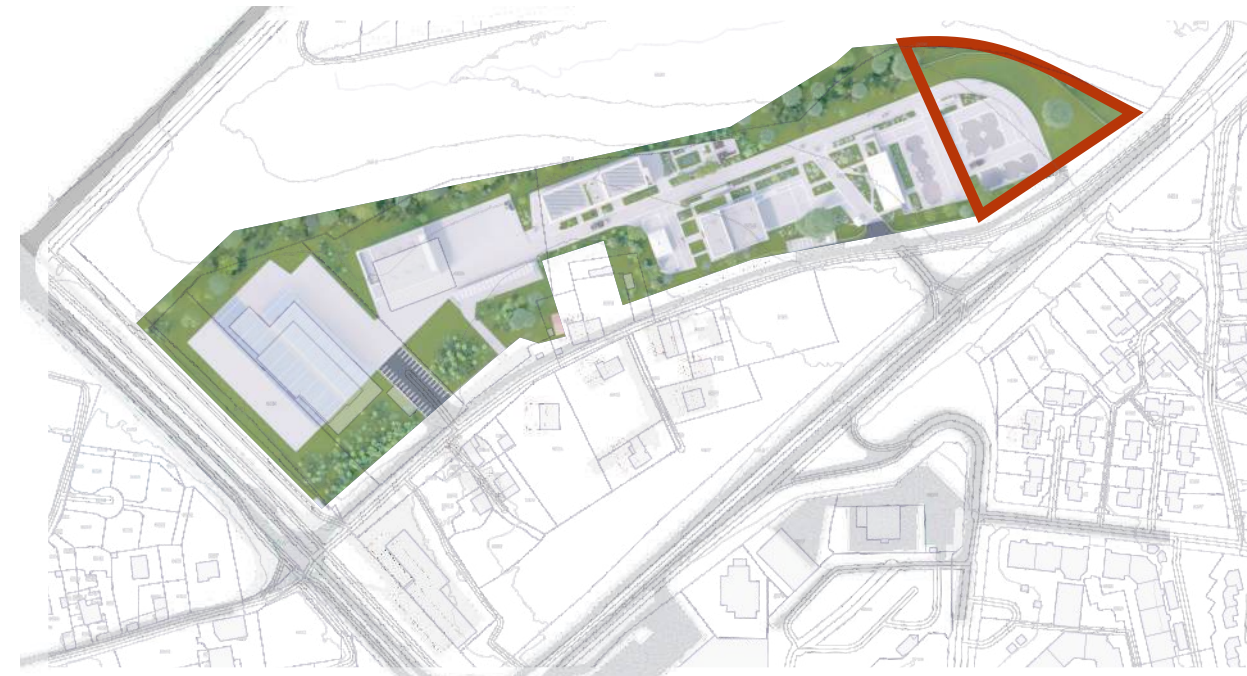
Stage 3. Second Terrace – Workshop and Exhibition Core



Stage 4. Third Terrace – Prototype Village (Innovation)



Stage 5. Fourth Terrace – Prototype Village (Exhibition)



*The phased development of the Villefontaine site follows a clear topographic and functional logic along a central southwest–northeast axis. It begins with the existing condition: an open terrain adjacent to Les Grands Ateliers.*

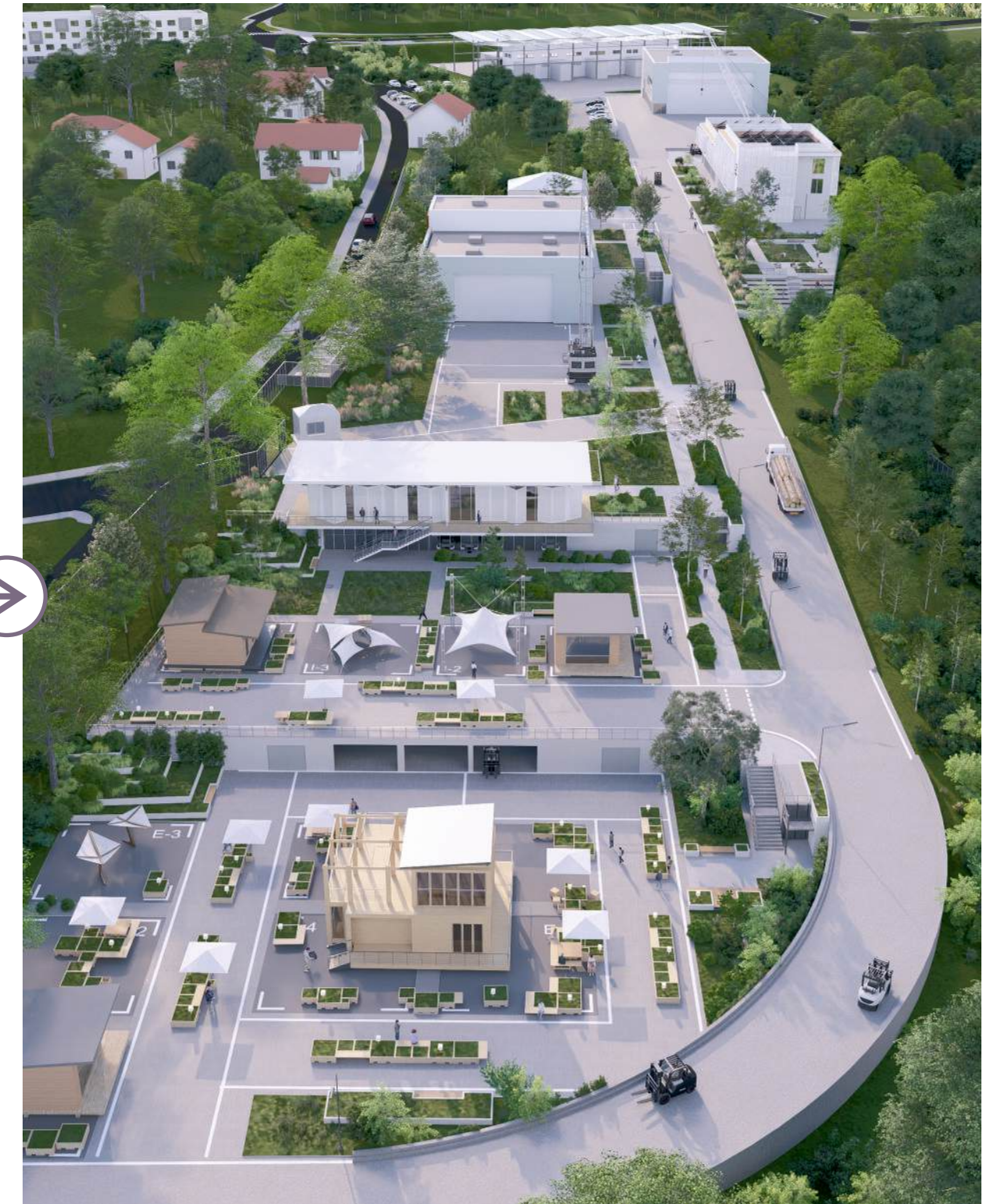
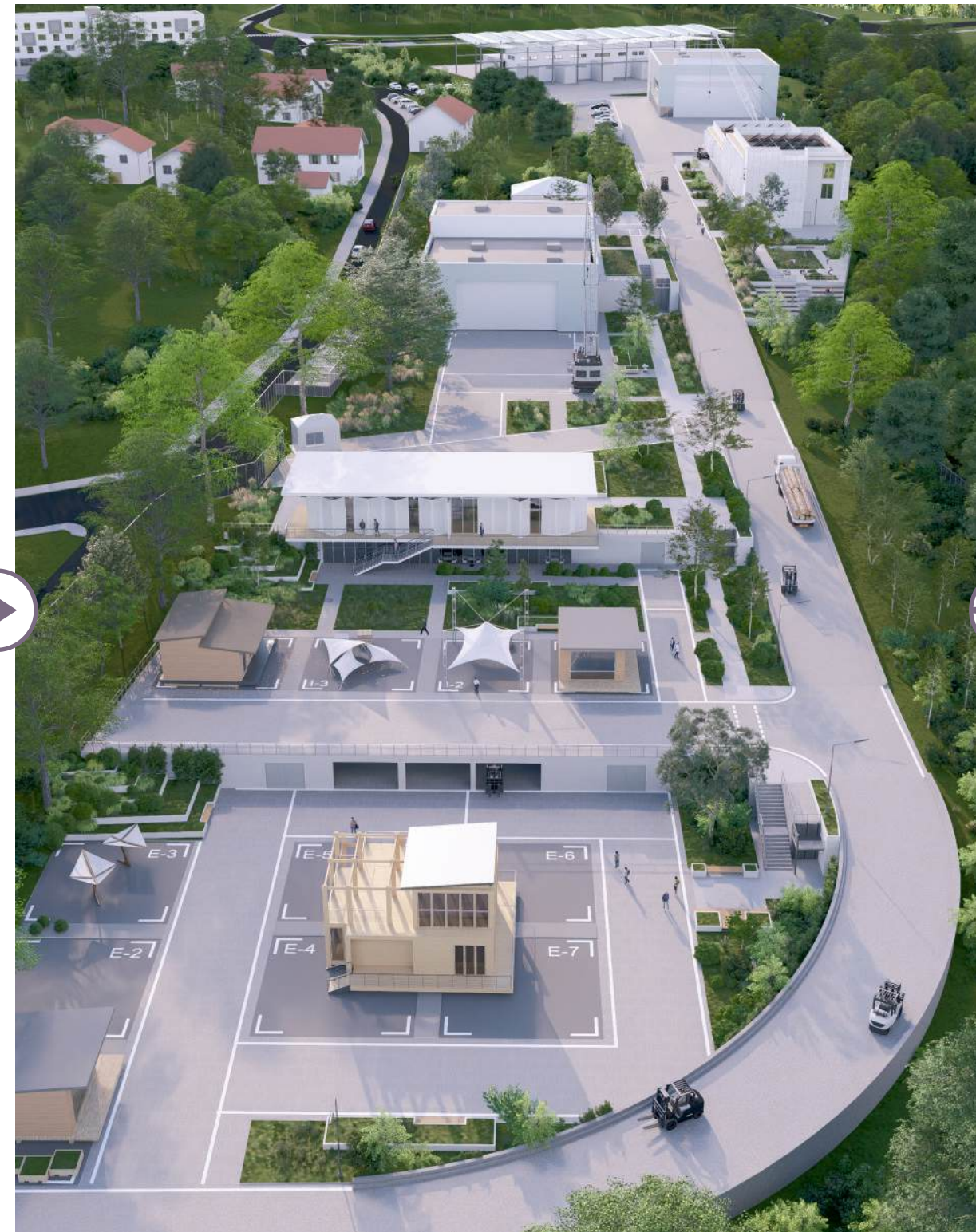
*The first intervention takes place on the upper terrace with the construction of a residential and office campus and a wood-fueled boiler room.*

*The second terrace introduces a new workshop, vehicle access from Avenue Steve Biko, and an exhibition pavilion with a viewing platform.*

*The third terrace hosts an innovation-focused Prototype Village, while the fourth becomes a public exhibition space for completed prototypes.*

# Lumière des Maîtres. Prototype village

Villefontaine



## 1. Blank Canvas (Initial Condition)

The site consists of open pads and 8-meter-wide access paths designed for large vehicles like mobile cranes. In this stage, the site functions as a flexible, infrastructural grid — a “blank canvas” for experimentation and creative assembly.

## 2. Prototype Deployment

Pads of 100 m<sup>2</sup> are occupied by full-scale prototypes. Modular layout allows combining pads for larger structures, supporting both individual and collaborative projects.

