Team 7

Country: LEBANON

Bechara NOUJEIM

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Nelly AILABOUNI

MULTI COMFORT STUDENT CONTEST 2020/2021

Palimpsest, rewriting with fragments of memory …

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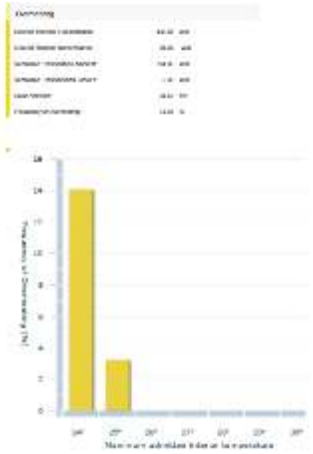
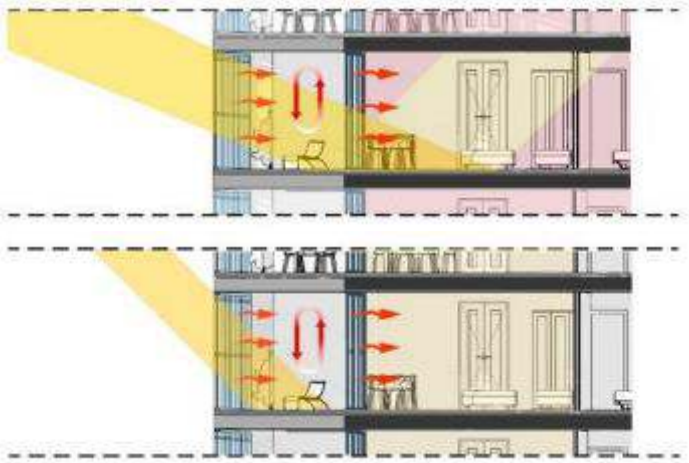
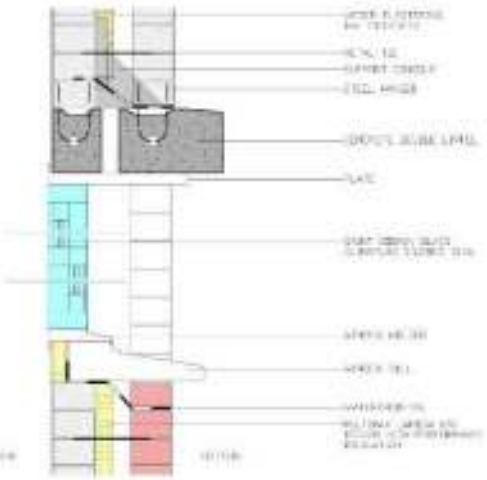
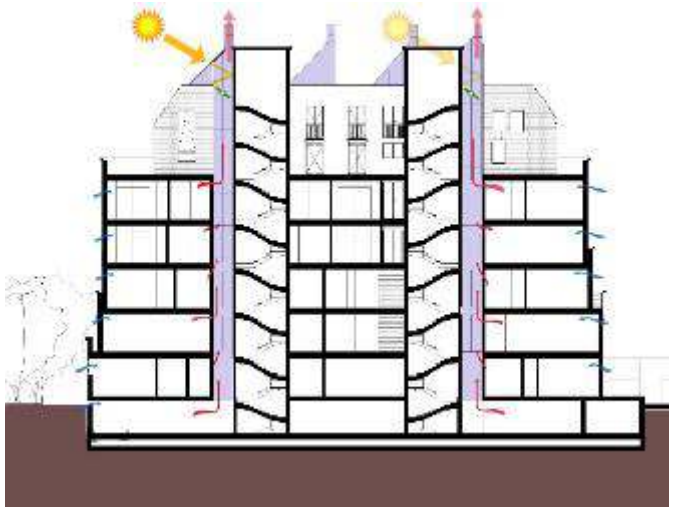
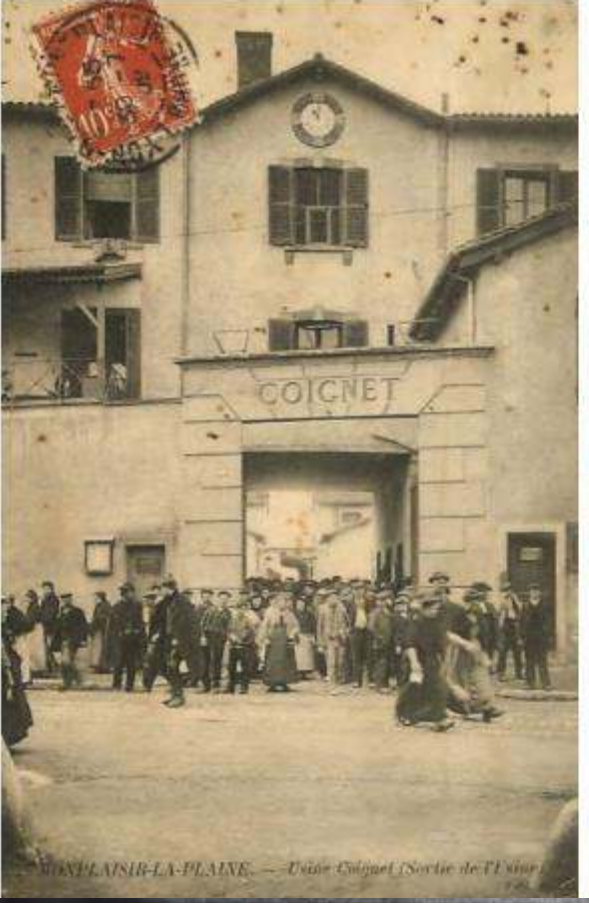
University: Lebanese University
Country: LEBANON