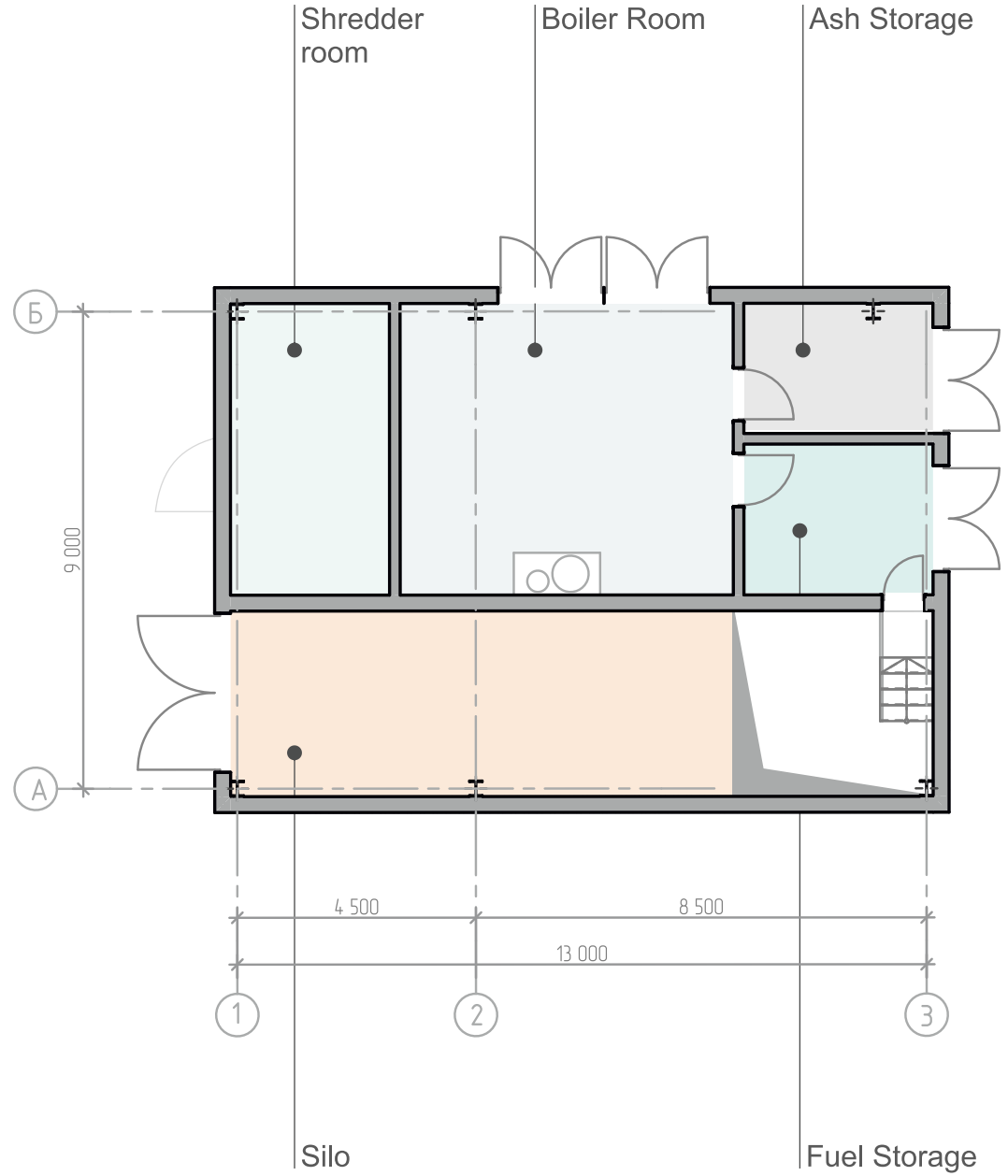
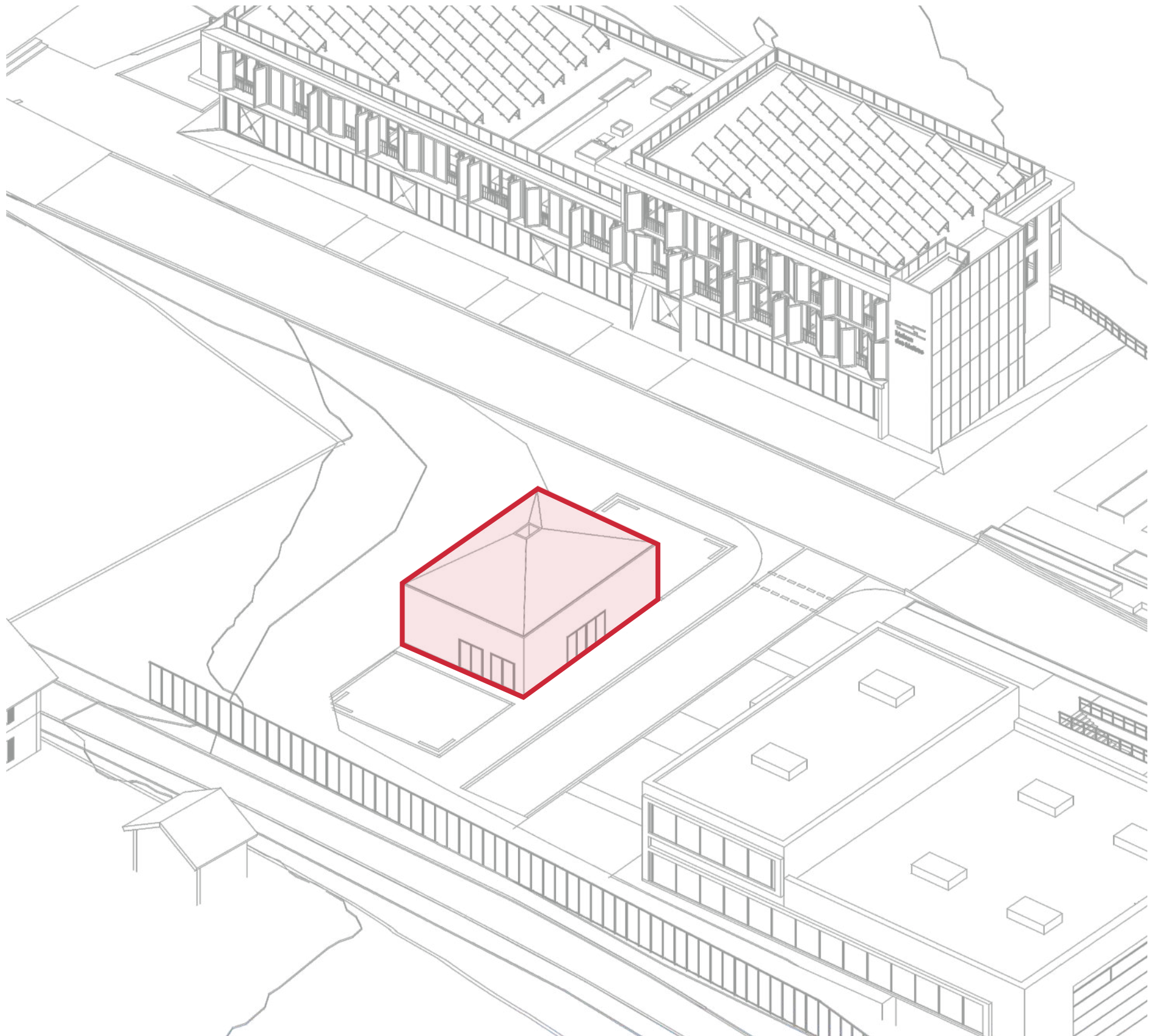
## 3. Activation with Public Use

As circulation paths become less active, modular furniture and resting areas are introduced between and around the prototypes, forming a dynamic public space shaped by the spirit of young makers.

Exhibition pavilion



Lumière des Maîtres. Wood boiler room Villefontaine





Southern facade

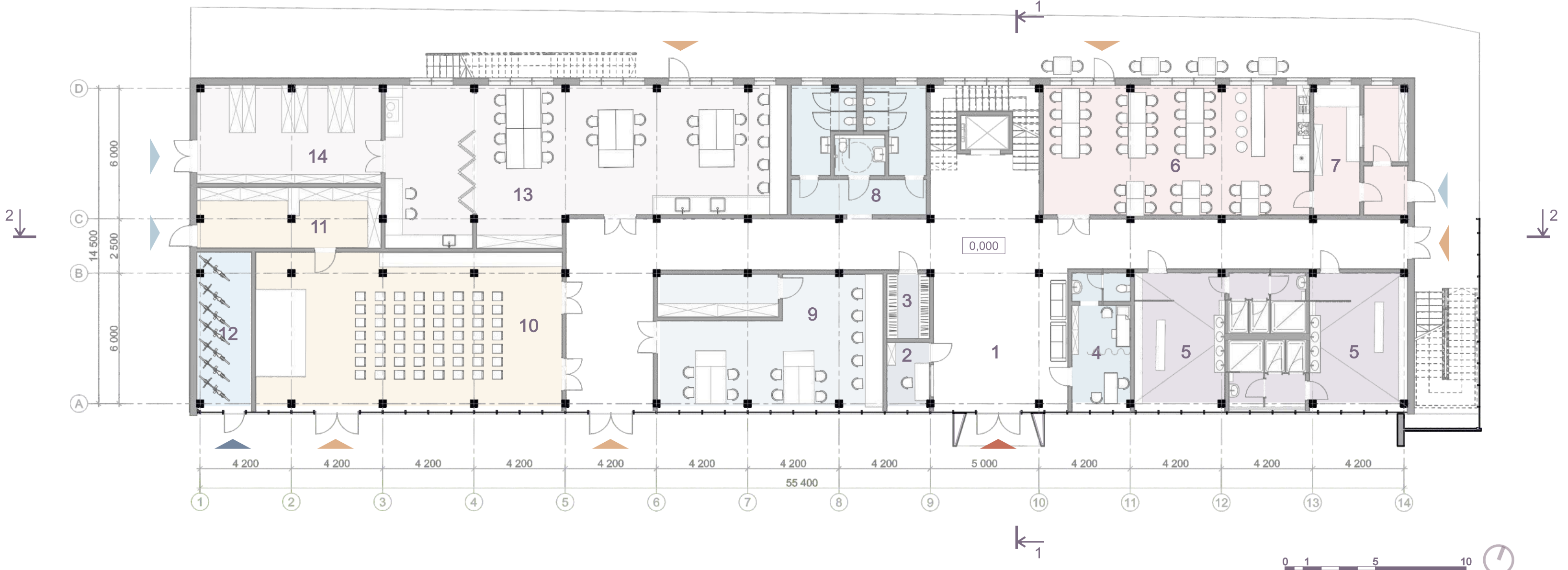


Lumière  
des Maîtres

Northern facade



# Lumière des Maîtres. Floor plans Villefontaine



1F plan

1. Lobby	55 m <sup>2</sup>	5. Locker room with showers (H/F)	37 m <sup>2</sup> x2	9. Prototyping area with storage	65 m <sup>2</sup>	13. Materials laboratory	120 m <sup>2</sup>
2. Security	6 m <sup>2</sup>	6. Dining Hall (40 seats)	74 m <sup>2</sup>	10. Multi-purpose room	102 m <sup>2</sup>	14. Lab storage	35 m <sup>2</sup>
3. Cloakroom	7 m <sup>2</sup>	7. Food Delivery & Prep	22 m <sup>2</sup>	11. Storage	23 m <sup>2</sup>		
4. Nurses' station	17 m <sup>2</sup>	8. Restrooms (H/F)	26 m <sup>2</sup>	12. Bicycle storage	20 m <sup>2</sup>		

- Main entrance
- Emergency exit / additional entrance
- Service entrance
- Entrance to the bicycle storage

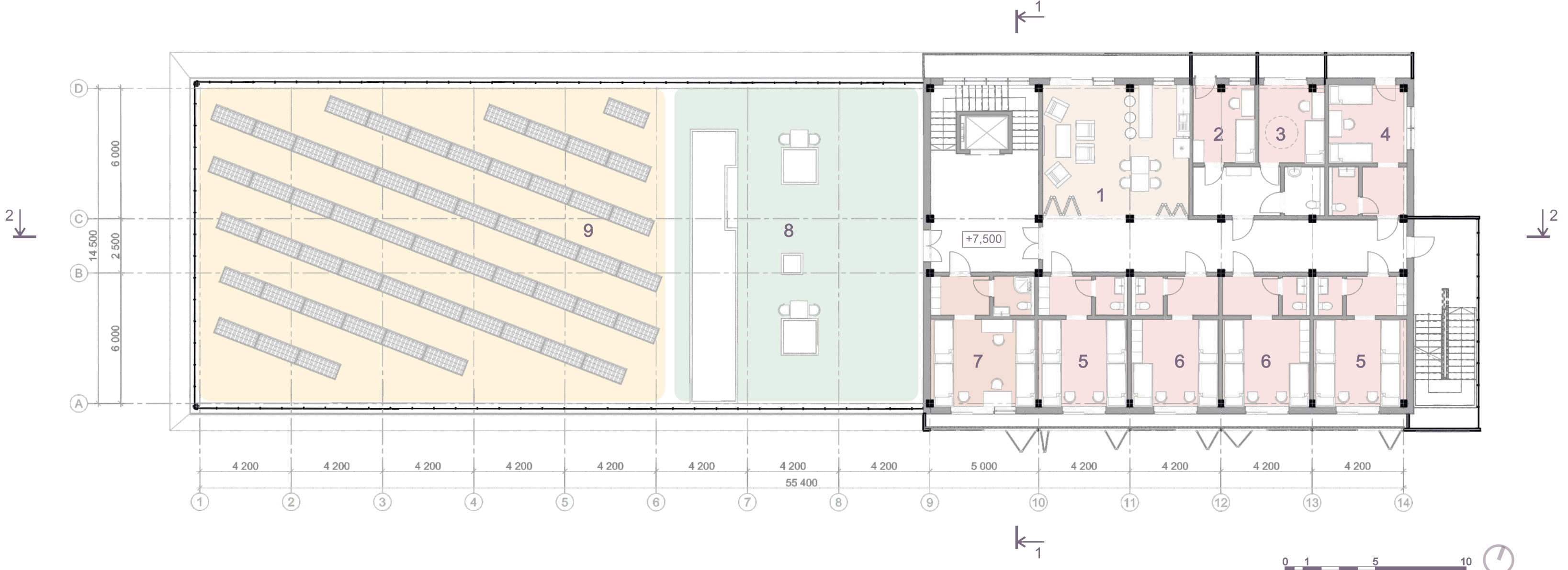
Lumière des Maîtres. Floor plans Villefontaine



2F plan

1. Common space	42 m <sup>2</sup>	5. Dormitory 8 beds	25 m <sup>2</sup>	9. Small meeting room	14 m <sup>2</sup>	13. Small meeting room	11 m <sup>2</sup>
2. Single room	10 m <sup>2</sup>	6. Dormitory 6 beds	25 m <sup>2</sup>	10. Meeting room	26 m <sup>2</sup>	14. Meeting room	25 m <sup>2</sup>
3. Single room (accessible)	12 m <sup>2</sup>	7. Office space n°1	140 m <sup>2</sup>	11. Machine room	4 m <sup>2</sup>	15. Machine room	4 m <sup>2</sup>
4. Double room	20 m <sup>2</sup>	8. Restrooms (H/F)	26 m <sup>2</sup>	12. Office space n°2	165 m <sup>2</sup>	16. Administration office	21 m <sup>2</sup>

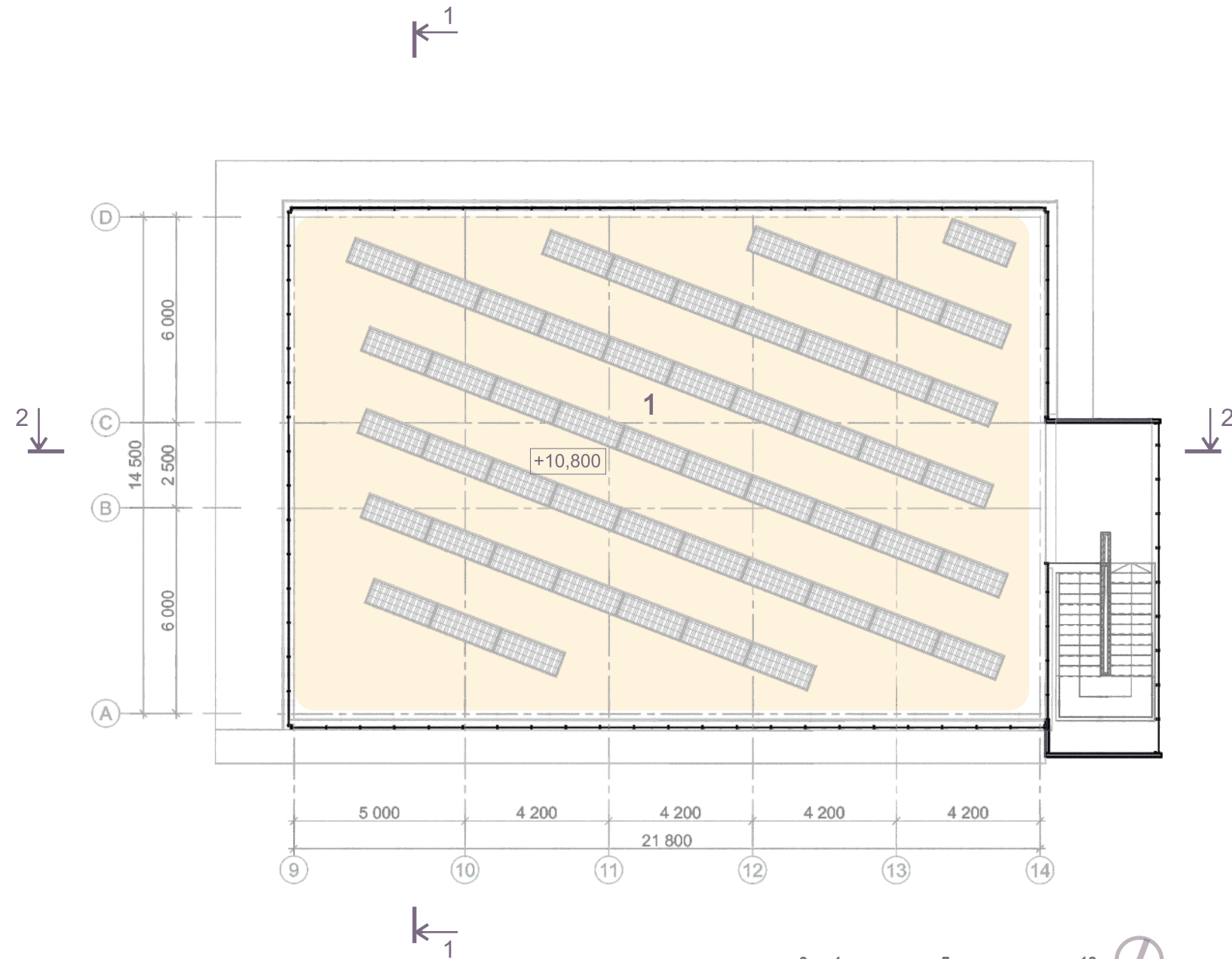
Lumière des Maîtres. Floor plans Villefontaine



3F plan

1. Common space	42 m <sup>2</sup>	4. Double room	20 m <sup>2</sup>	7. Residential unit (4 beds)	30 m <sup>2</sup>
2. Single room	10 m <sup>2</sup>	5. Dormitory 8 beds	25 m <sup>2</sup>	8. Roof terrace	157 m <sup>2</sup>
3. Single room (accessible)	12 m <sup>2</sup>	6. Dormitory 6 beds	25 m <sup>2</sup>	9. Technical roof (PV panels)	328 m <sup>2</sup>

# Lumière des Maîtres. Floor plans Villefontaine



**Rooftop plan**

- 1. Technical roof (PV panels) 315 m<sup>2</sup>

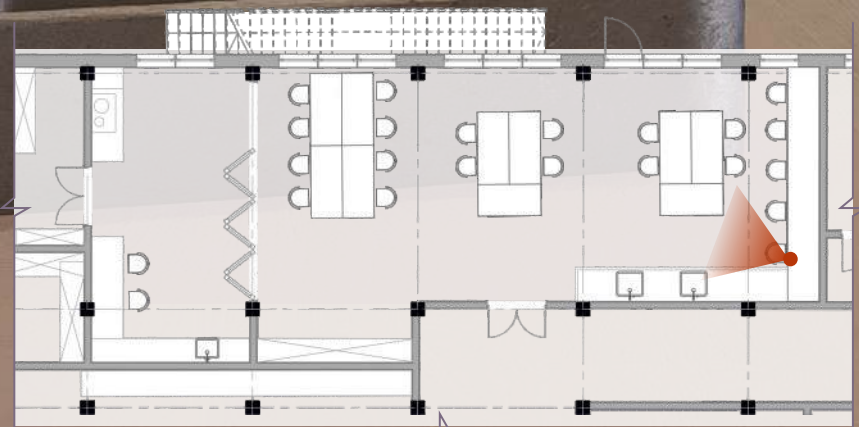


**Basement plan**

- |                              |                   |                                        |                   |
|------------------------------|-------------------|----------------------------------------|-------------------|
| 1. Laundry room              | 35 m <sup>2</sup> | 6. Water filtration and treatment room | 35 m <sup>2</sup> |
| 2. Service corridor          | 28 m <sup>2</sup> | 7. Water storage tanks                 | 26 m <sup>2</sup> |
| 3. Backup generator room     | 14 m <sup>2</sup> | 8. Greywater collection room           | 24 m <sup>2</sup> |
| 4. PV Inverter & Panel Board | 10 m <sup>2</sup> | 9. HVAC thermal hub                    | 45 m <sup>2</sup> |
| 5. ESS Room                  | 18 m <sup>2</sup> |                                        |                   |