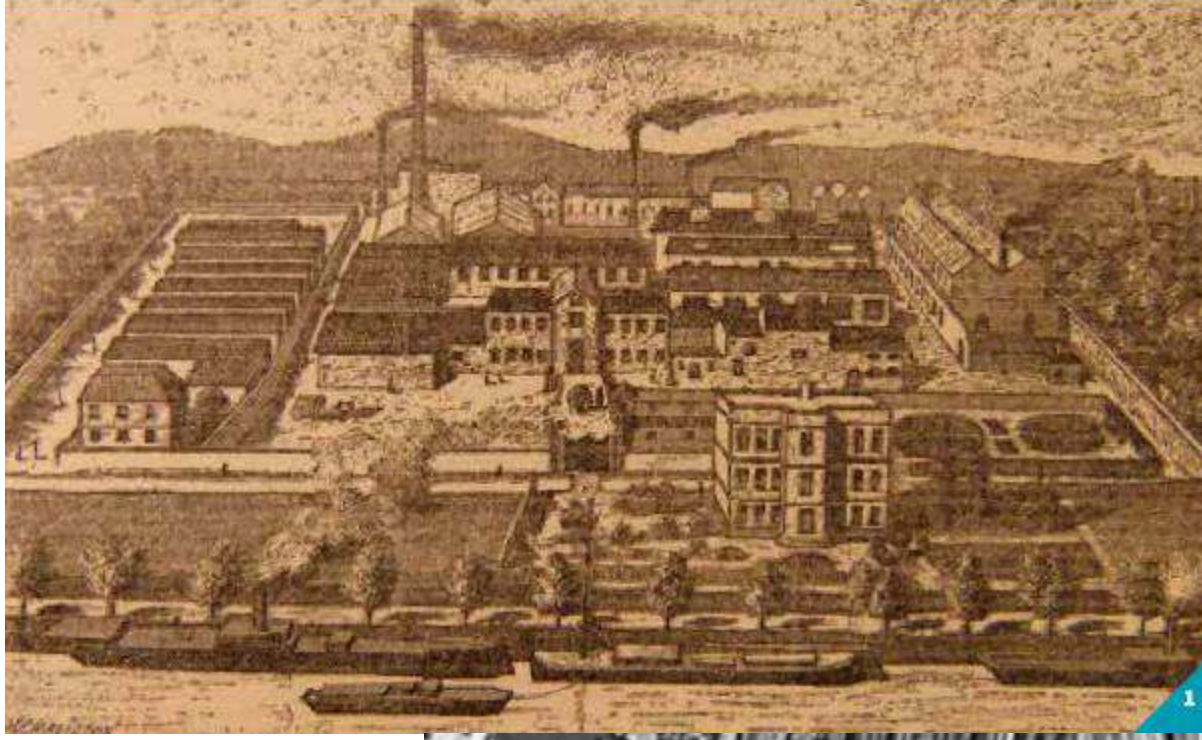


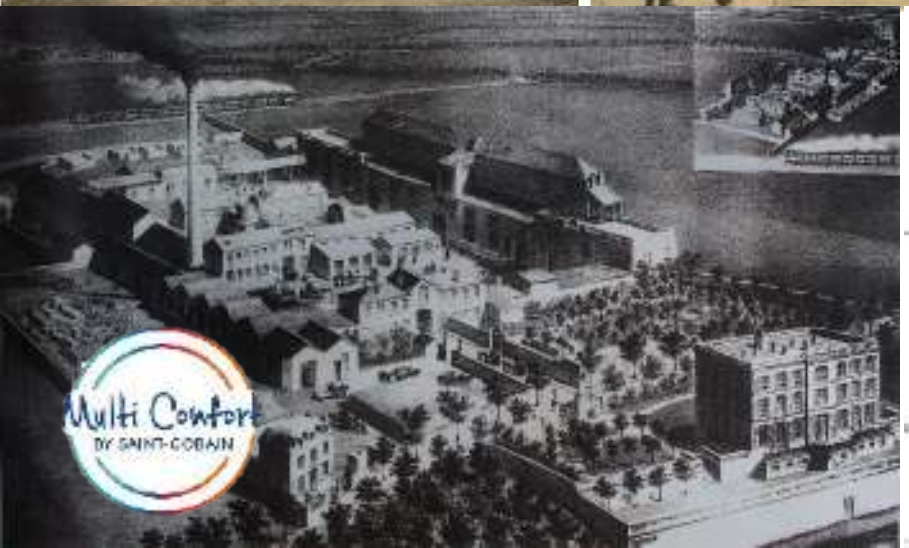


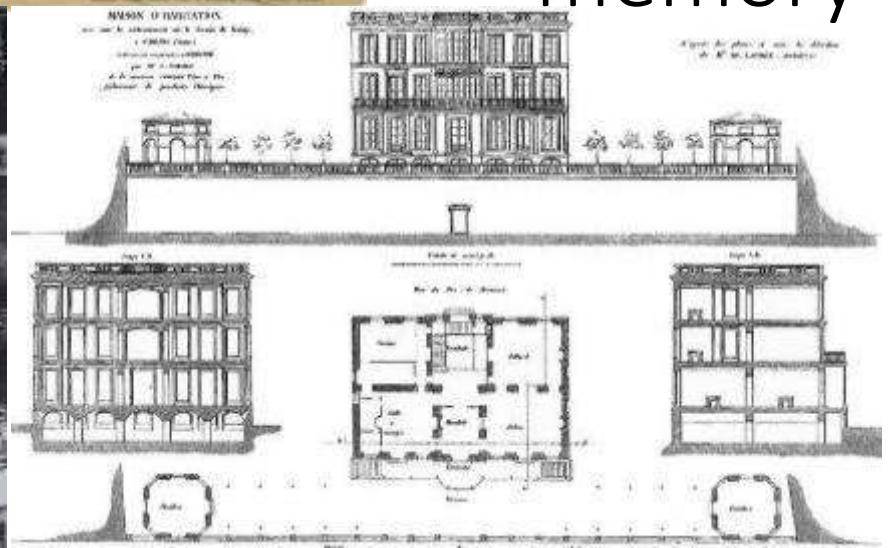




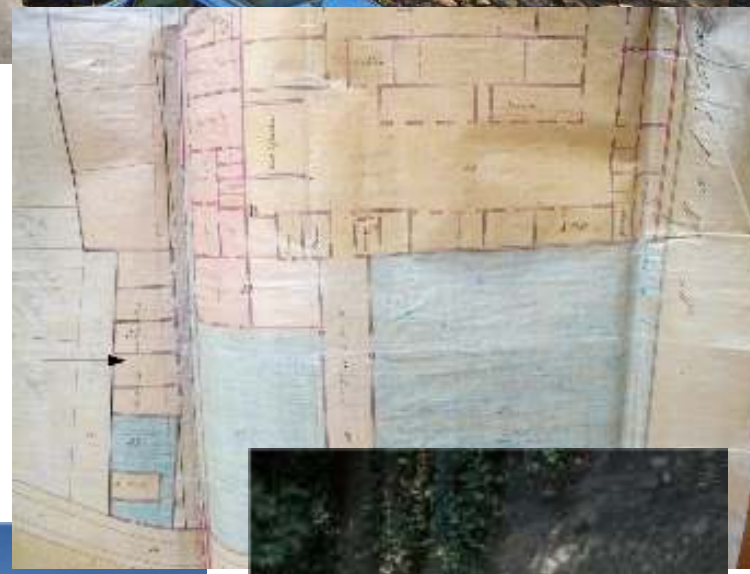
Fragments of memory







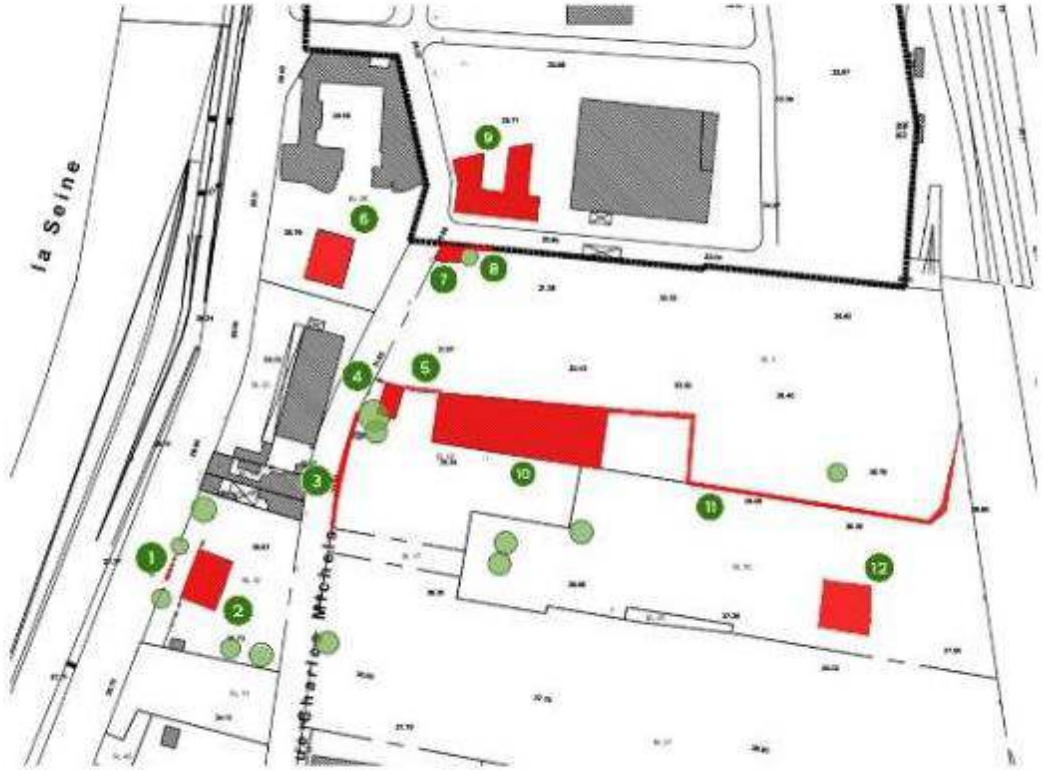
Fragments



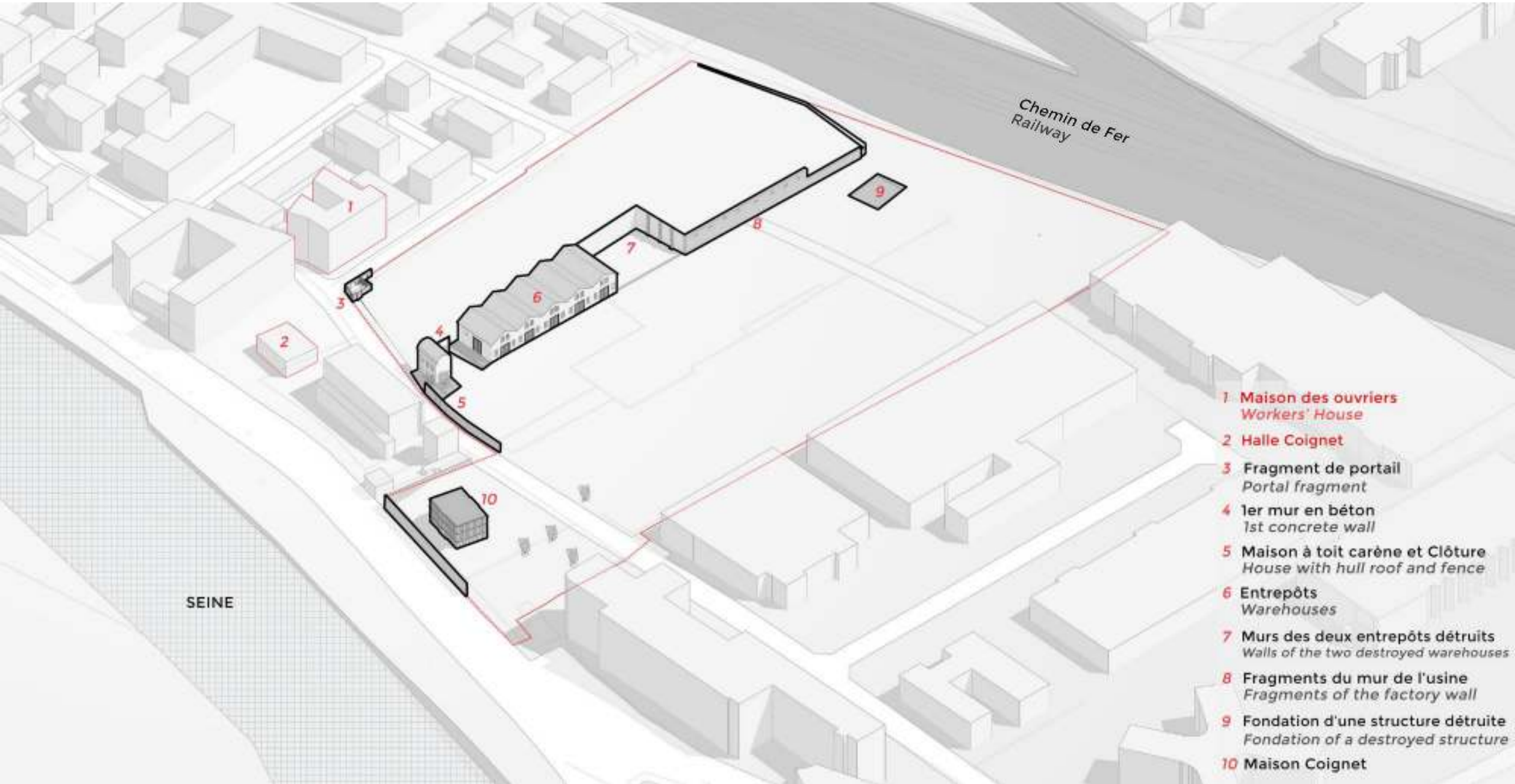
of

memory

Silent fragments of memory, witnesses of Saint-Denis history, **scattered around the site…**

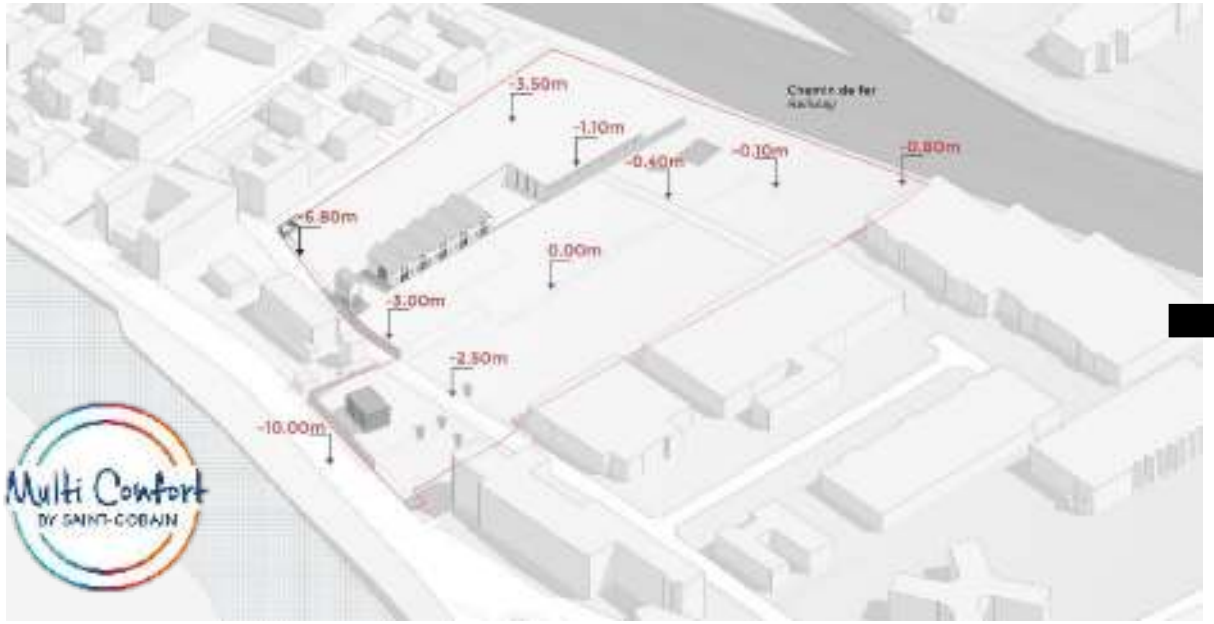


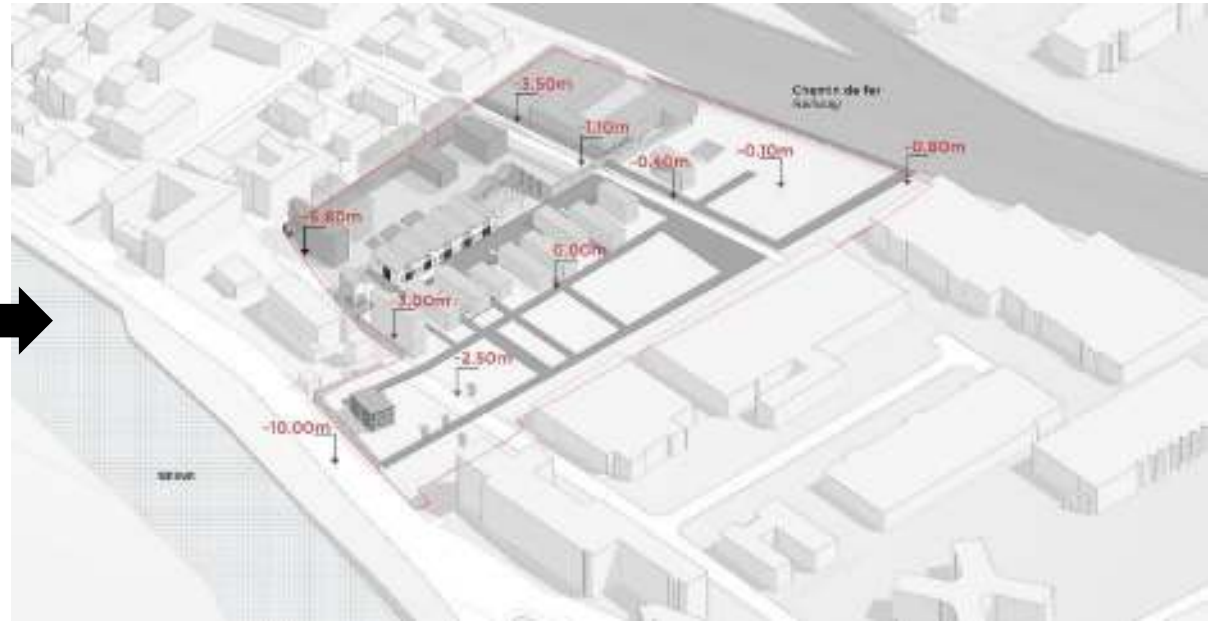
Silent fragments of memory, witnesses of Saint-Denis history…



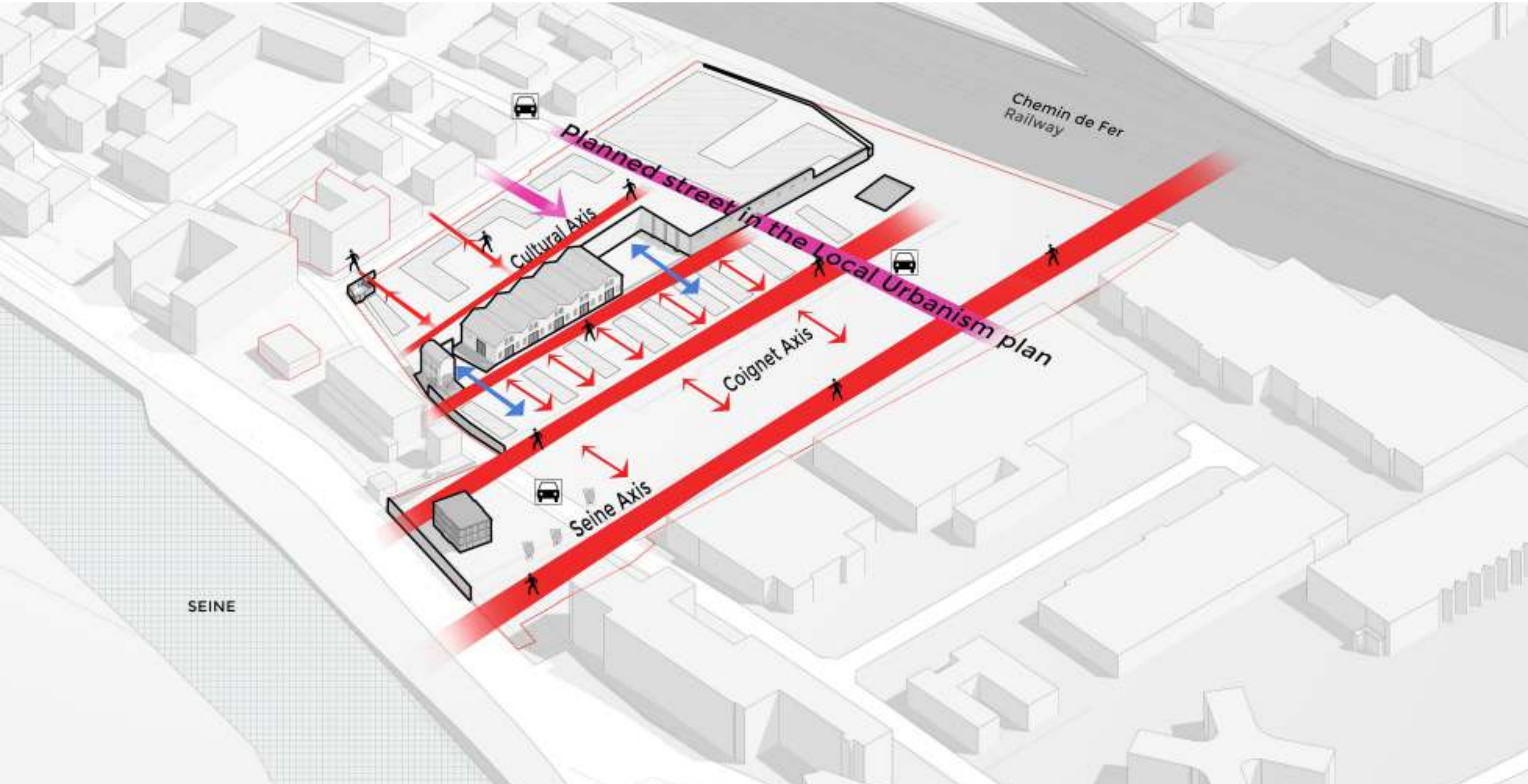
Topography:

Preserving the natural difference in levels and taking advantage of it.

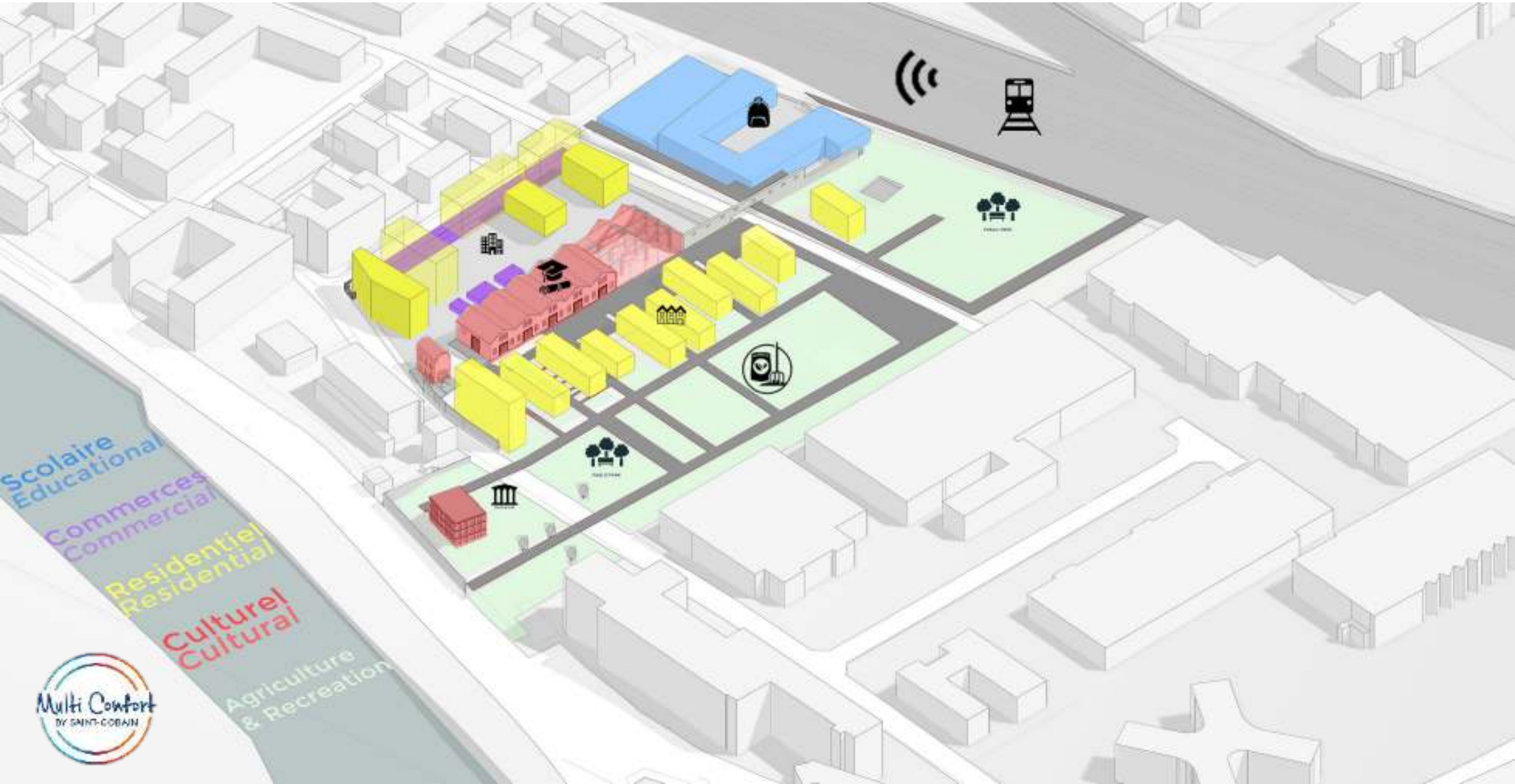




Stitching together the different levels, **Establishing connections with the neighborhood**