▶ Service and emergency exit

Laboratory interior



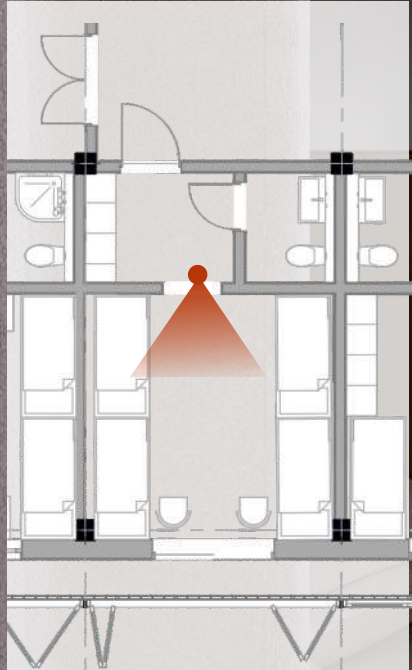
Dining Hall interior



Multi-purpose room interior

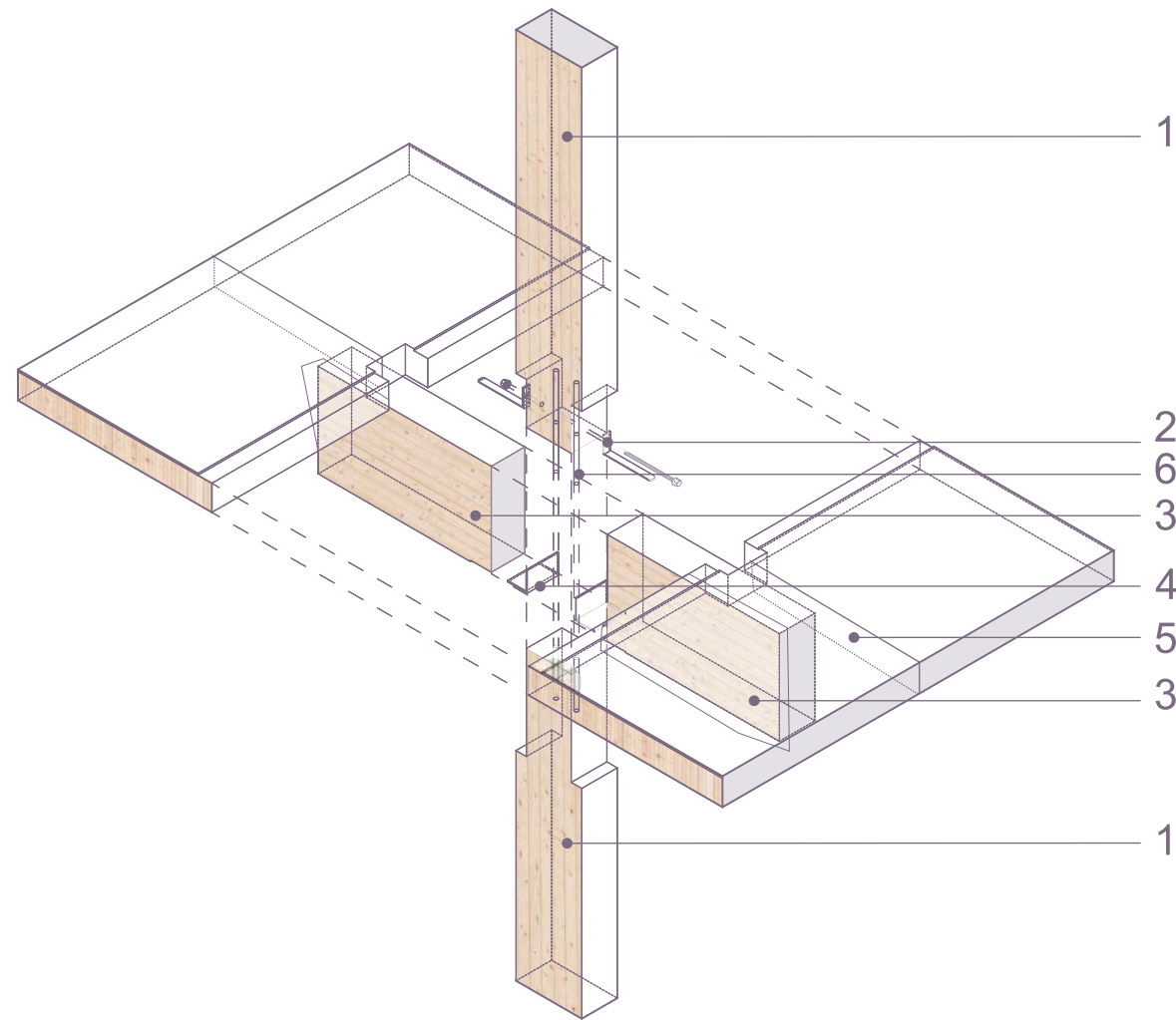


Accomodation unit interior

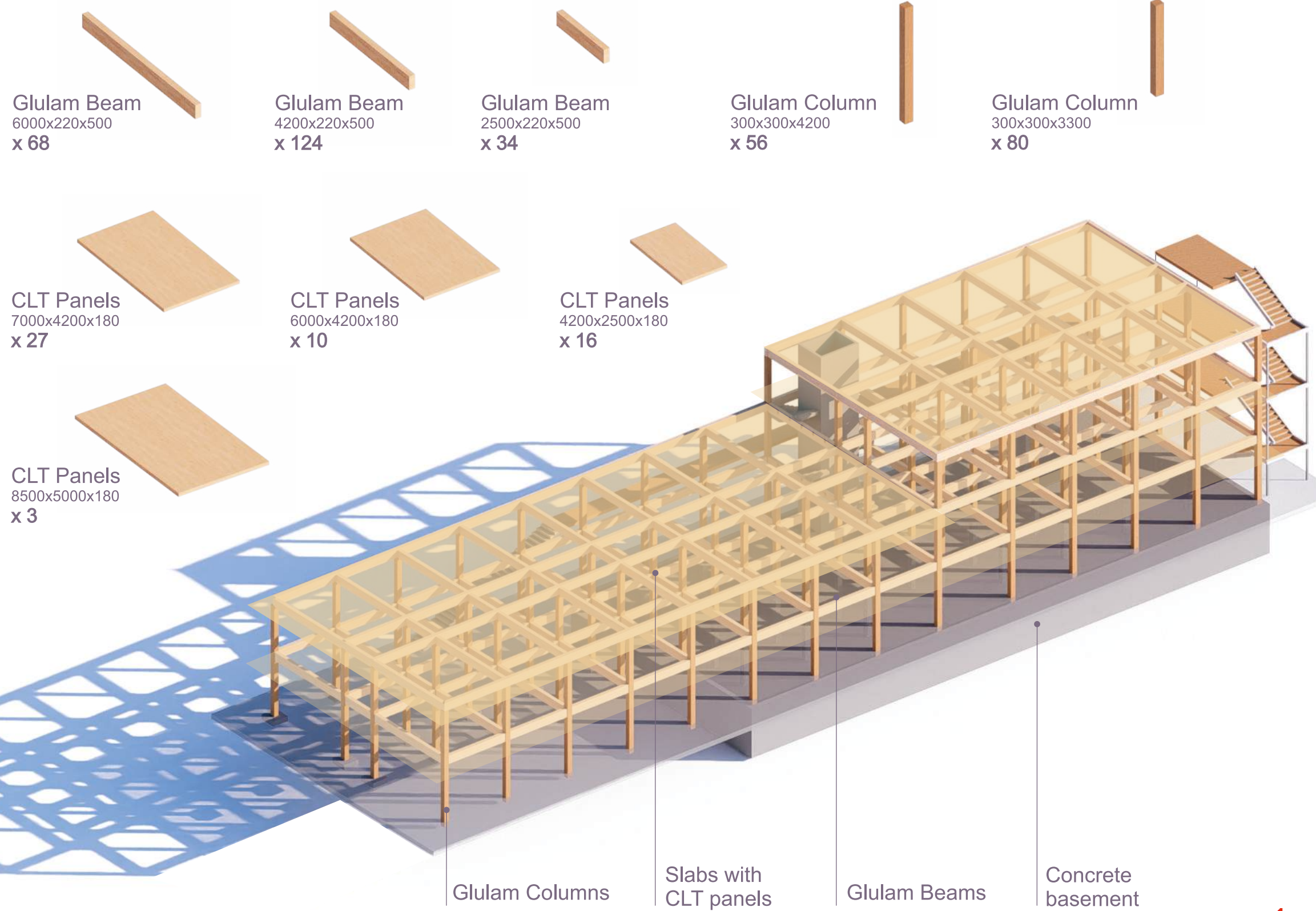


# STRUCTURAL STRATEGY Villefontaine

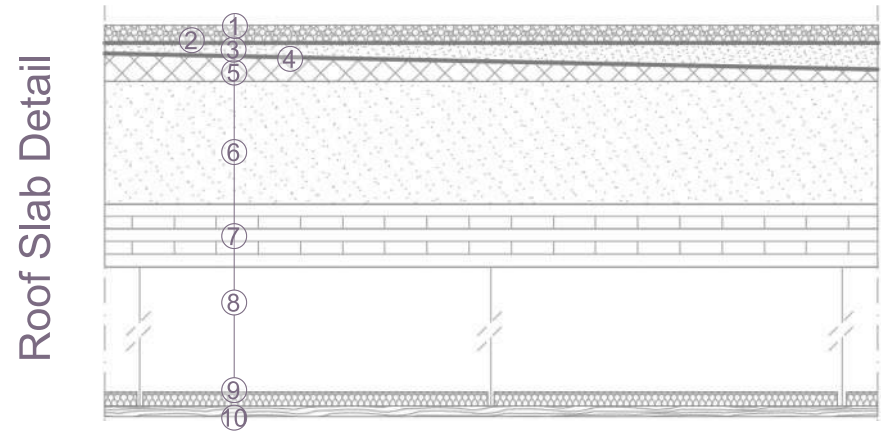
## POST & BEAM WOOD STRUCTURE



- 1 Glulam column
- 2 Holddown fastened to glulam beams
- 3 Glulam beams
- 4 Beam-to-column bearing connector
- 5 Pre-applied 13mm sheathing over CLT floor panel
- 6 Rod epoxy-glued to the top column in shop



# DETAIL SECTION Villefontaine



## HEMPCRETE

Hempcrete is a traditional bio-composite made of hemp shiv, lime, and water, offering excellent insulation ( $\lambda \approx 0.07 \text{ W/m}\cdot\text{K}$ ) and moisture regulation.

It provides high thermal mass, acoustic insulation ( $\approx 42 \text{ dB}$  for 30 cm walls), is fire-resistant (Euroclass B-s1, d0), pest-resistant, and lightweight ( $\approx 300\text{--}500 \text{ kg/m}^3$ ).

Its use reduces structural load and supports a low-carbon footprint:  $1 \text{ m}^3$  of hempcrete sequesters up to 165 kg of  $\text{CO}_2$ .

Locally sourced, it aligns with Villefontaine's ecological goals and architectural traditions while promoting regional agricultural sustainability.



## PV Panels

Number of panels - 106. Annual energy output  $\sim 60,63 \text{ kWh/year}$ .

## ROOF SLAB

1. 50 mm Gravel **Leca**
2. **Isover Geotextile Ts70**
3. 30 mm Drainage layer **Leca Lightweight Aggregate**
4. Waterproofing membrane
5. Slope **Leca Uno**
6. 350 mm **Hempcrete - Weber Tradical PF 70 + Chanvribat**
7. 180 mm CLT panel (five layers)
8. 450 mm Air gap
9. 40 mm **Ecophon Master A**
10. Wooden ceiling

Structural thickness - 1 000 mm

Fire Resistance  
REI 120

U-value -  $0.15 \text{ W/m}^2\text{K}$

## Shading facade system

The kinetic white façade, composed of translucent panels, provides solar shading on the south and west elevations while adding a sense of dynamic movement to the building.

## Glazing

Saint-Gobain Triple Glazing Planitherm One II

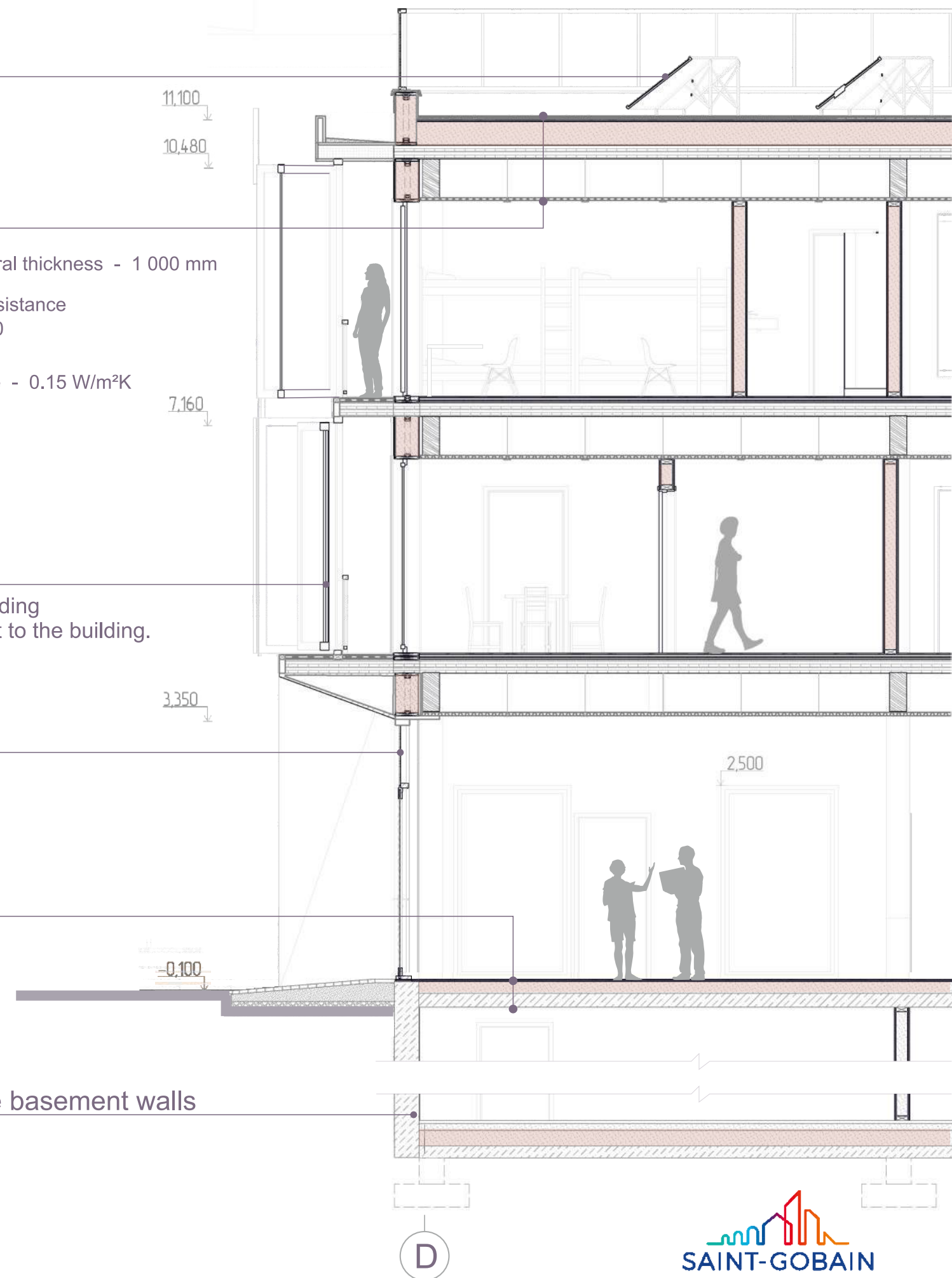
## BASEMENT SLAB

1. 15 mm Tiles
2. 50 mm Compression laying screed **Weber Tradical PF 70 + sand**
3. 150 mm Hempcrete **Weber Tradical PF 70 + Chanvribat**
4. 150 mm Reinforced Concrete Slab
5. 12,5 mm **Gyproc GNE 13 Normal**