Mixed-Use Program: an interconnected network



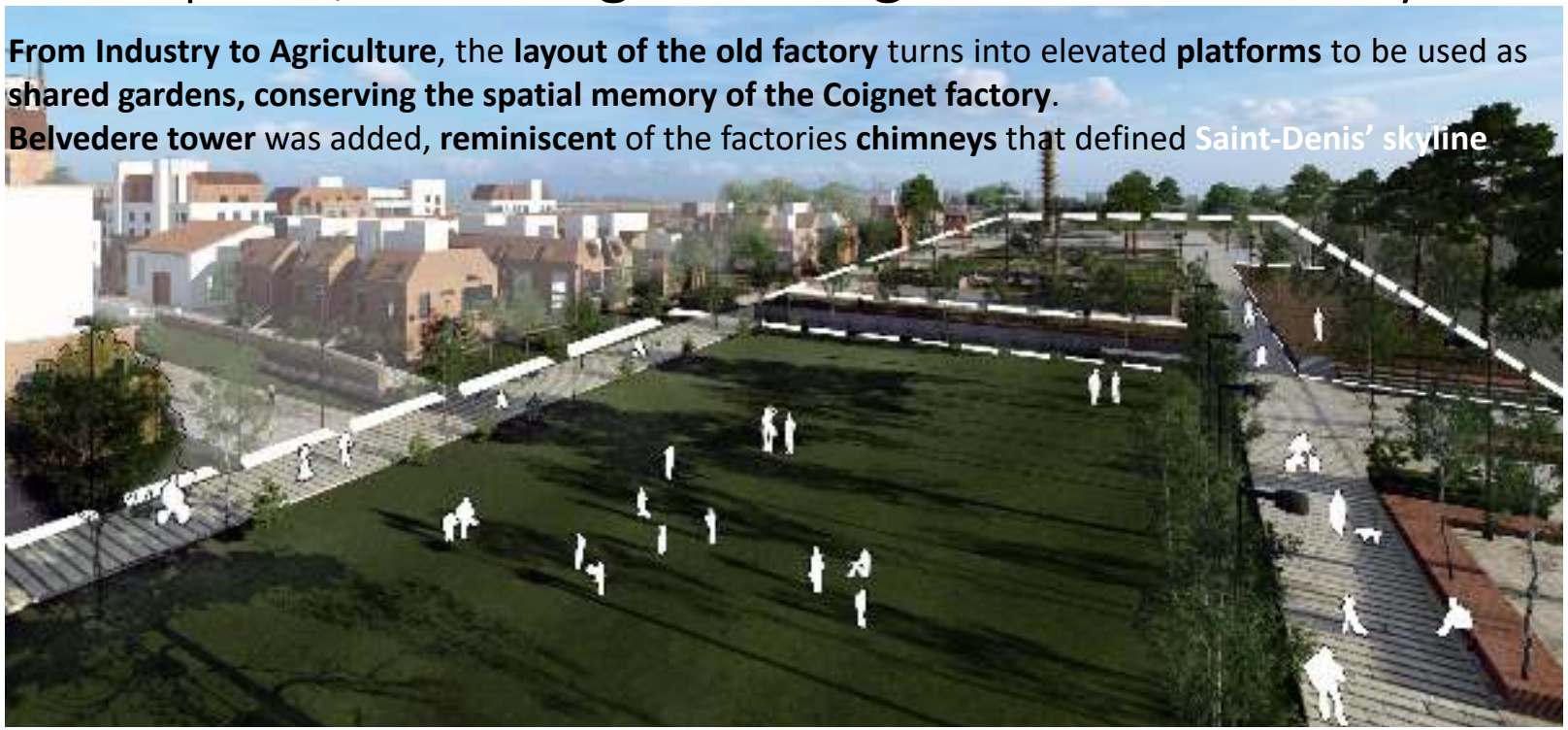
Palimpsest, rewriting with fragments of memory …

Threshold created into the old wall, monumental and reminiscent of the factory gate

A **porous gallery** replaces the factory's enclosure, inviting the visitors in. The old guard post is now a kiosk and its roof a terrasse accessible to the public

Brick Arch leading in, defining a pedestrian access into the project and an **open perspective** towards the Coignet workers building

Palimpsest, rewriting with fragments of memory …



From Industry to Agriculture, the **layout of the old factory** turns into elevated **platforms** to be used as **shared gardens, conserving the spatial memory of the Coignet factory**.
Belvedere tower was added, **reminiscent** of the factories **chimneys** that defined **Saint-Denis' skyline**

Newly added Glass structures:
''the **silhouette** of the 2 demolished warehouses'' supported on the **Fragments of the old wall**

The warehouses retaining wall serving as a guide and delimiting the ''cultural axis'' of the project

Connecting the levels while examining up close the first experimental concrete wall

Reinterpreting Maison Coignet, inspired by its original plans that feature side pavilions

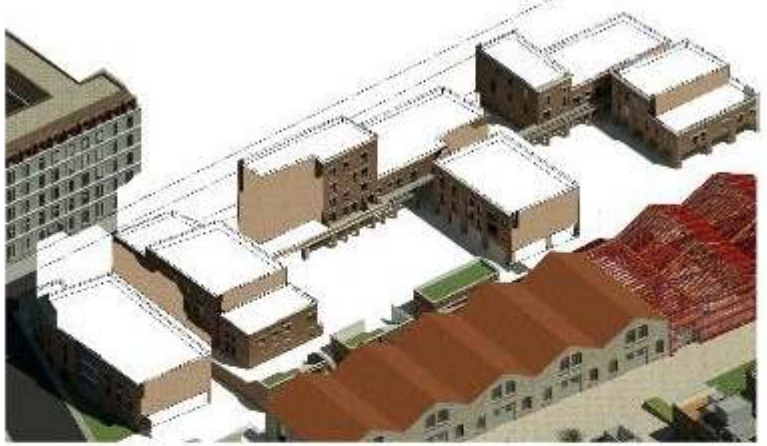
Architectural Palimpsest,

Interconnected and Imbricated layers:

Brick mass, white plastered brick mass, copper cladded mass.

Stages of densification: building over and over, rewriting on the palimpsest, project development and densification phases

Densification phase 1



Densification phase 2

Densification phase 3

Choice of the brick as the main building material

Brick and Concrete

Brick, privacy in an urban setting

Brick, heritage of the Roman city of Saint Denis

Brick, colors of Saint Denis

Brick, present on the Coignet site

Brick, adapted climate response

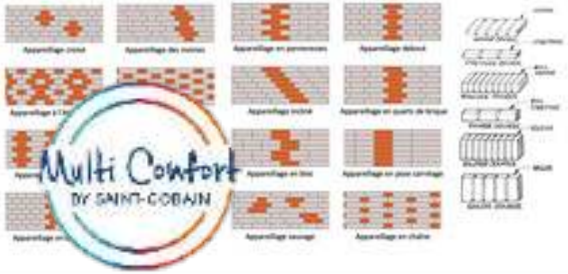
Brick, human scale

Brick, craftsmanship

Brick, industrial material

Brick, thermal properties

Brick, a thousand and one different fittings



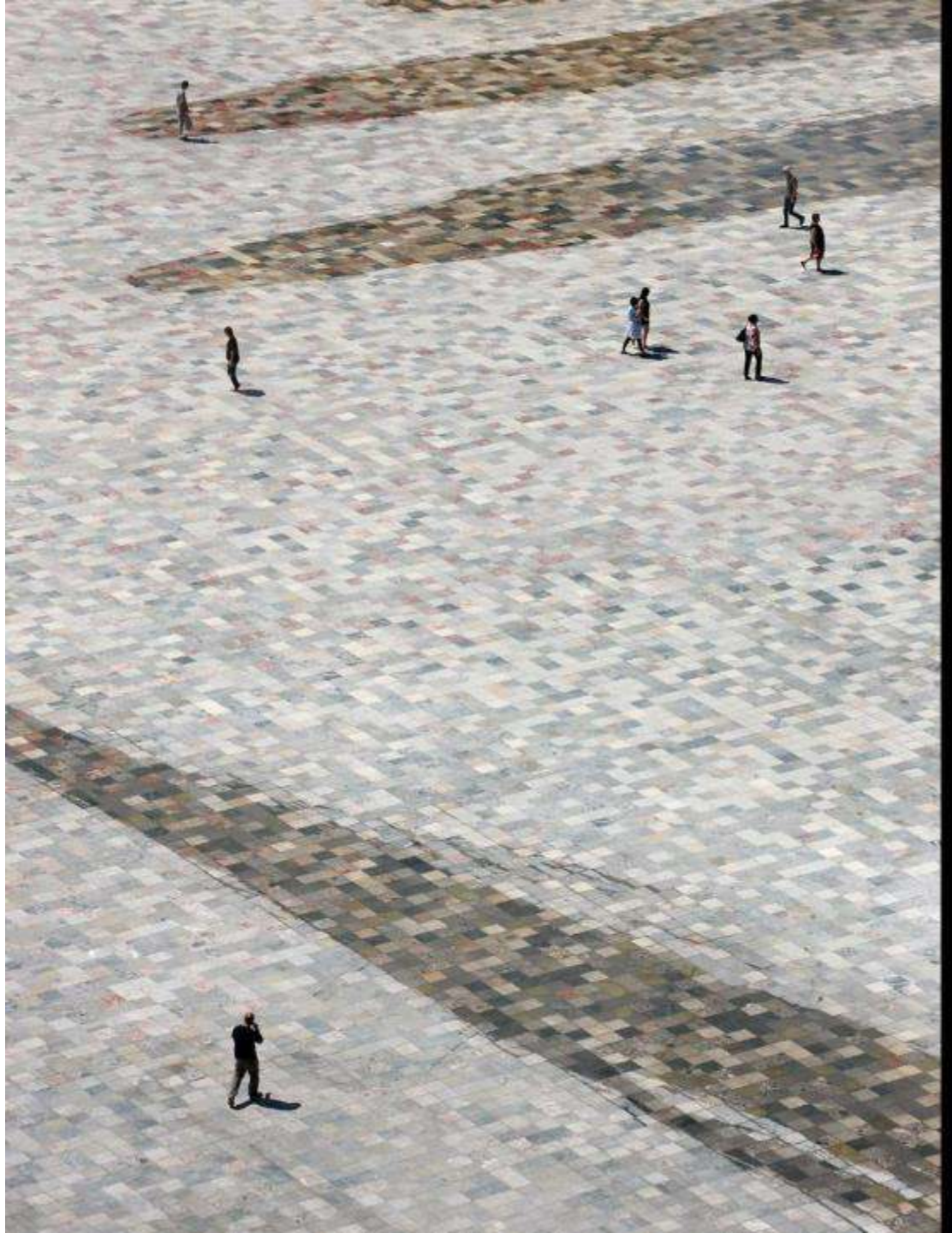
Brick, rich and diverse color palette
A thousand and one different fittings

Brick, massive or light

Brick, an affordable material

Landscaping:

- **Mineral landscaping** like the places of Saint-Denis
- **Water** as metaphor of **memory**.
- Water rises and flows down the piazza, revealing the true colors of the pavements, ‘**Like forgotten memories emerging back to the surface.’**



François Coignet, A Fourierist Social Reformer

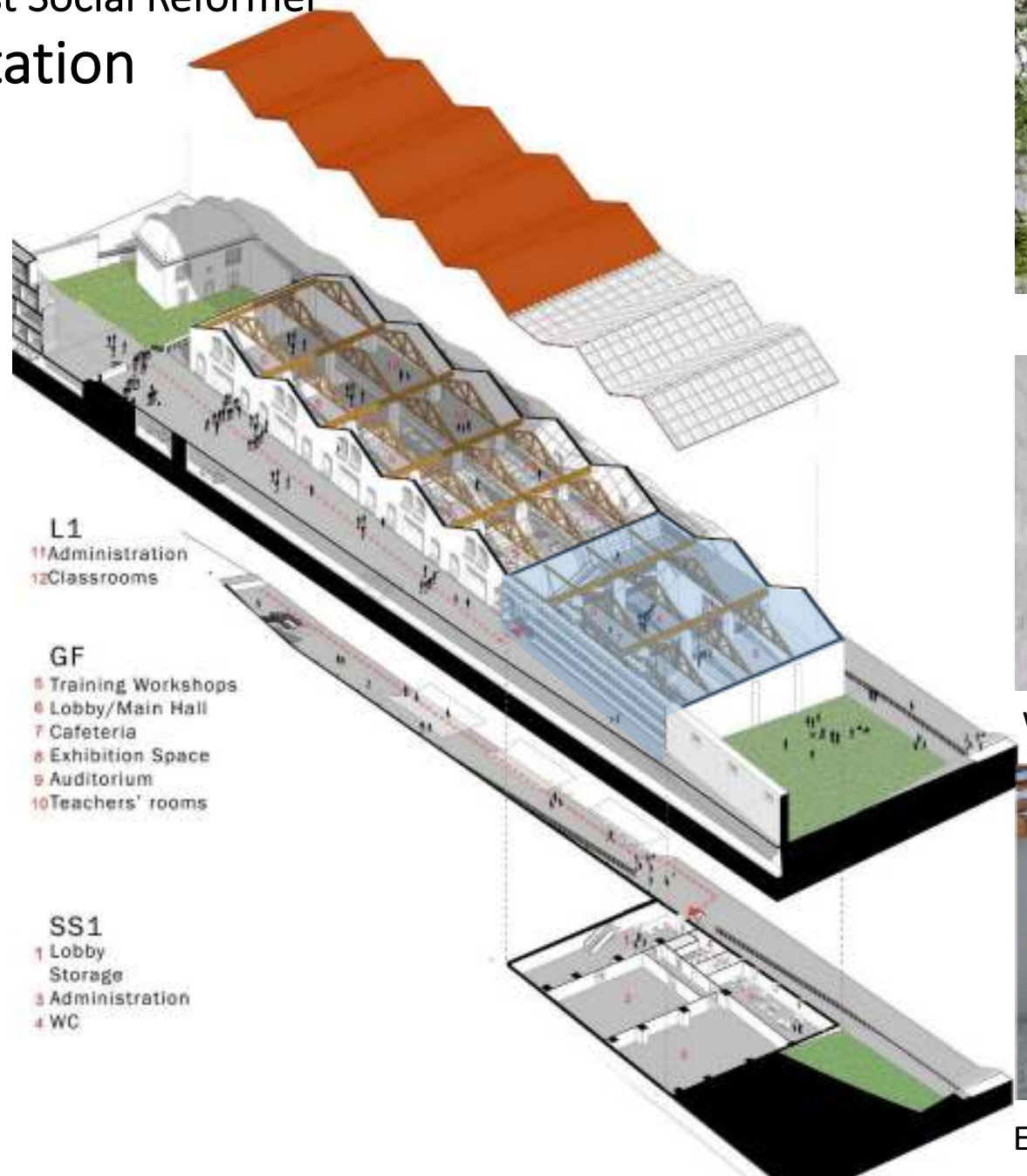
Warehouse rehabilitation

Originally 7 warehouses existed, what is left today is 5 warehouses and 2 walls of the others.

We propose an addition of 2 glass modules supported on the fragments of the 2 warehouses.

Refurbishment of the warehouses into a Learning center in order to:

- Insuring the social integration of the people of Saint-Denis.
- Learning new skills that will enable them to find work opportunities.
- Melting-pot of cultures.