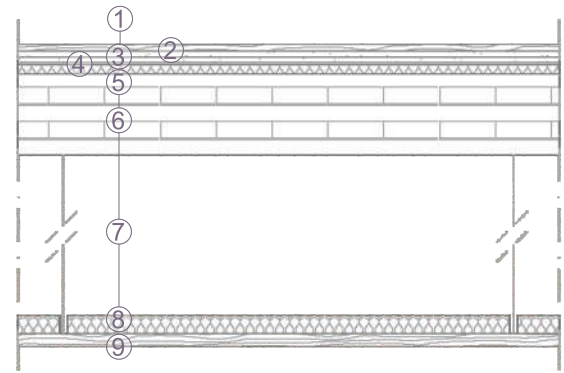
Structural thickness - 410 mm

Fire Resistance  
REI 100

Reinforced concrete basement walls  
and foundation



# DETAIL SECTION Villefontaine



## SLAB - MBL5A

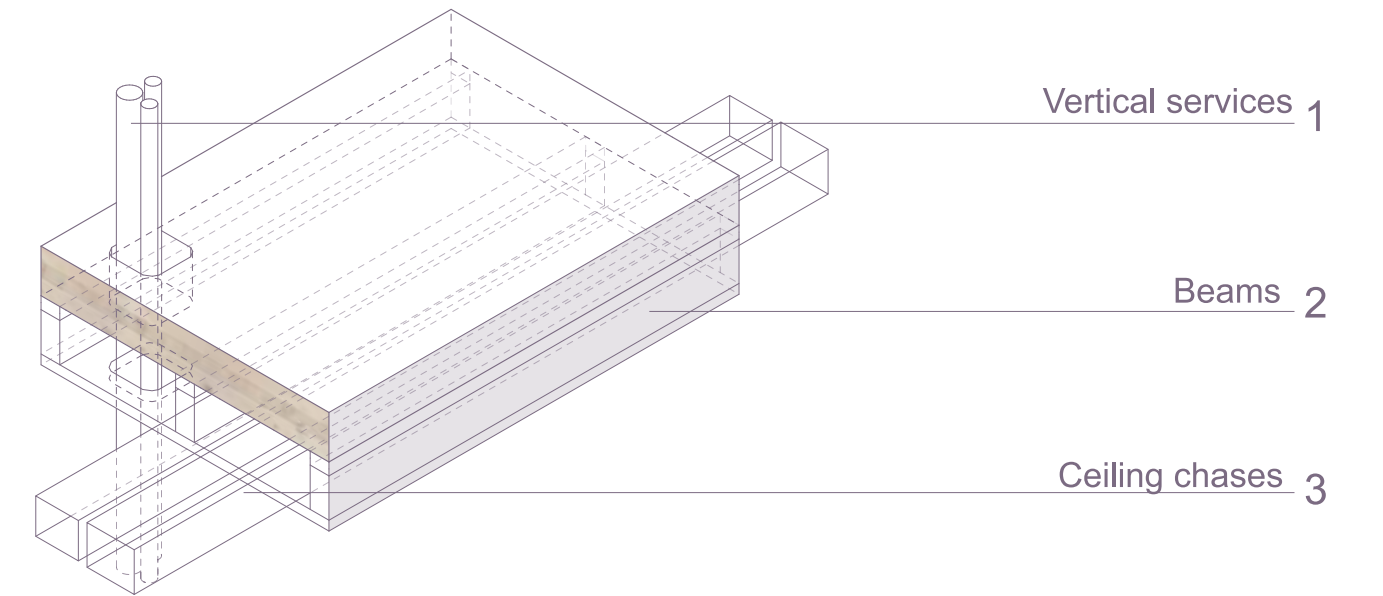
1. 14 mm Parquet
2. 2 mm Foam
3. 40 mm **Weberfloor 150 dura**
4. 12 mm **Aprobo Decibel**
5. 20 mm **Glava footstep impact sound board**
6. 180 mm CLT panel (five layers)
7. 450 mm Air gap
8. 40 mm **Ecophon Master A**
9. Wooden ceiling

↔ Structural thickness - 800 mm

🔥 Fire Resistance  
REI 90

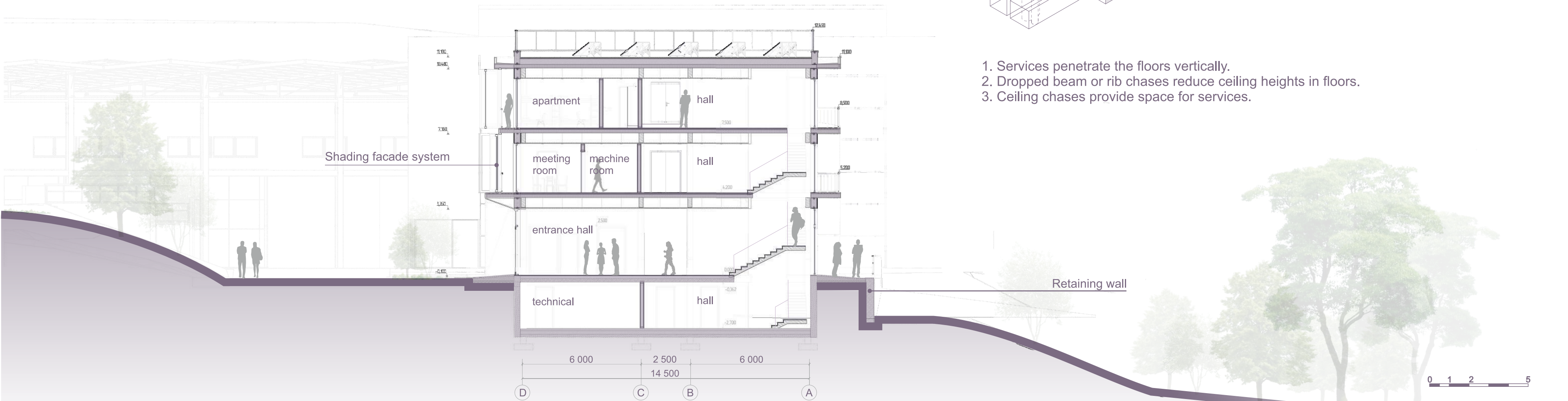
🔊 Sound Reduction  
1. Footstep impact sound ~51 dB  
2. Airborne sound ~59 dB

## Floor slab utilities layout scheme

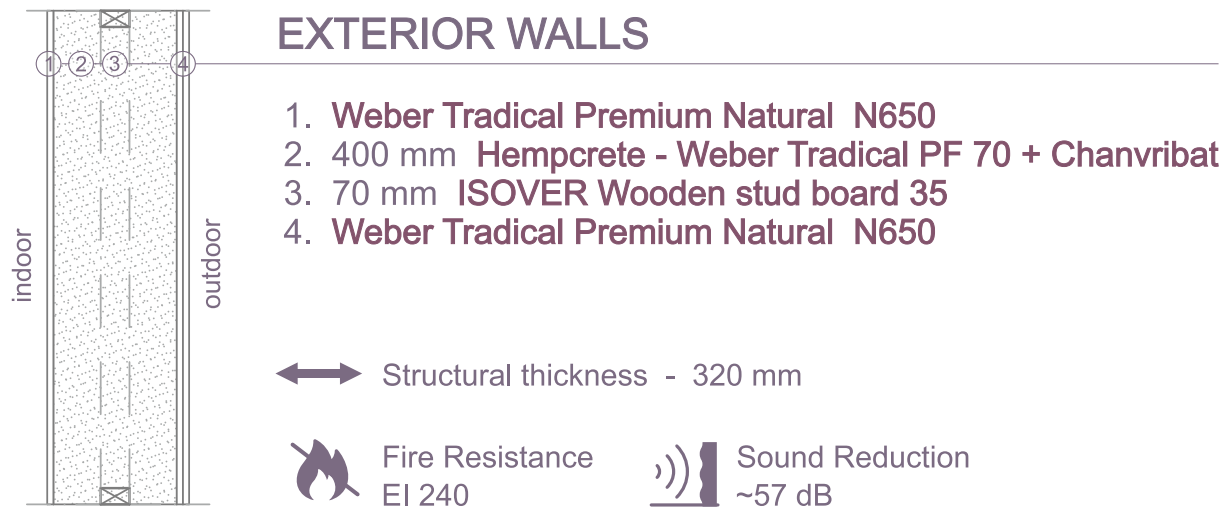


1. Services penetrate the floors vertically.
2. Dropped beam or rib chases reduce ceiling heights in floors.
3. Ceiling chases provide space for services.

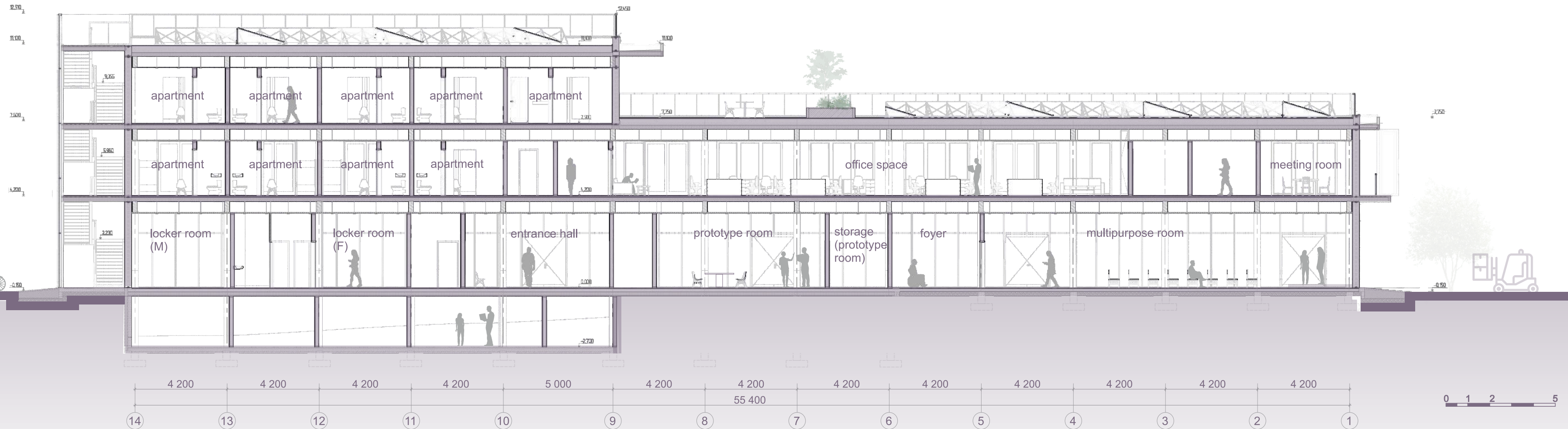
## Section 1-1 South | North



# DETAIL SECTION Villefontaine

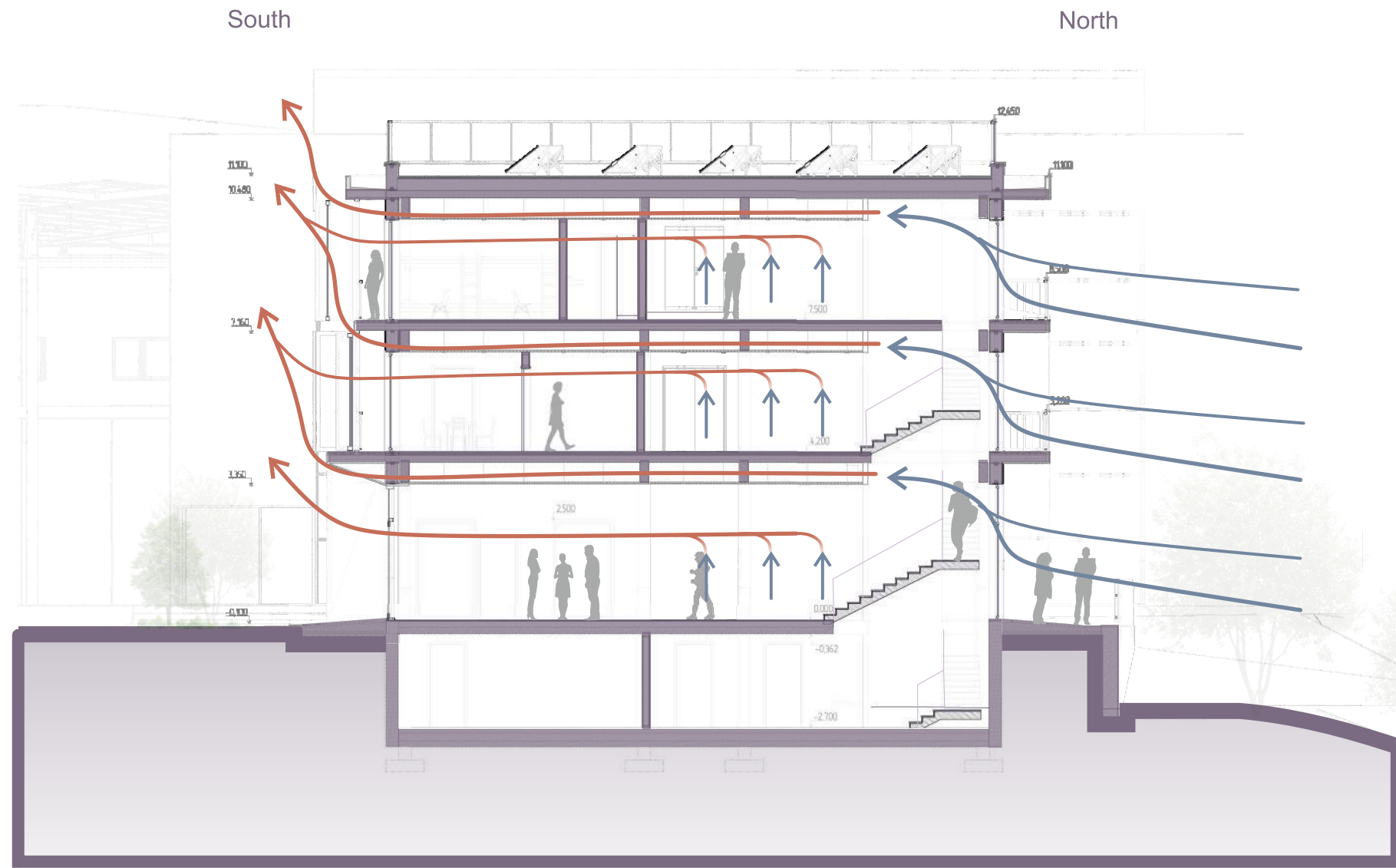


## Section 2-2 East | West





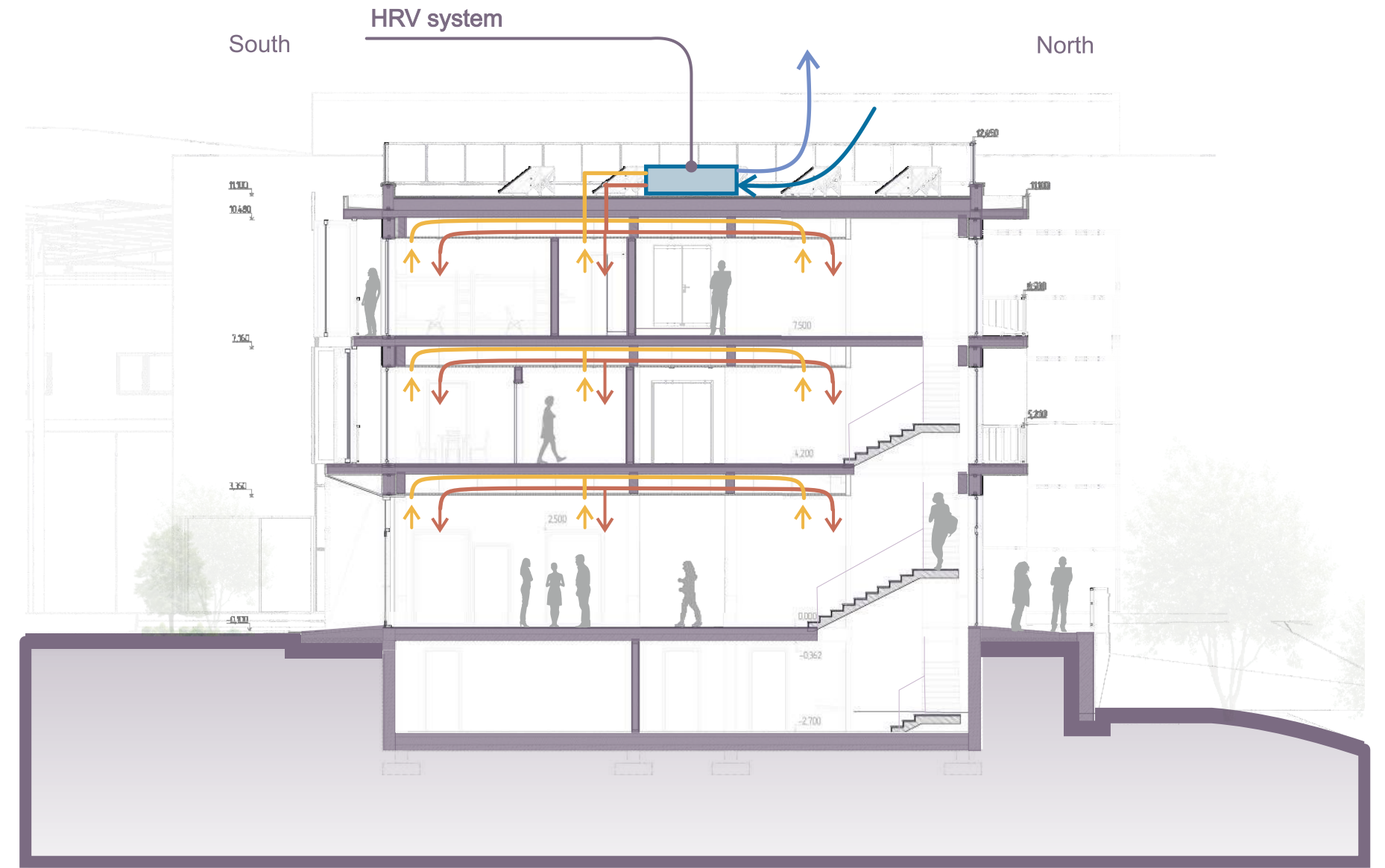
## Natural ventilation



Cross section

The building utilizes cross-ventilation and stack effect through operable windows and vertical air channels, ensuring natural airflow and reduced mechanical cooling needs.

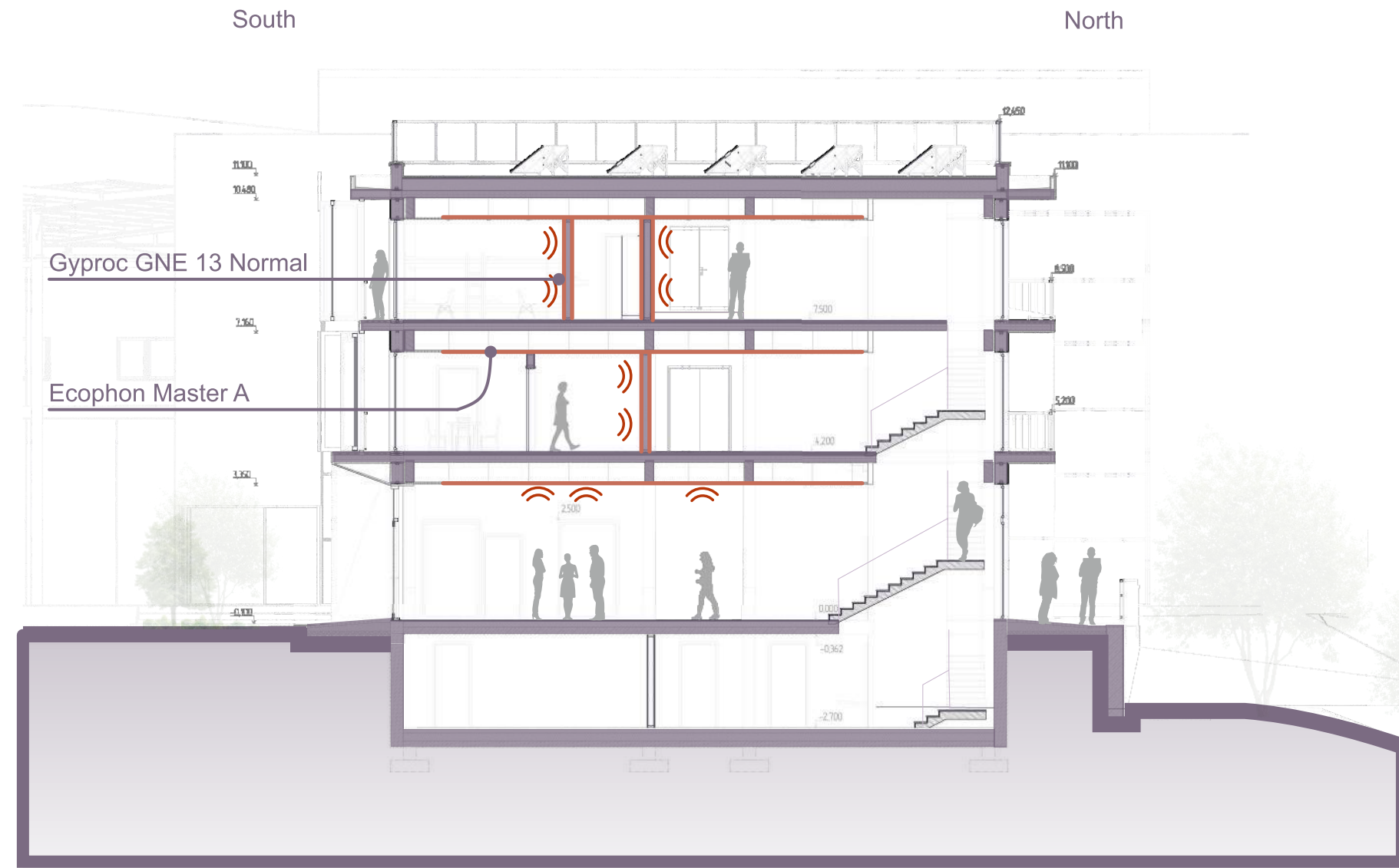
## Heat Recovery Ventilation



Cross section

The building is equipped with a heat recovery system providing 3,000 m<sup>3</sup>/h of total airflow and achieving 88% heat recovery efficiency. With optimized ductwork and low pressure drop, the system ensures high energy performance, resulting in estimated annual savings of 54,524 kWh.