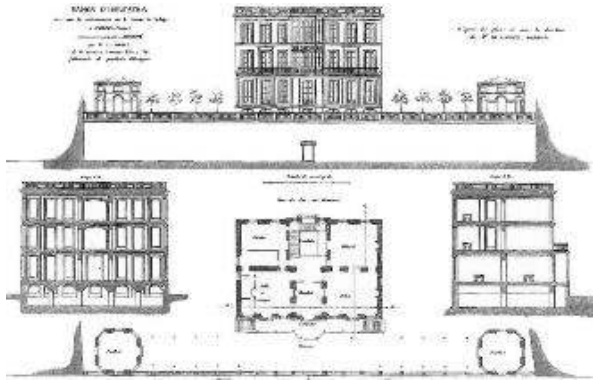
Main lobby

Workshops and classrooms

Exhibition space, cafeteria & auditorium

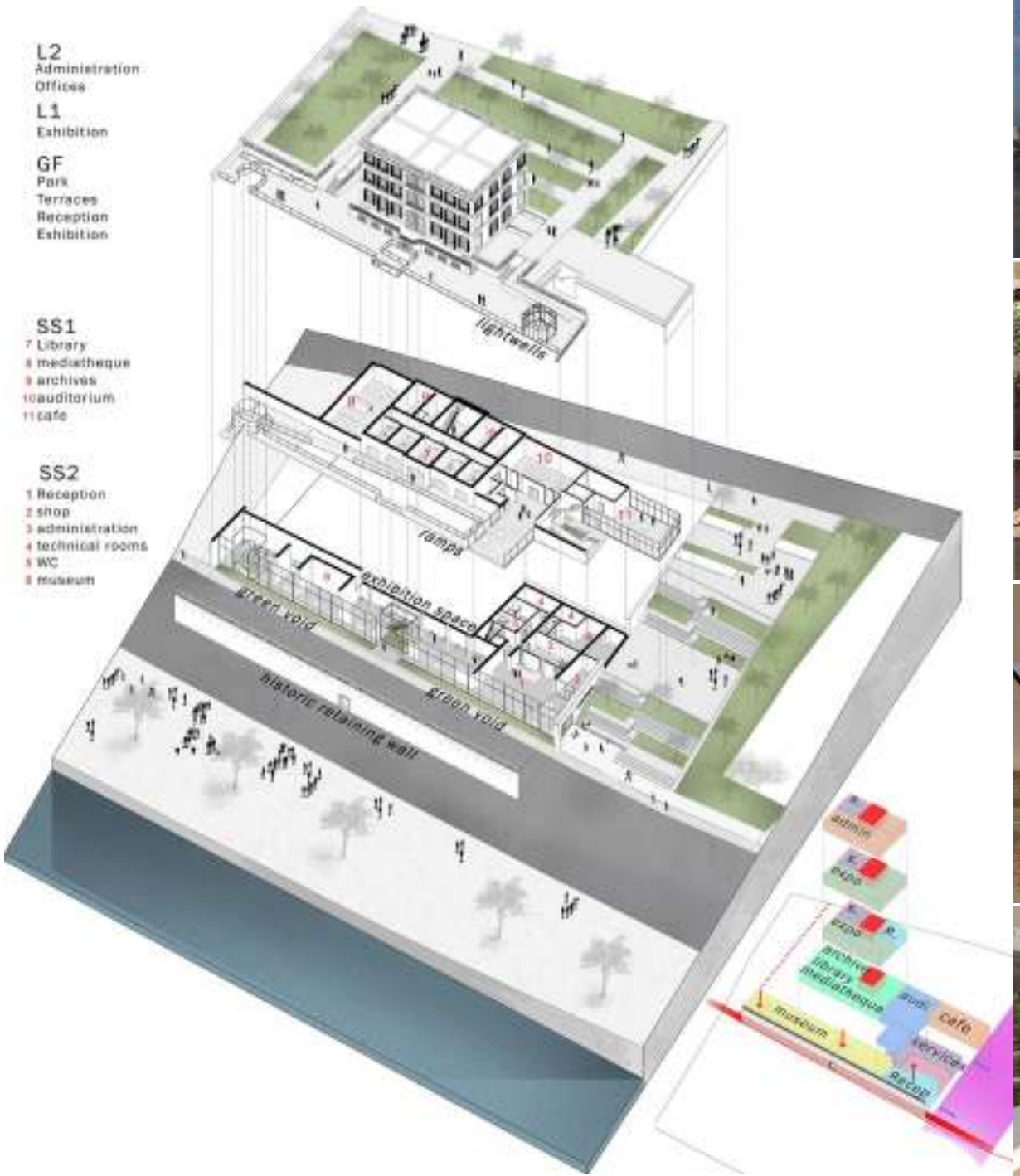
Multi Confort
BY SAINT-GOBAIN

Maison Coignet: Concrete Museum



Addition under the Coignet house terrasse, sandwiched between the historic retaining wall and the house.

Design inspired by the original pavilion plans, reinterpreted as light wells



Multi Confort
BY SAINT-GOBAIN

Coignet Elementary School

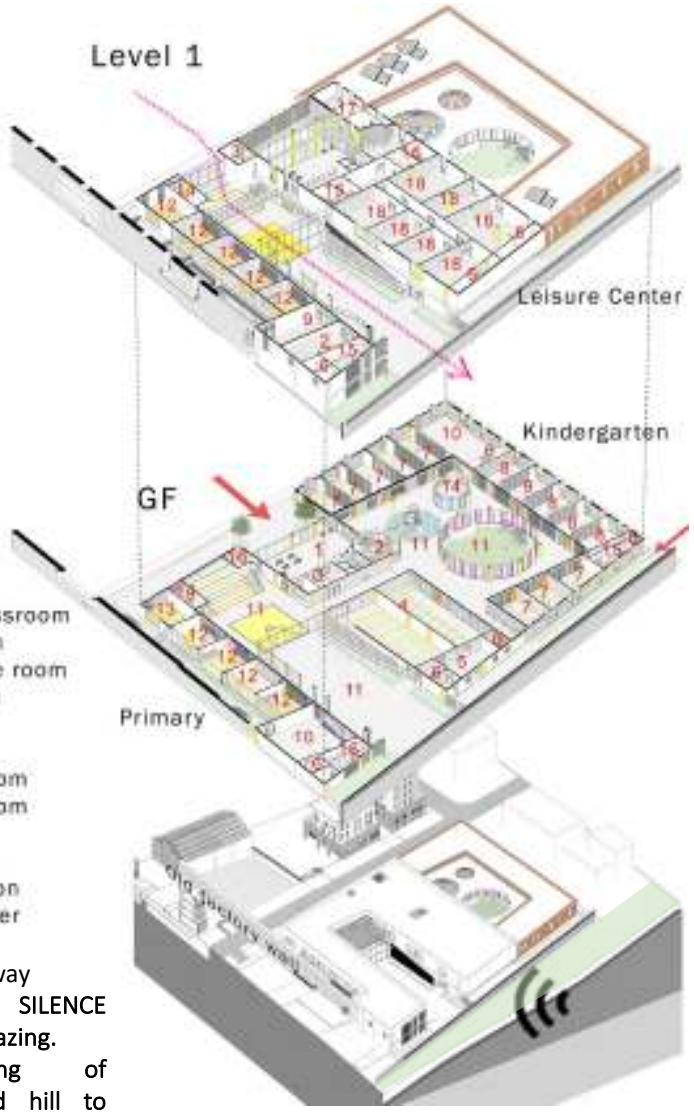
School as a culmination of the ''Cultural Axis''

Kids oriented design:

- **Kindergarten: Circular womb-like forms** with **sub-spaces and niches** adapted to the toddlers.
- **Primary: Semi-open courtyard, opening a 'Vista' towards the project** and an other **towards Saint-Denis.**
- **Connecting through** and **with the factory wall,** creating of an educational interface

Sustainable design:

Atriums, Flexible layout, Green spaces, Skylights and Solar Panels.



Near the railway

- STADIP® SILENCE Double Glazing.
- Landscaping of trees and hill to absorb and refract the sound.










Classroom Layout

Weber plaster by **Saint-Gobain**

Clerestory windows
Bioclean by Saint-Gobain

Brick claustra

Niches

Retractable walls for maximum flexibility

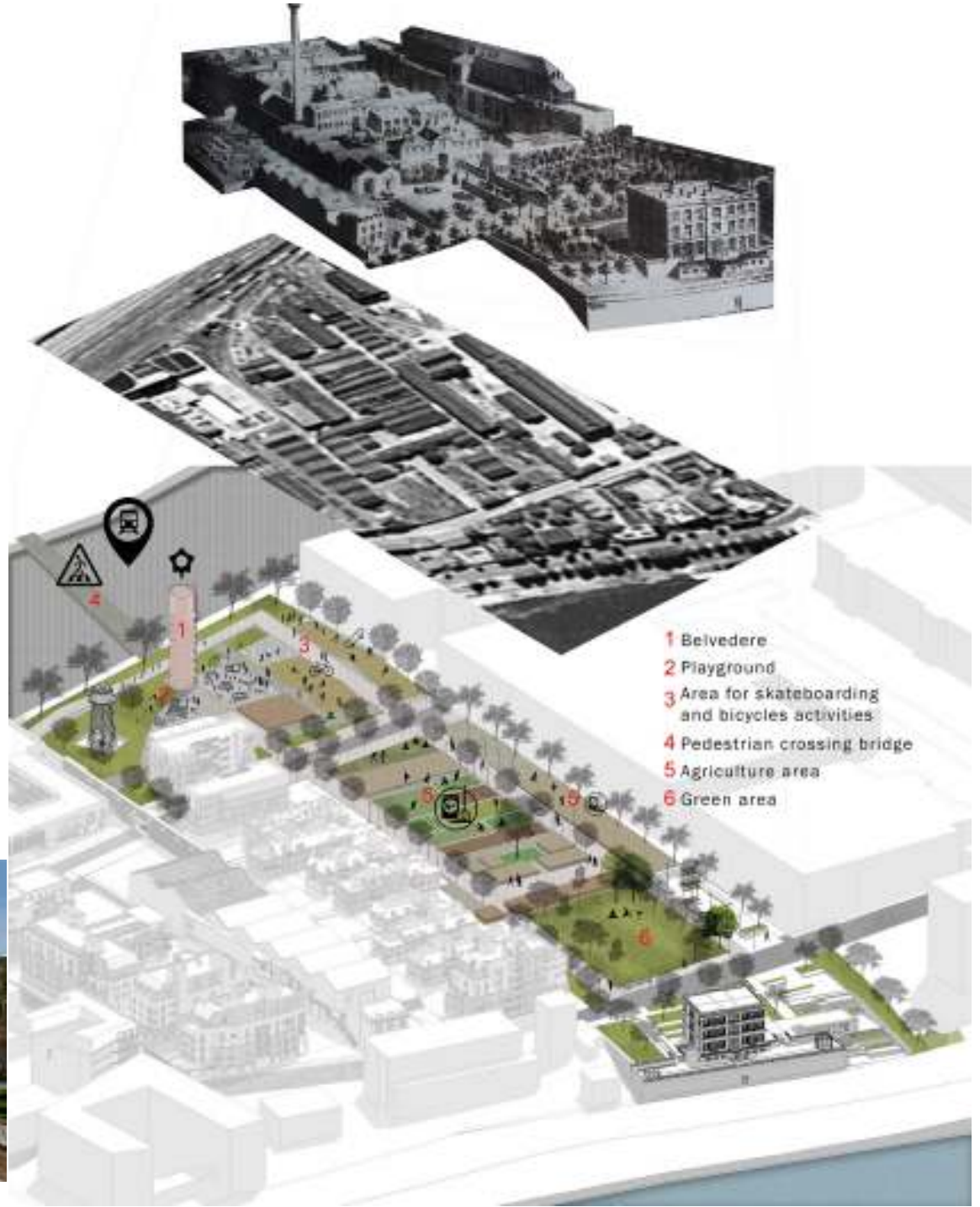
Flooring: **Saint-Gobain-Adfors** glass fiber carpet

Multi Confort
BY SAINT-GOBAIN

The park, from Industry to Agriculture

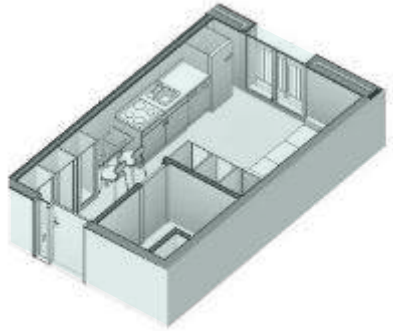
Layout inspired from the factory's plan, in an attempt to give **a sense of spatiality** to this large **industrial wasteland**.

- **The main alleys are recreated** and lined with trees
- **Main axis on Coignet house**, following the tradition of **French gardens**
- Courtyards previously **enclosed by buildings** are **now defined by tree alignments**
- The **buildings footprints** become **elevated platforms retained by gabion walls,** dedicated to shared **agriculture in urban zone**
- **A belvedere tower is added, reminiscent of the factories chimneys** that used to define **Saint-Denis' skyline,** communicating with the old town
- **The townhouses with their gardens and pedestrian alleys** work as **transitional spaces, threshold** to the **park**