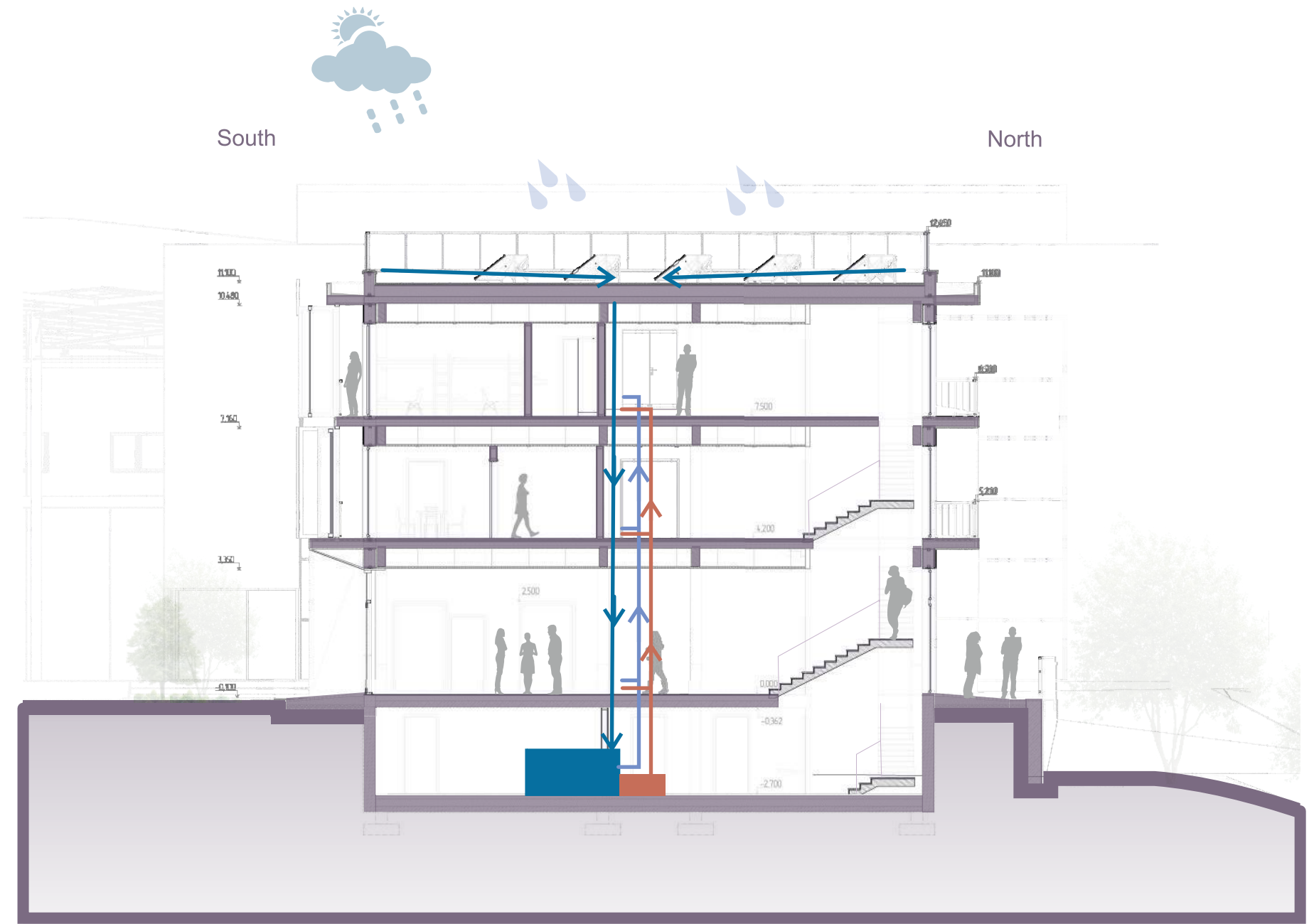
Acoustic system



Cross section

To ensure acoustic comfort, the building integrates **Ecophon Master A** panels in ceiling assemblies for optimal sound absorption, and **Gyproc GNE 13 Normal** boards in partition walls to reduce airborne noise transmission. Together, these materials contribute to high-performance acoustic control across all interior spaces.

Water retention



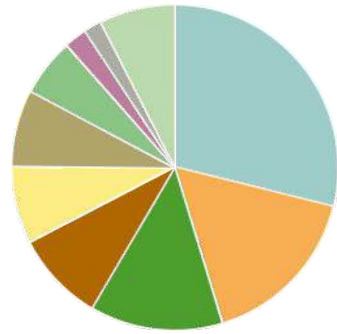
Cross section

The rooftop of the new campus in Villefontaine is equipped with **106 photovoltaic panels**, each measuring 1x2 meters. Together, they form a powerful on-site renewable energy system that actively contributes to the project's sustainability goals.

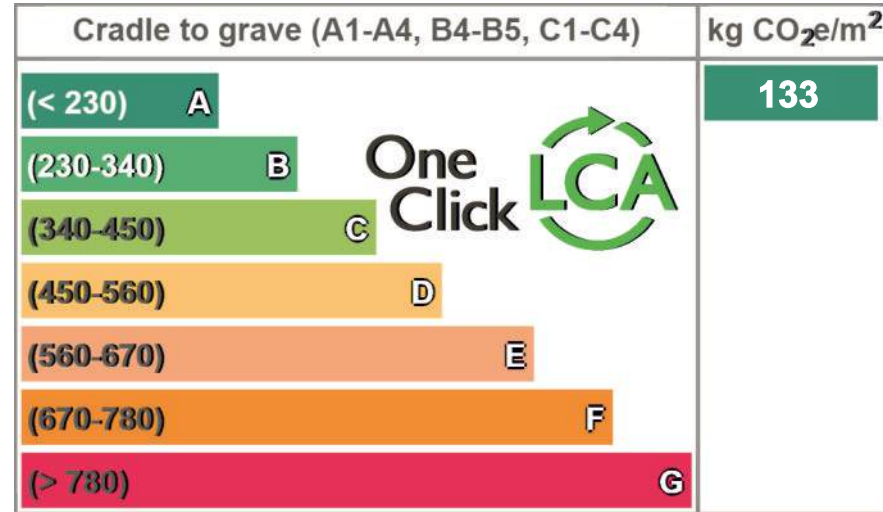
# SASTAINABILITY STRATEGY Villefontaine

Global warming kg CO2e - Resource types

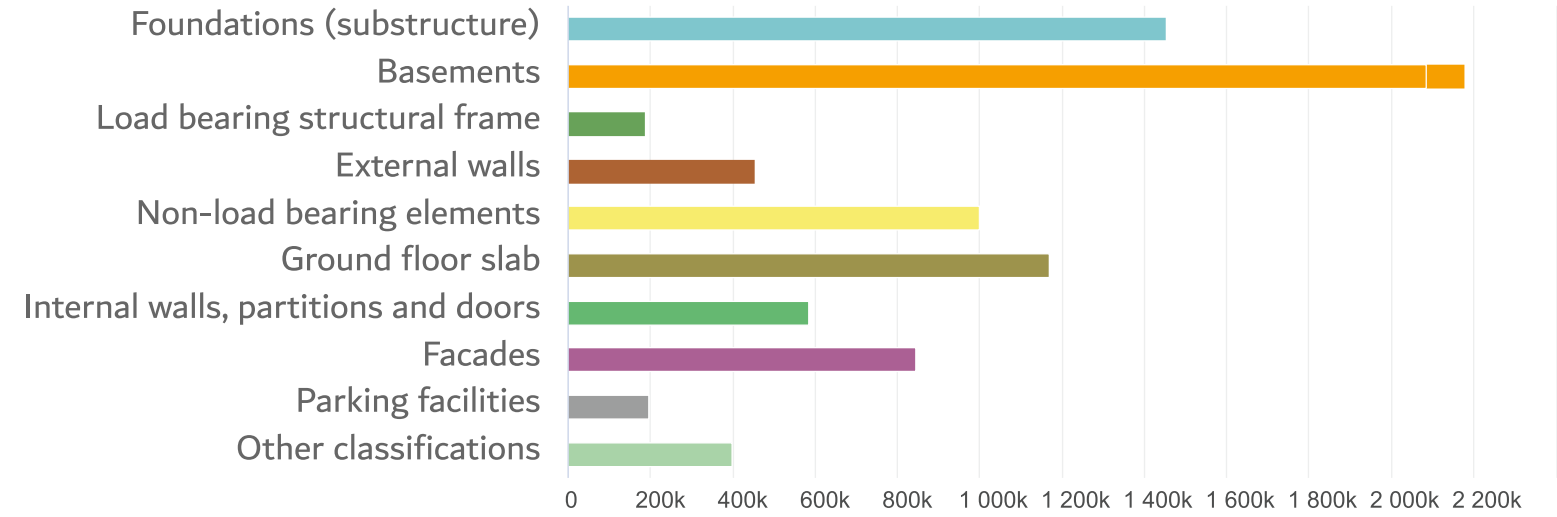
- Ready-mix concrete for external - 7.8%
- Glass facades and glazing - 7.6%
- Ready-mix concrete for foundations - 5.7%
- Other resource types - 7.5%
- Concrete masonry units (CMU) - 28.9%
- Natural gas - 16.4%
- Other site operation - 13.2%
- CLT, glulam and LVL - 8.9%