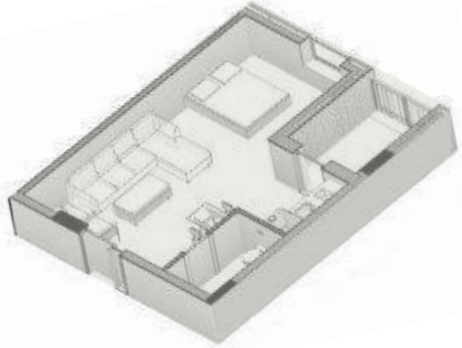


Apartments Typologies

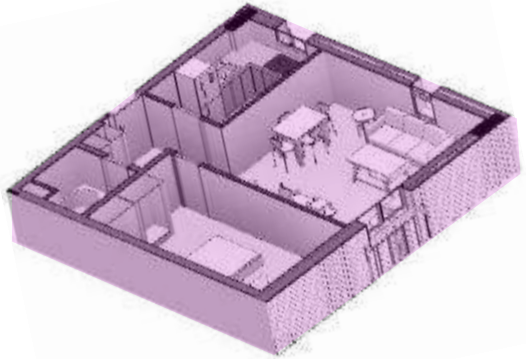
T1 18 sqm



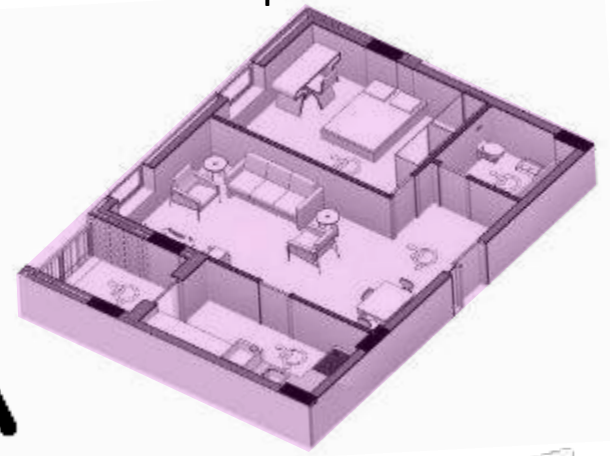
T1n2 30 sqm



T2 45 sqm

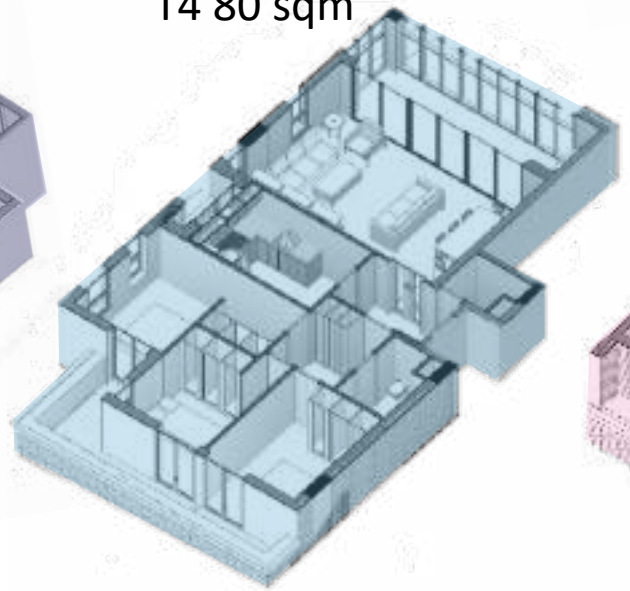


T2 60 sqm

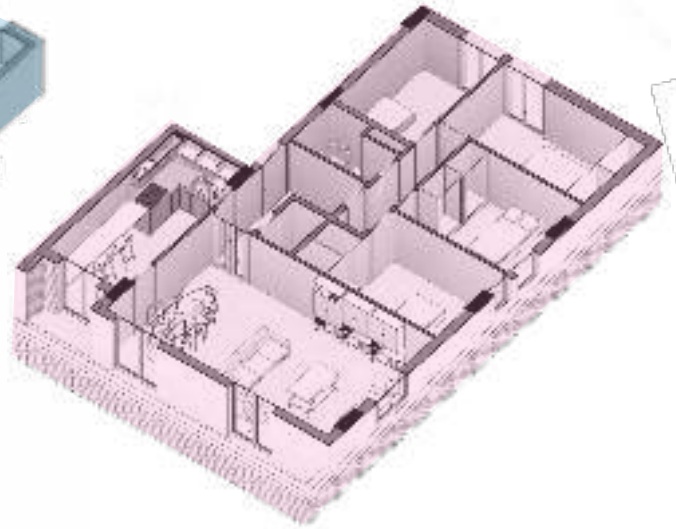


T3 65 sqm

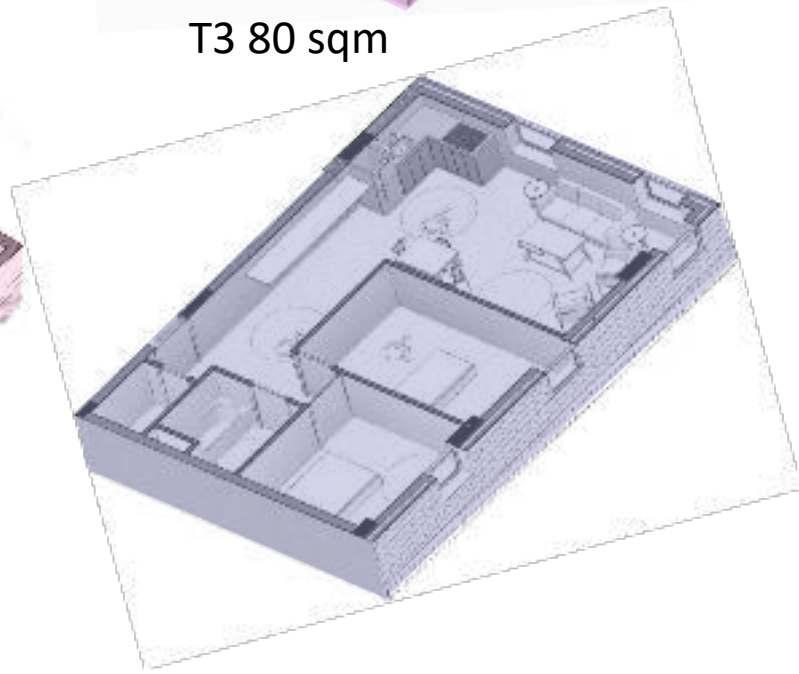
T4 80 sqm



T5 100 sqm



T3 80 sqm



Multi Confort
BY SAINT-GOBAIN

Exterior staircases

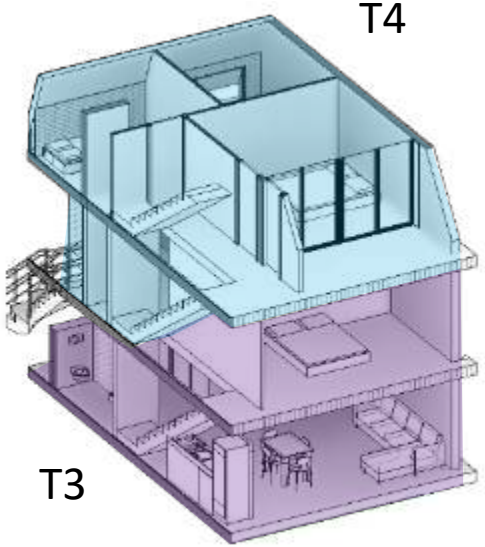
In addition to the interior circulations, most of the appartments can be reached through exterior stairs.

The **French Building code law imposing enclosed windowless staircases** for safety reasons, **exterior staircases** were added to provide **a pleasurable stairs experience, offering different views and working as ‘’architectural promenade’’.**

Our aim is to encourage the residents to use **the stairs instead of the elevators.**

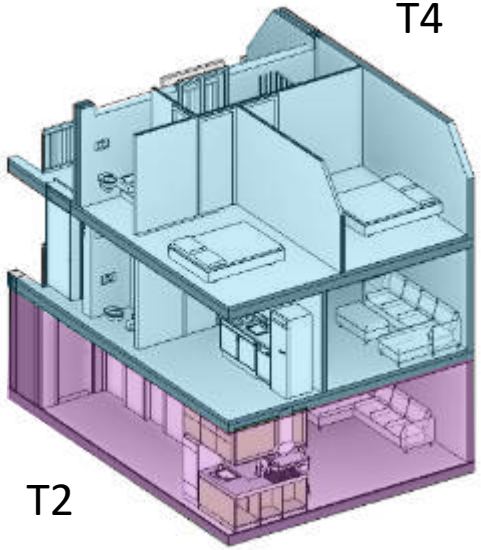
Town Houses Typologies

T4



T3

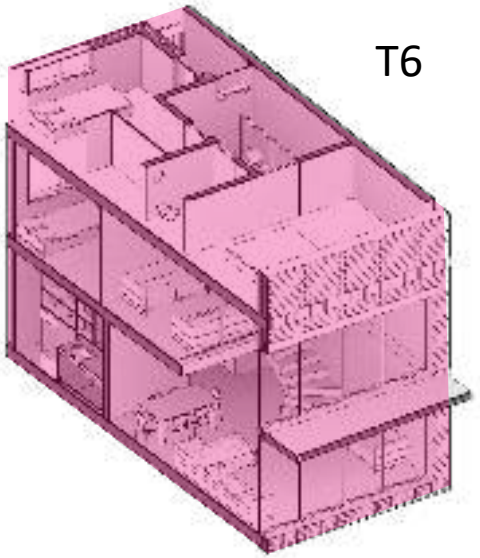
T4



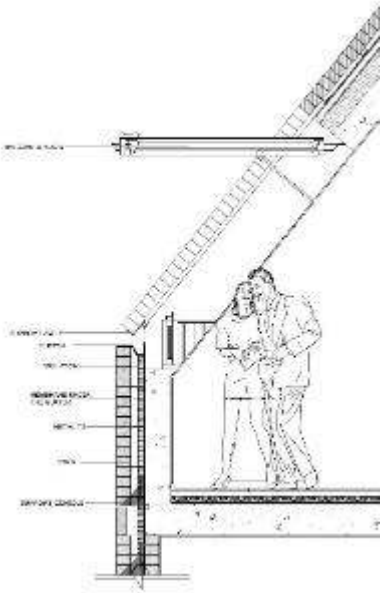
T2

T7

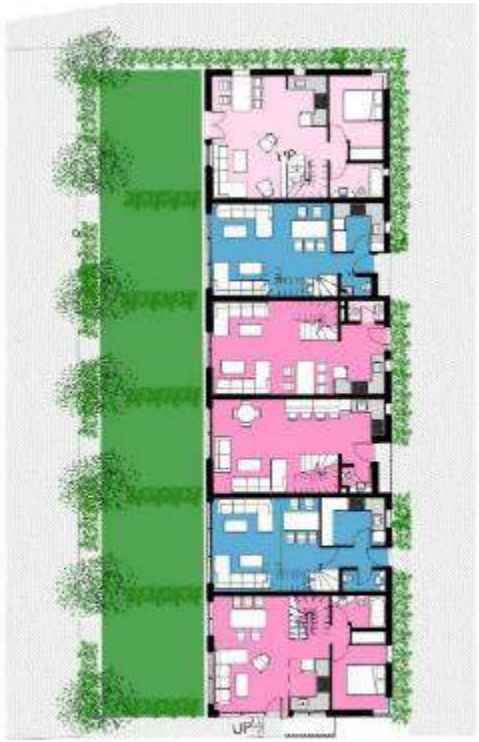
T6



Different scale, different typologies, in contact with the agricultural park



Typical Plan of Row Houses



GF

1st Floor

2nd Floor

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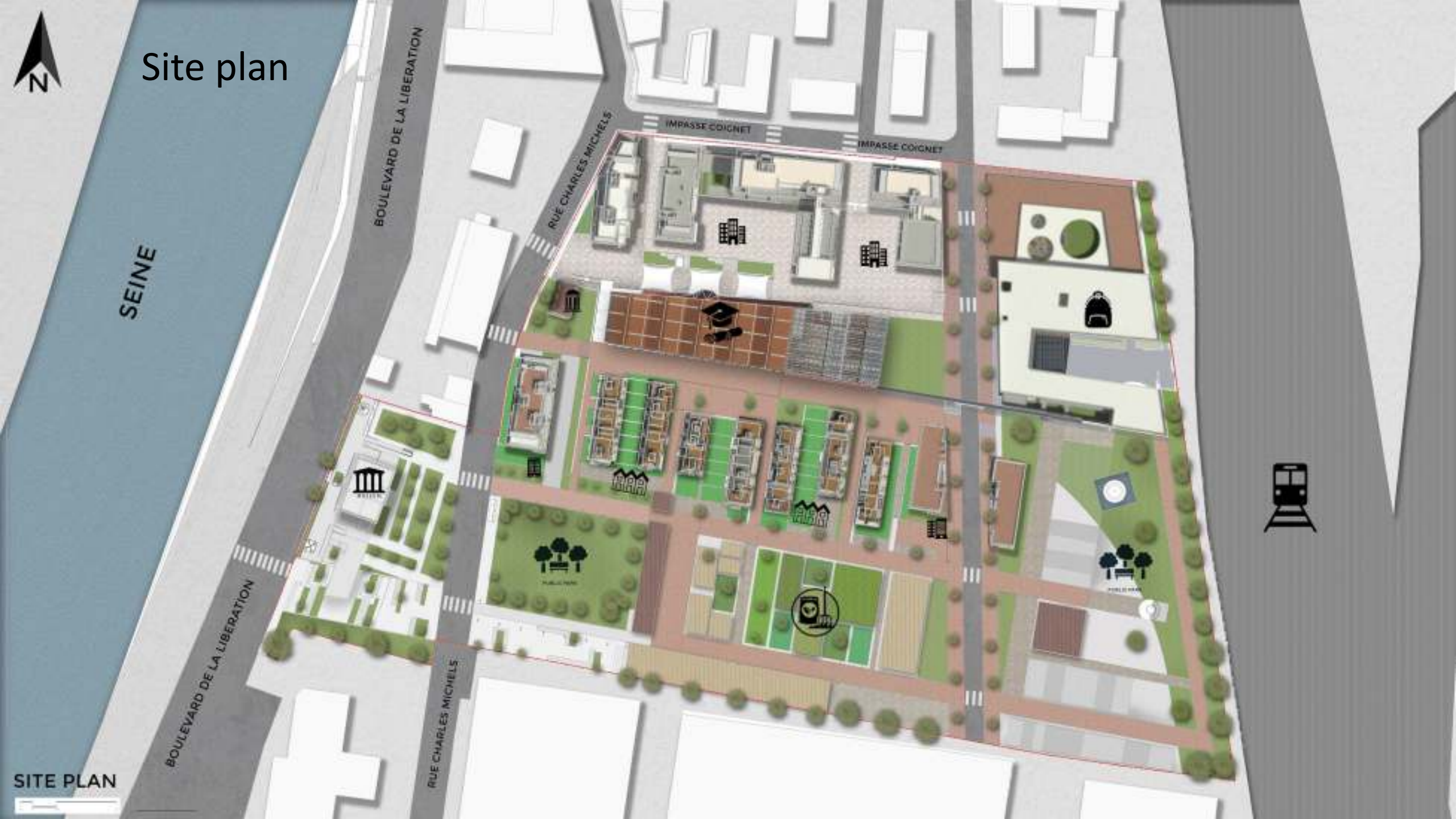
Site plan


N
SEINE
BOULEVARD DE LA LIBERATION
RUE CHARLES MICHELS
IMPASSE COIGNET
IMPASSE COIGNET
BOULEVARD DE LA LIBERATION
RUE CHARLES MICHELS
SITE PLAN


N
GF
Types
T1
T1 n2
T2
T4
BOULEVARD DE LA LIBERATION
RUE CHARLES MICHELS
IMPASSE COIGNET
IMPASSE COIGNET
MUSEUM


LEVEL 1
Types
T1
T1 n2
T2
T3
T4
T5
T6
BOULEVARD DE LA LIBER
RUE CHARLES MICHELS
IMPASSE COIGNET
IMPASSE COIGNET
MUSEUM
PUBLIC PARK
PUBLIC PARK


LEVEL 2
Types
T1
T1 n2
T2
T3
T4
T5
T6
BOULEVARD DE LA LIBER
RUE CHARLES MICHELS
IMPASSE COIGNET
IMPASSE COIGNET
MUSEUM
PUBLIC PARK
PUBLIC PARK

MULTI-COMFORT STRATEGIES and Saint-Gobain Products

Multi Confort
BY SAINT-GOBAIN

Feel

An optimal temperature:
not too cold, not too hot

See

Maximising daylight to aid
productivity and alertness

Hear

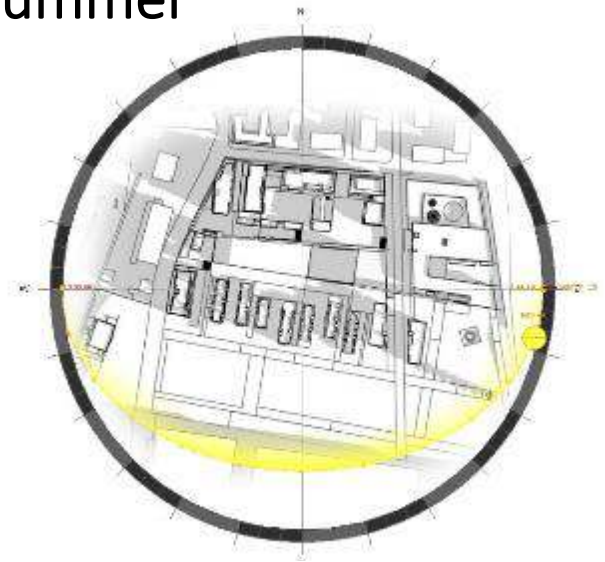
Active acoustic protection
for well-balanced sound

Breathe

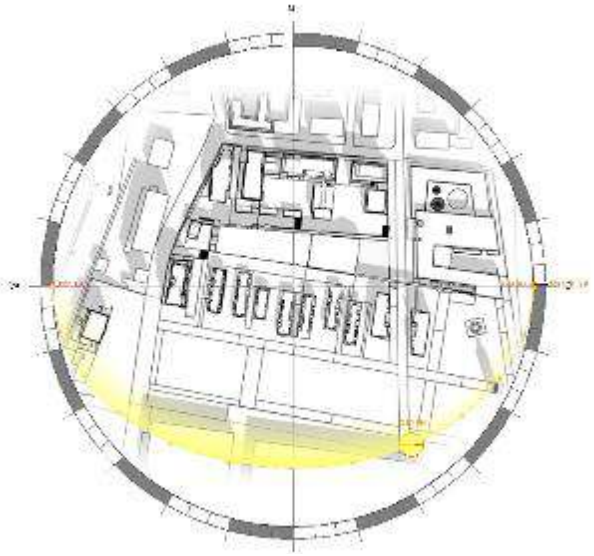
Indoor air is always kept
fresh and clean

Buildings orientation in relation to the solar path

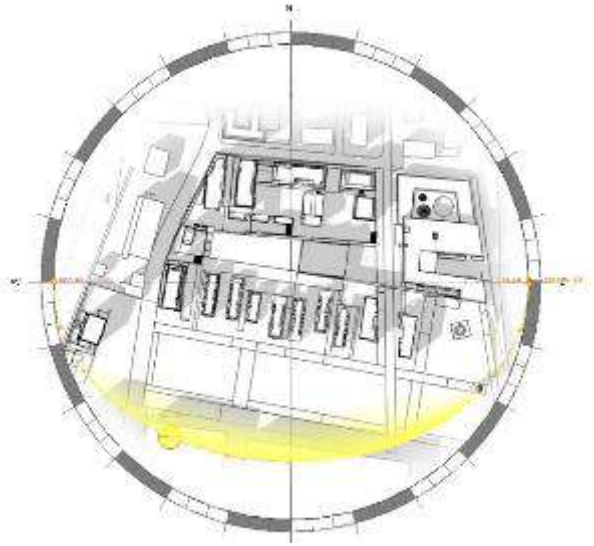
Summer



June 21
9 Am



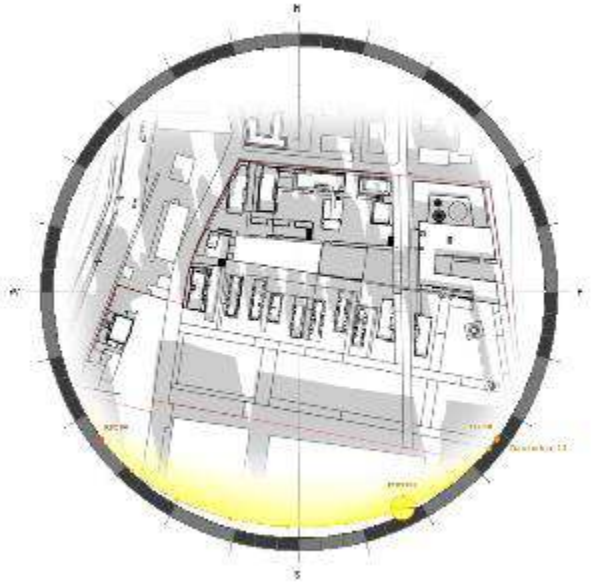
June 21
12 Pm



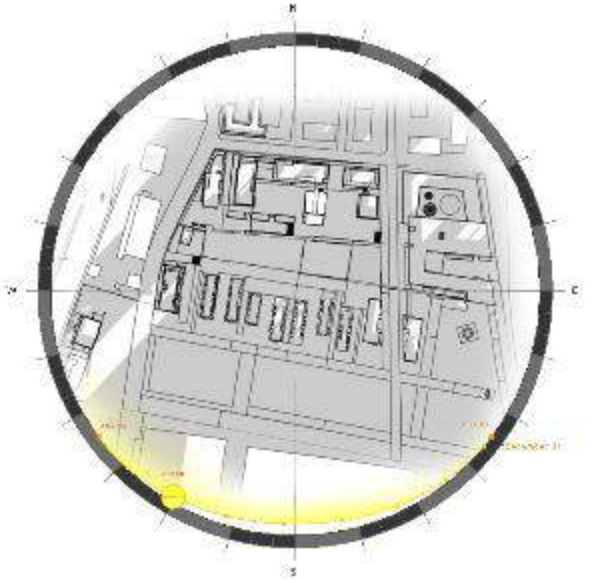
June 21
4 Pm

Winter

Dec 21
9 Am



Dec 21
12 Pm

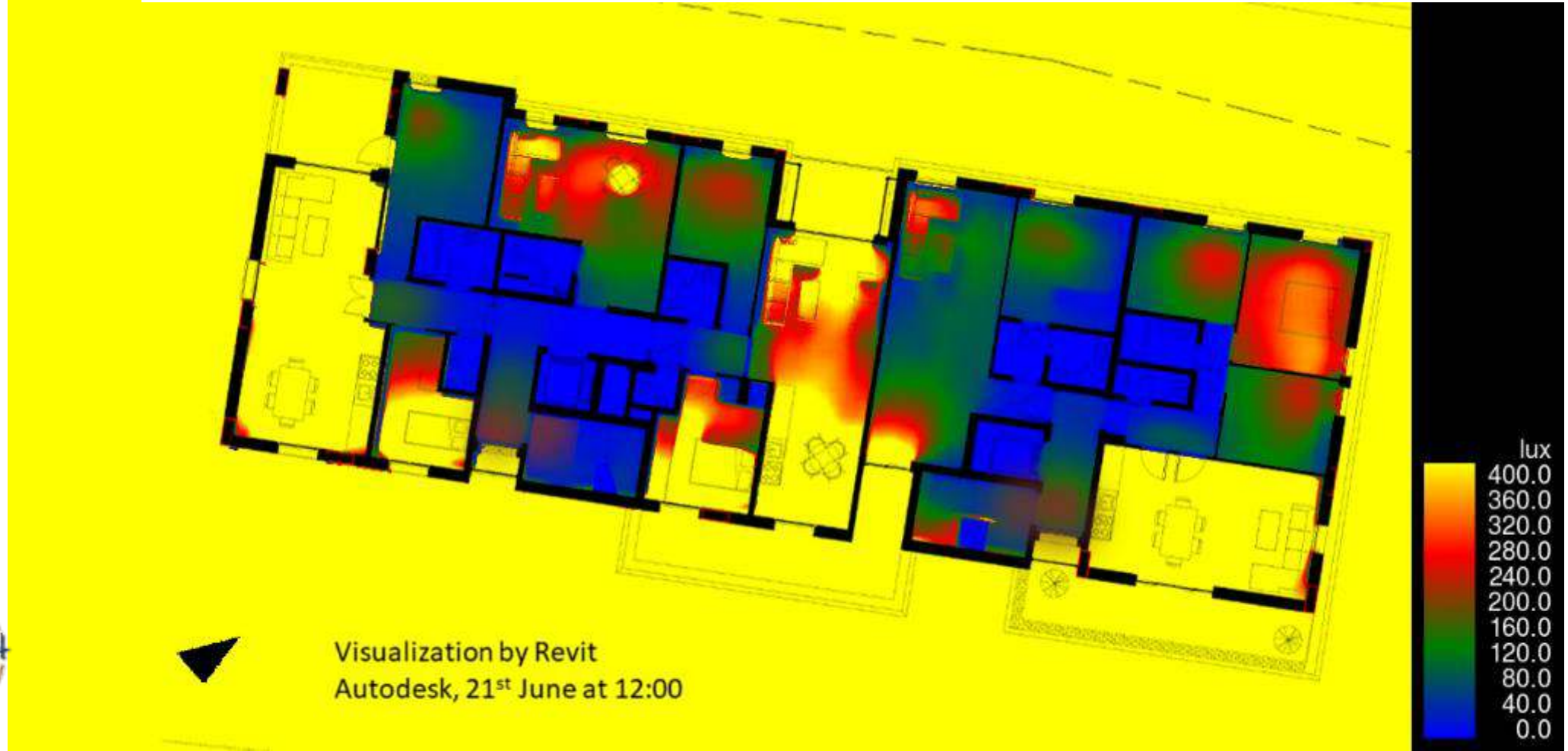


Dec 21
4 Pm

Visual comfort: Natural daylight Maximization

CLIMAPLUS® SAINT GOBAIN GLAZING:

- **High light transmission** of the glazing;
- **Appropriate selectivity** , admitting as much daylight as possible while preventing transmission of solar heat



Visual comfort: Natural daylight Maximization

Naturally Lit hallway and staircase through **fire resistant glass door.**
21st December, 9h

Well lit living space, by large vertical openings to **the East, West and South.**
21st December, 10h

Light colored walls and ceiling by **Weber** and **Placo Saint-Gobain** to reflect the light and increase the luminance of the space.

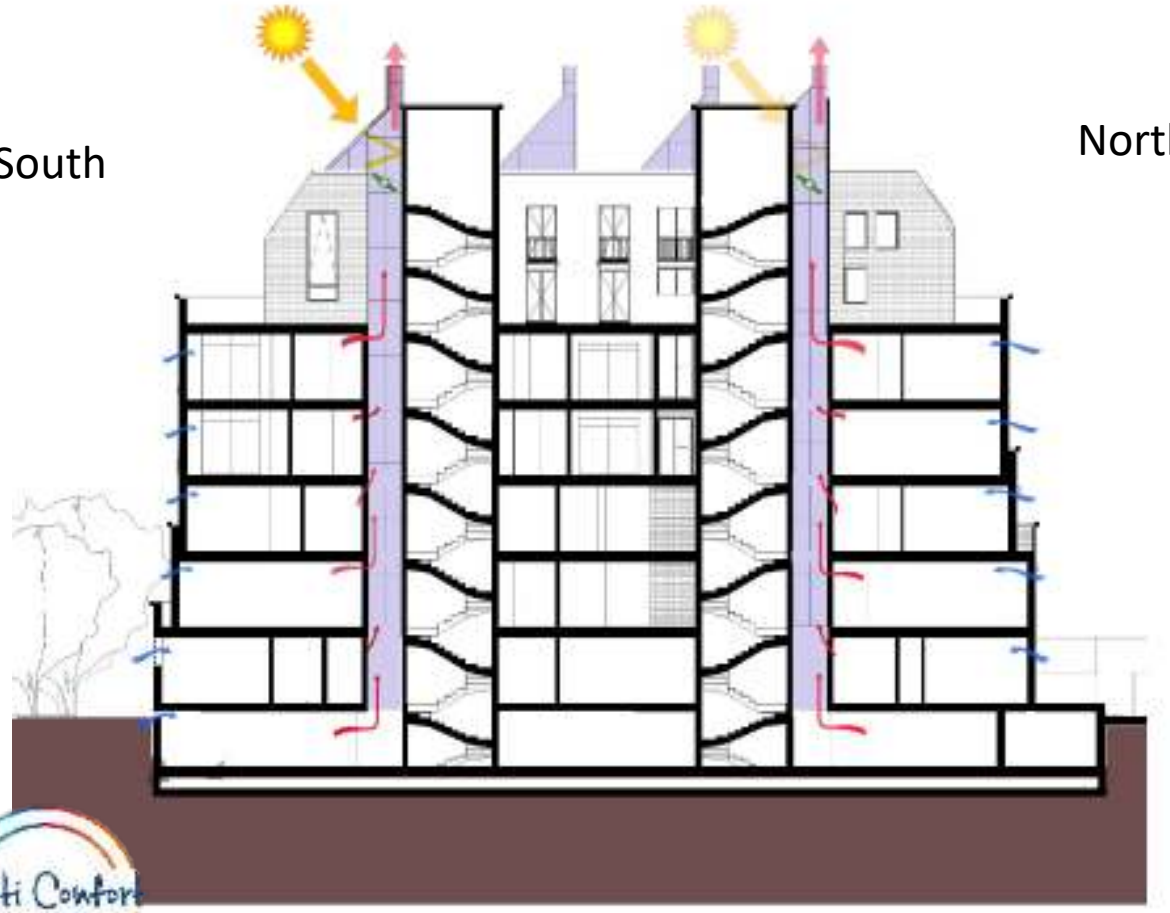
Apartment entrance **borrows light** from the living room. The bathroom borrows light through **frosted glass panel**.
21st December, 12h

Indoor Air quality Strategy

Natural Ventilation through **Solar chimneys** and **Mechanical ventilation** to avoid **heat loss.**

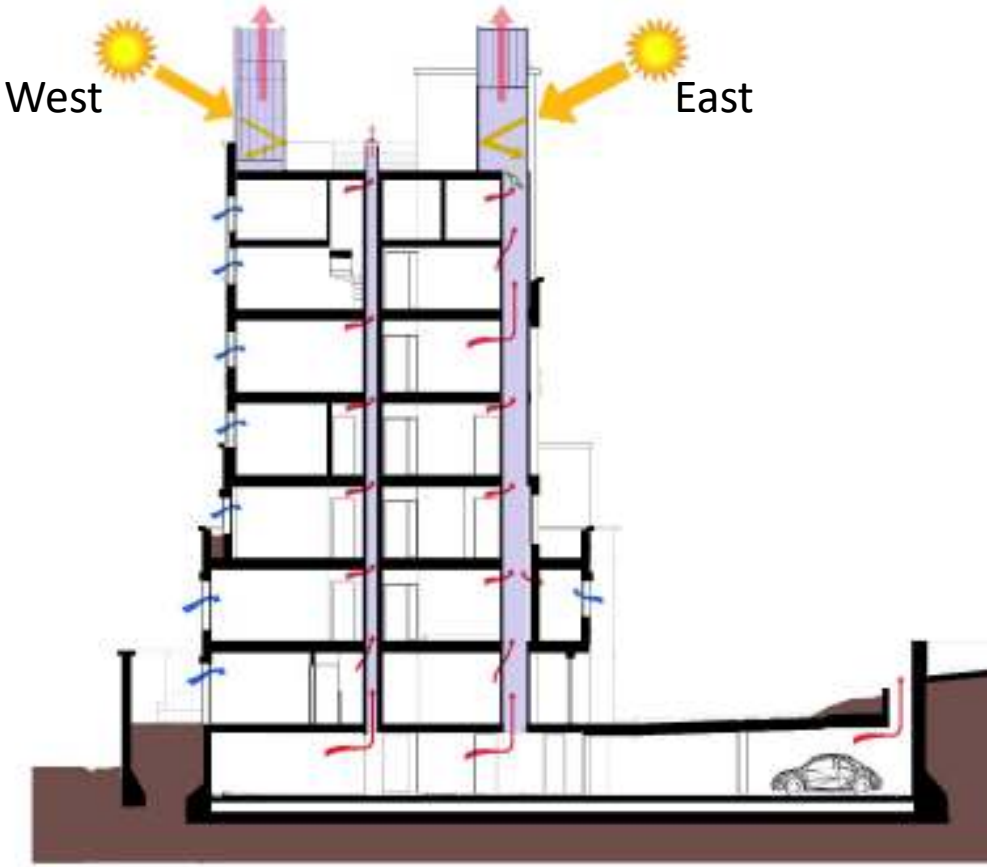
South

North



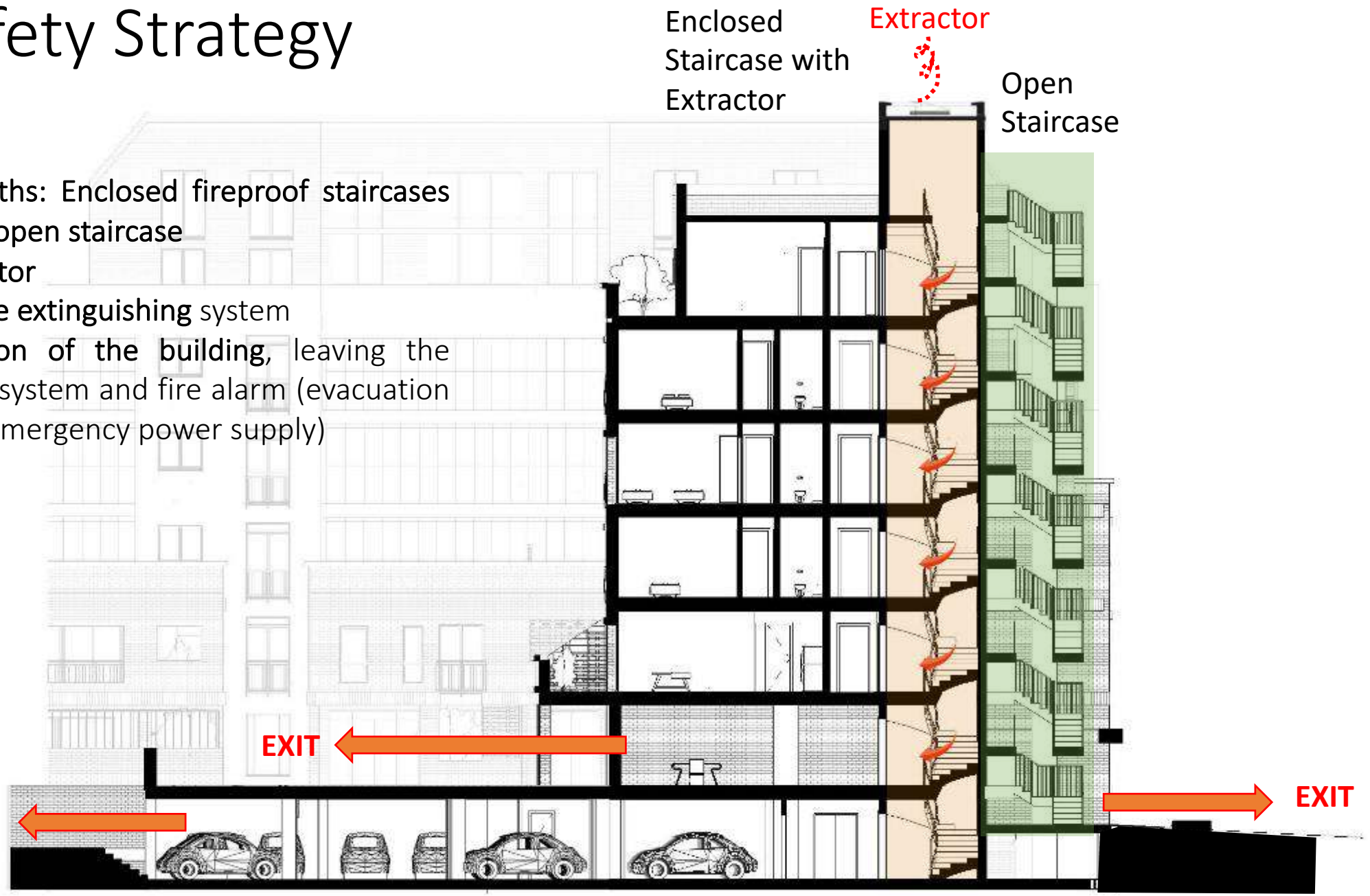
West

East



Fire Safety Strategy

- Sensors
- 2 escape paths: Enclosed fireproof staircases and outside open staircase
- Smoke extractor
- Automatic fire extinguishing system
- De-energization of the building, leaving the smoke removal system and fire alarm (evacuation routes) on the emergency power supply)