Embodied carbon benchmark

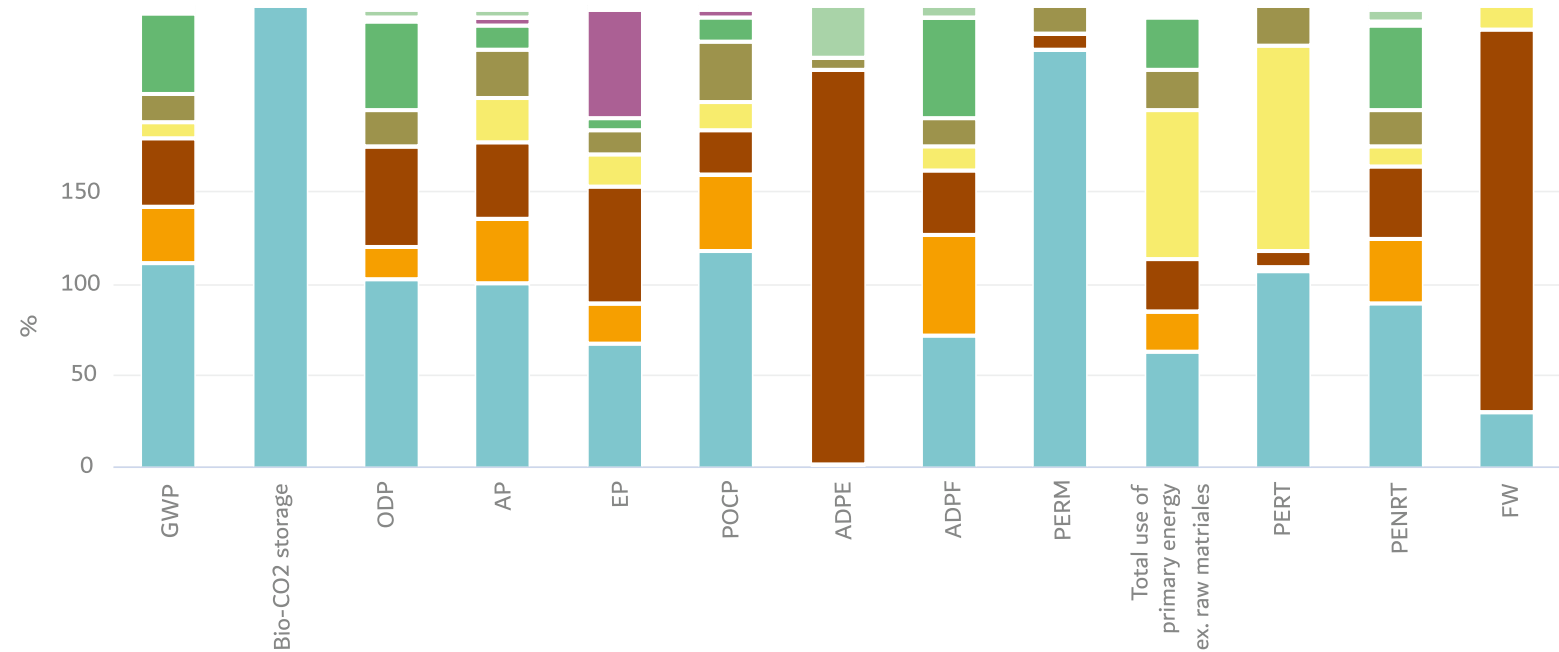


Mass kg - Classifications

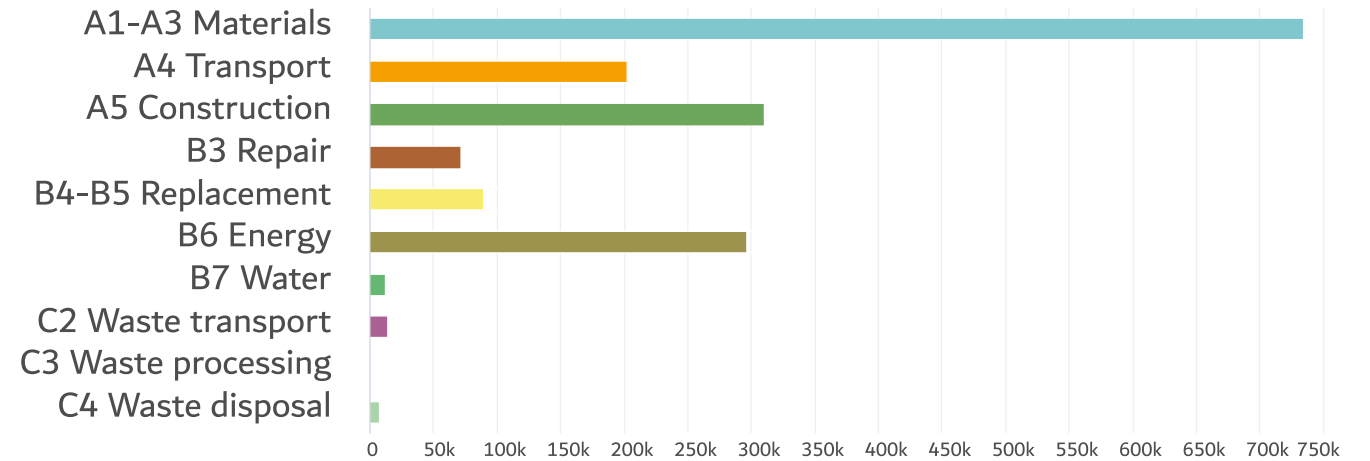


Life-cycle impacts by stage as stacked columns

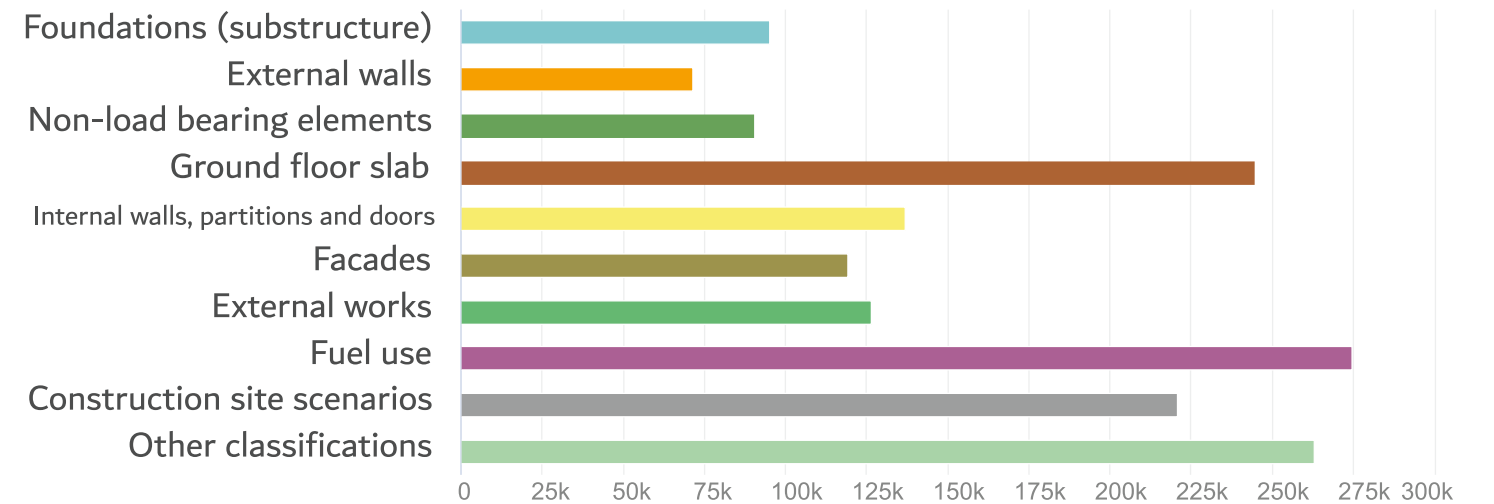
- A1-A3 Materials
- B3 Repair
- C1 Deconstruction/demolition
- B1 Use phase
- A4 Transport
- B4-B5 Replacement
- C2 Waste transport
- A4-leg2 Transport leg 2
- B6 Energy
- C3 Waste processing
- A5 Construction
- B7 Water
- C4 Waste disposal



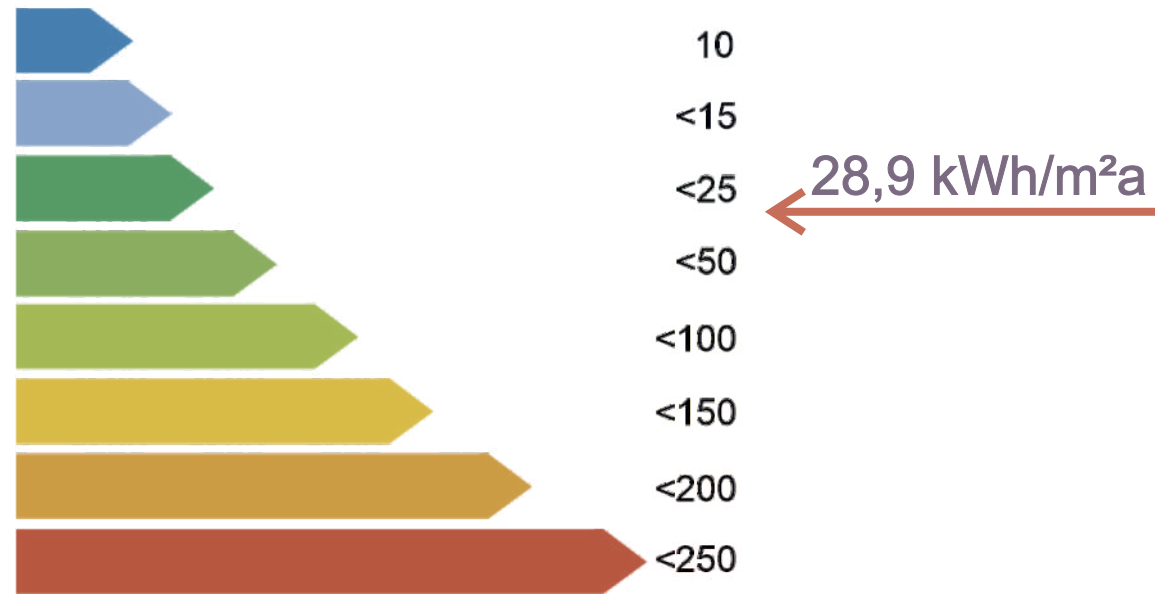
Global warming kg CO2e - Life-cycle stages



Global warming kg CO2e - Classifications



# ENERGY EFFICIENCY Villefontaine

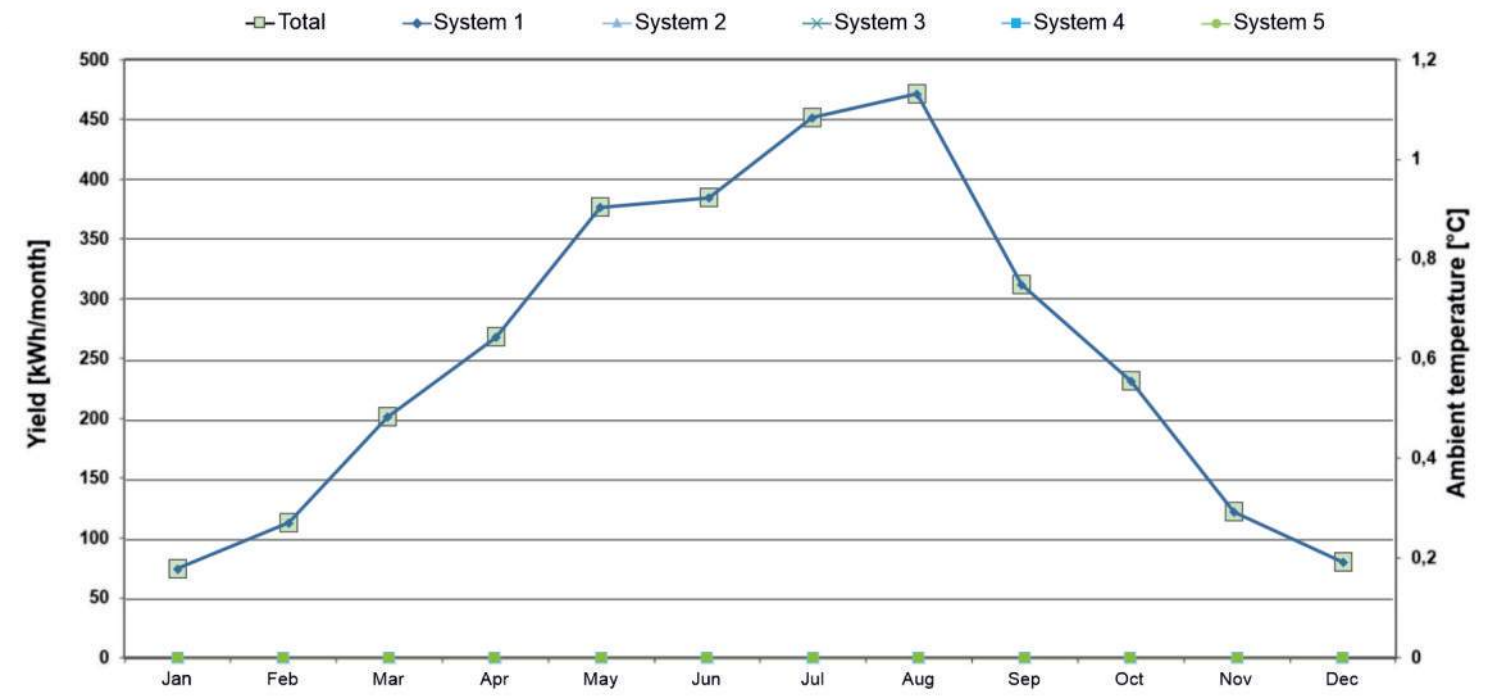


Results:  
specific heat demand = 28,2 kWh/m<sup>2</sup>a

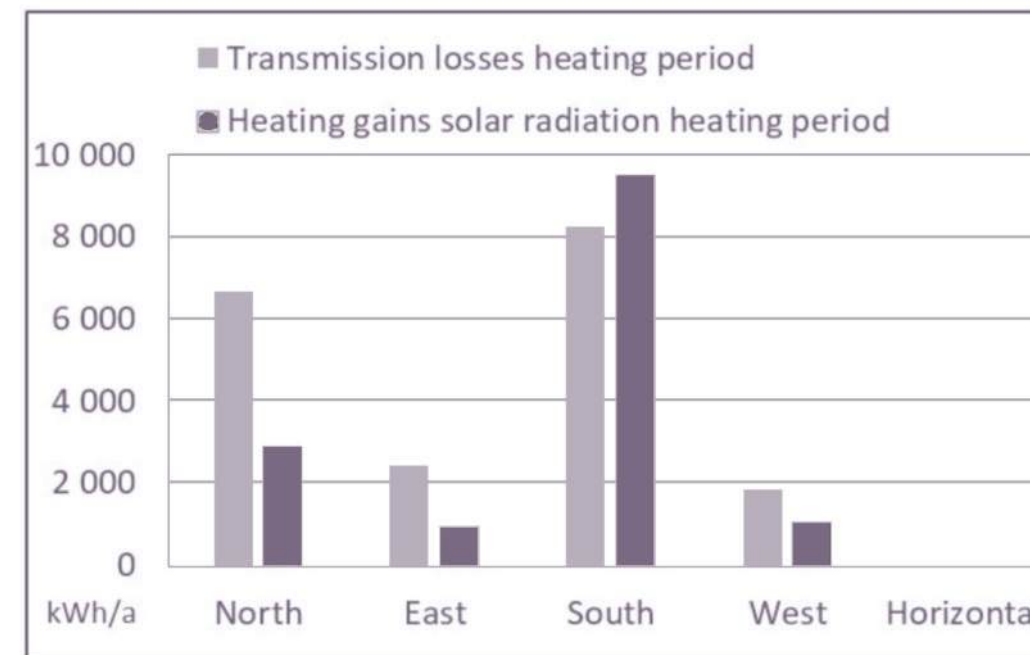
## Thermal Transmission Losses

Component	Area (m <sup>2</sup> )	U-value (W/m <sup>2</sup> ·K)	Loss (W/K)
Opaque walls	870	0.19	165.3
Windows	556	0.70	389.2
Roof	870	0.089	77.4
Floors	2,090	0.161	336.5
<b>Total</b>	—	—	<b>968.4 W/K</b>

## kWh/month from PV panels



## Solar impact















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