Thermal Comfort and energy saving Strategy

GreenHouses/Jardins d'Hiver:

- Sustainable façade in relation to the park and common spaces.
- Additional versatile **indoor/outdoor space**
- **Reduction of energy consumption** by up to 50%, in particular through the management of passive energy in the greenhouses.

Greenhouse Effect

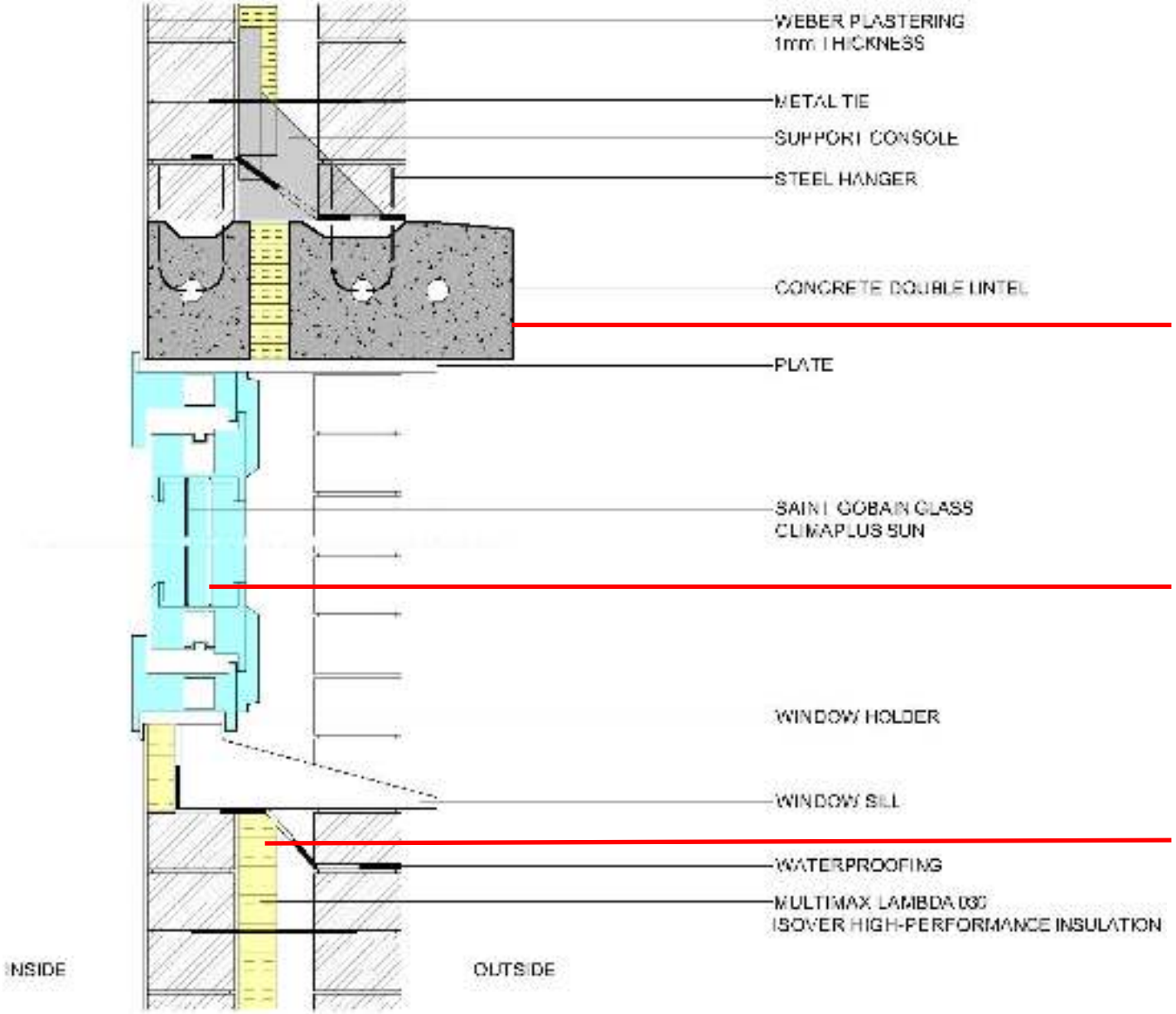
Winter, December 21st , 12h, Solar angle 20°

Mid-Season, September 21st , 12h, Solar angle 40°

Summer, June 21st, 12h, Solar Angle 63°

Winter nights, December

THERMAL COMFORT

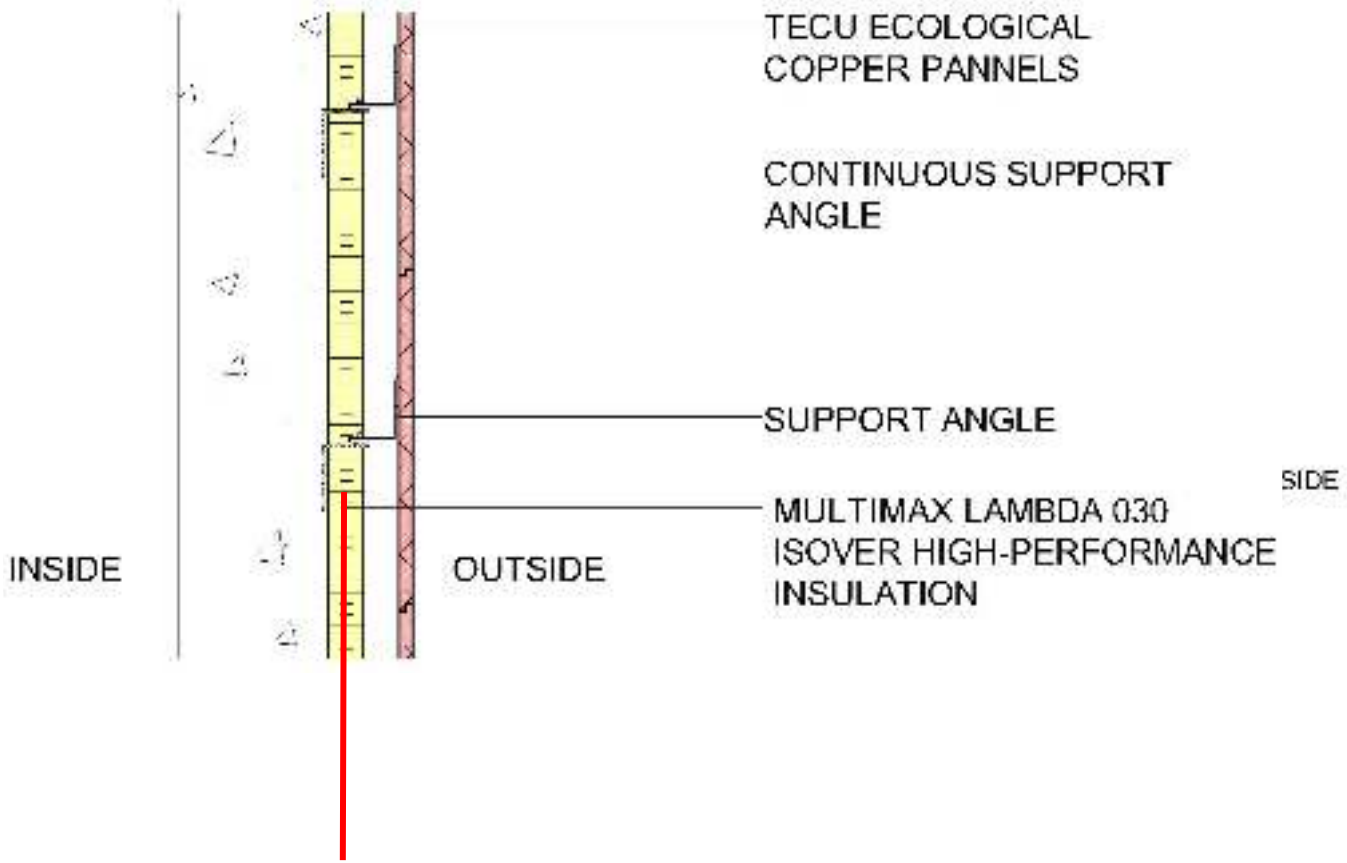


Double lintel to reduce thermal bridges

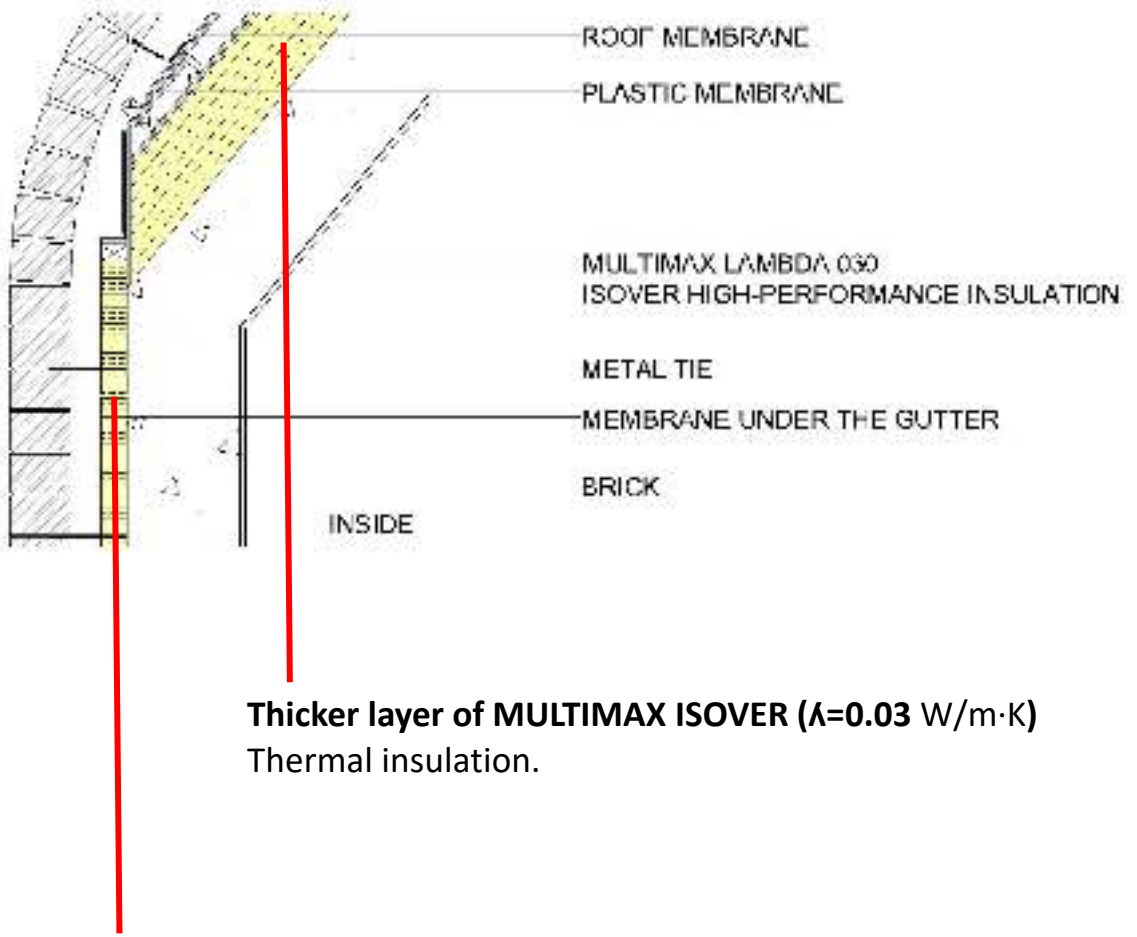
CLIMAPLUS® SUN DOUBLE GLAZING for South and West
In summer 62% of solar energy is blocked outside.
In winter, the cold wall effect is eliminated due to its very low U value 1.0W / (m².K)

PB M 032
MULTIMAX ISOVER (λ=0.03 W/m·K) THERMAL INSULATION inside the double brick wall

THERMAL COMFORT



PB M 032 ISOVER
Thermal insulation thermal insulation

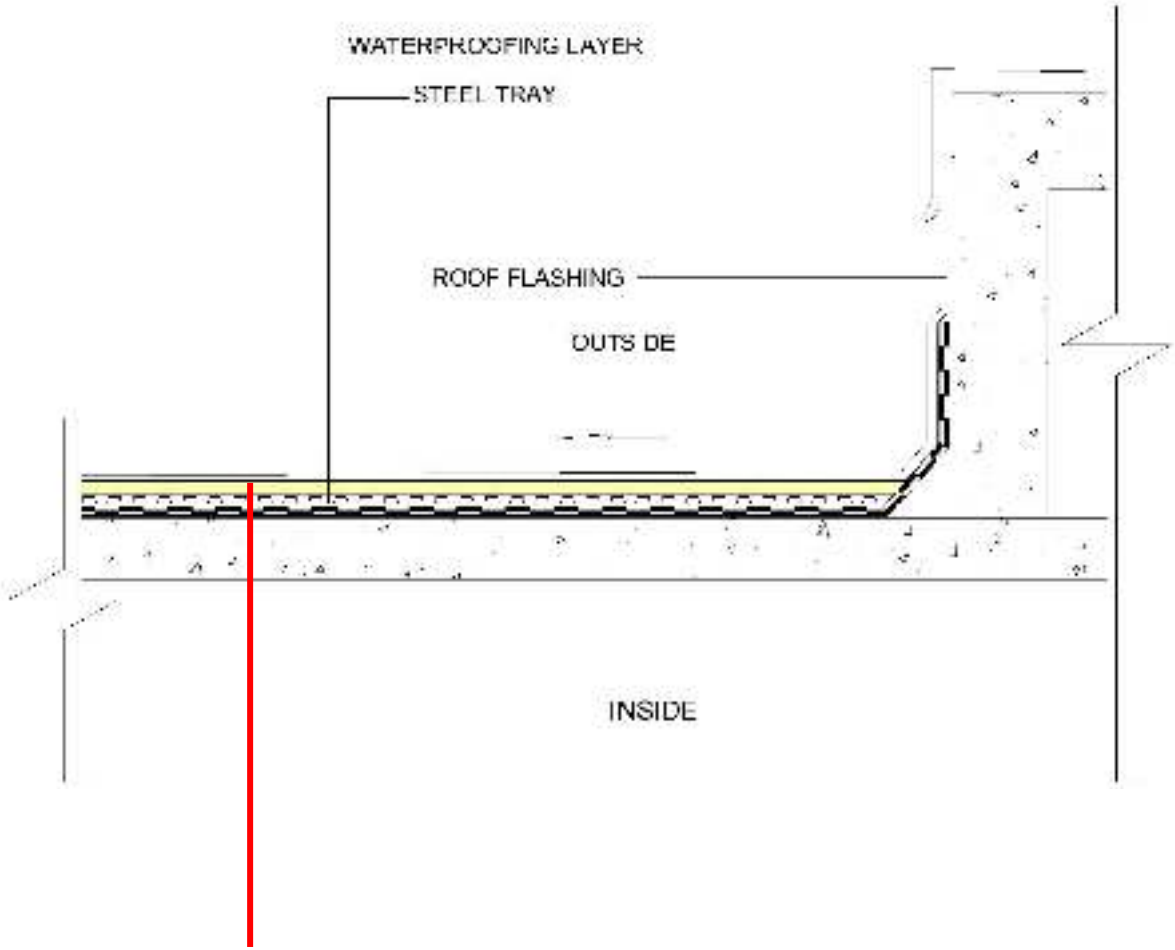


Thicker layer of MULTIMAX ISOVER (λ=0.03 W/m·K**)**
Thermal insulation.

MULTIMAX ISOVER (λ=0.03 W/m·K**)** Thermal insulation between the brick and concrete

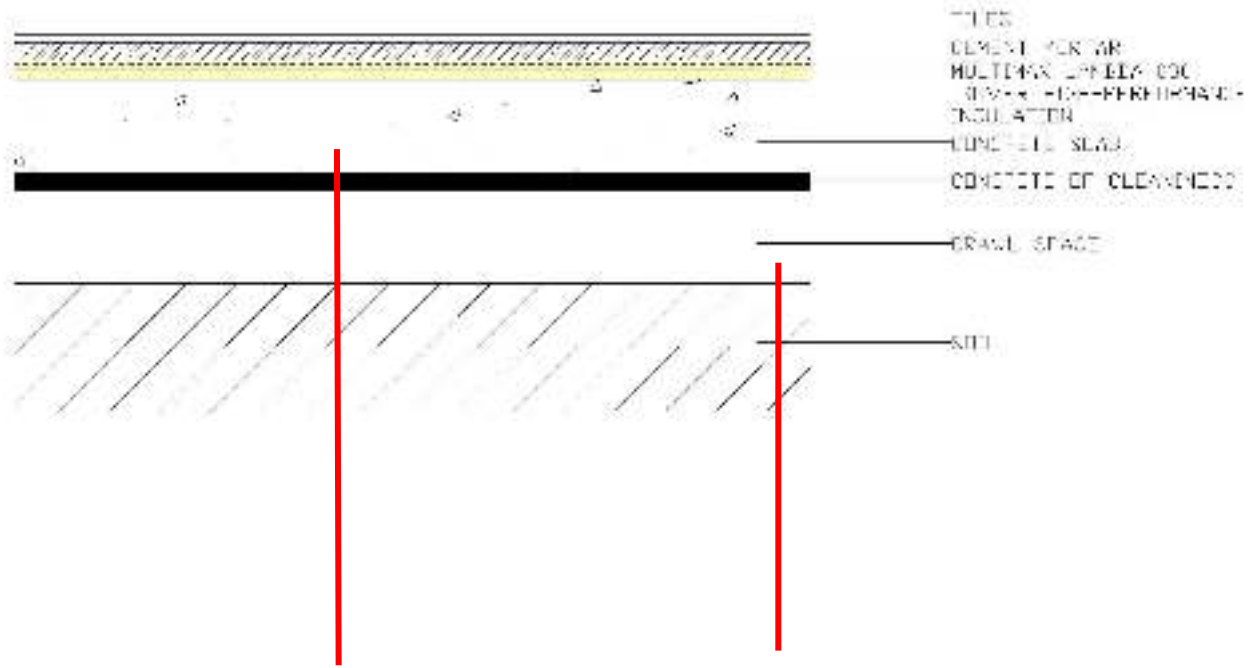
THERMAL COMFORT

Roof



Thermal insulation **FOR ROOF ISOVER DACHOTERM G39**

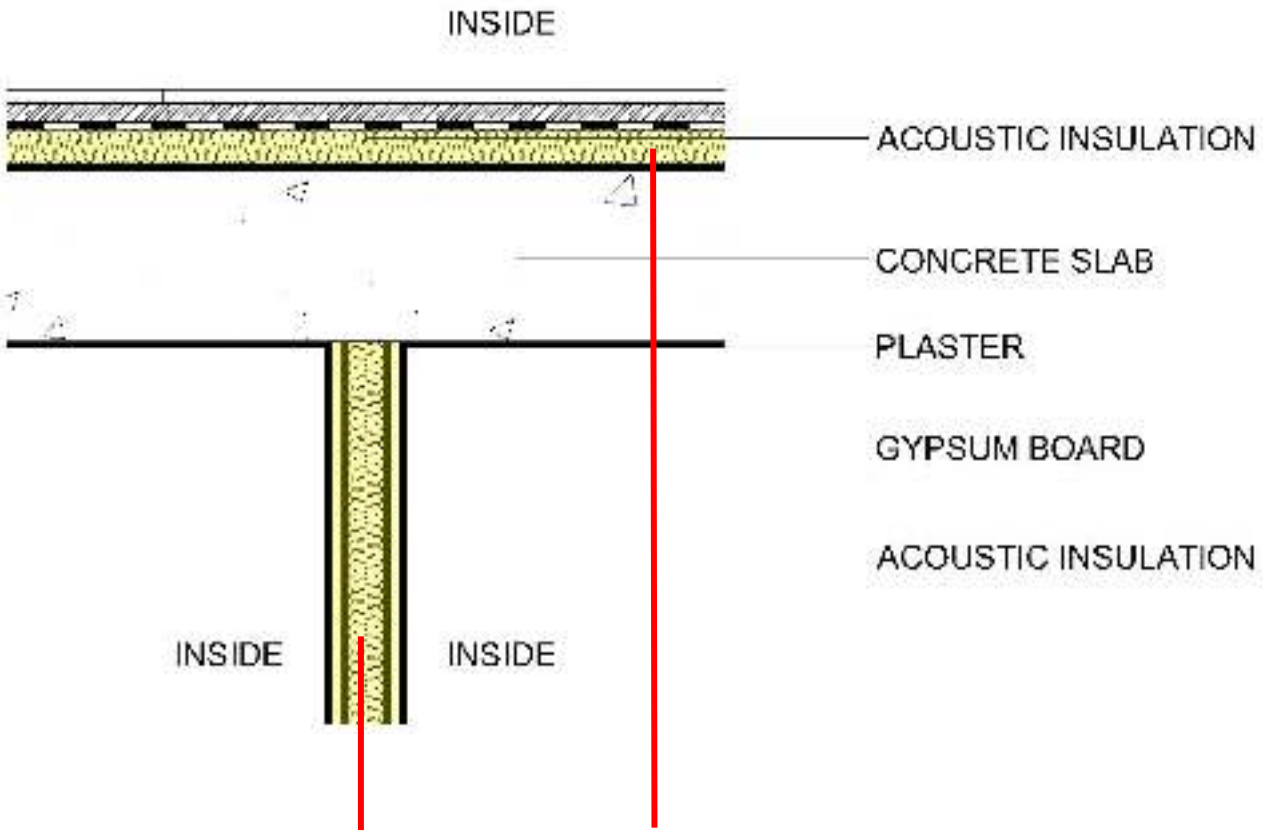
Floor



Thermal insulation **ISOVER DACHOTERM G39**

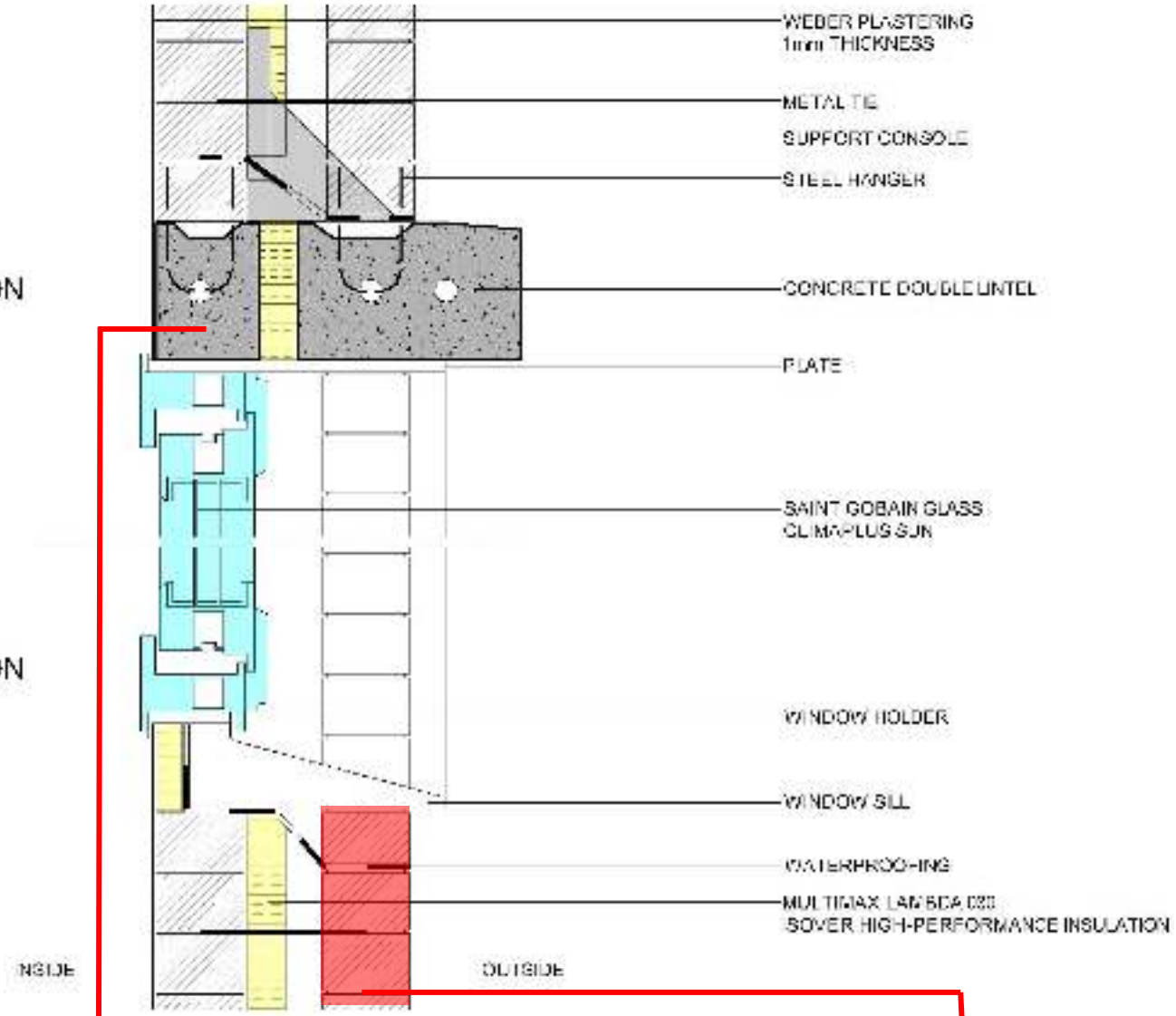
CRAWL SPACE to avoid direct contact with the ground

ACOUSTIC COMFORT



Glass mineral wool **ISOVER Acoustic Partition Roll (APR 1200)**

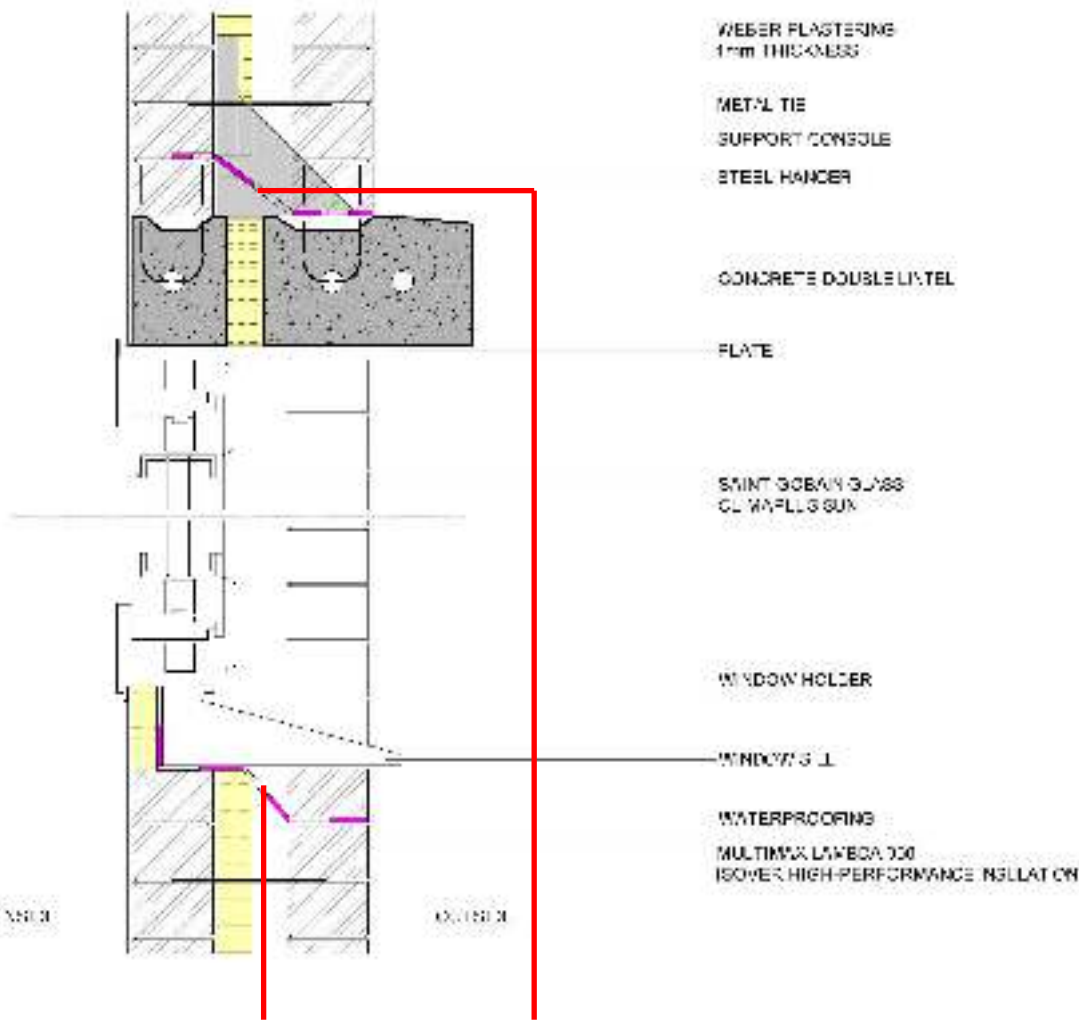
Rigid glass mineral wool (**ISOVER acoustic mineral wool**) **APR 1200** 40mm



STADIP® SILENCE Double Glazing, on the railway side and park side.

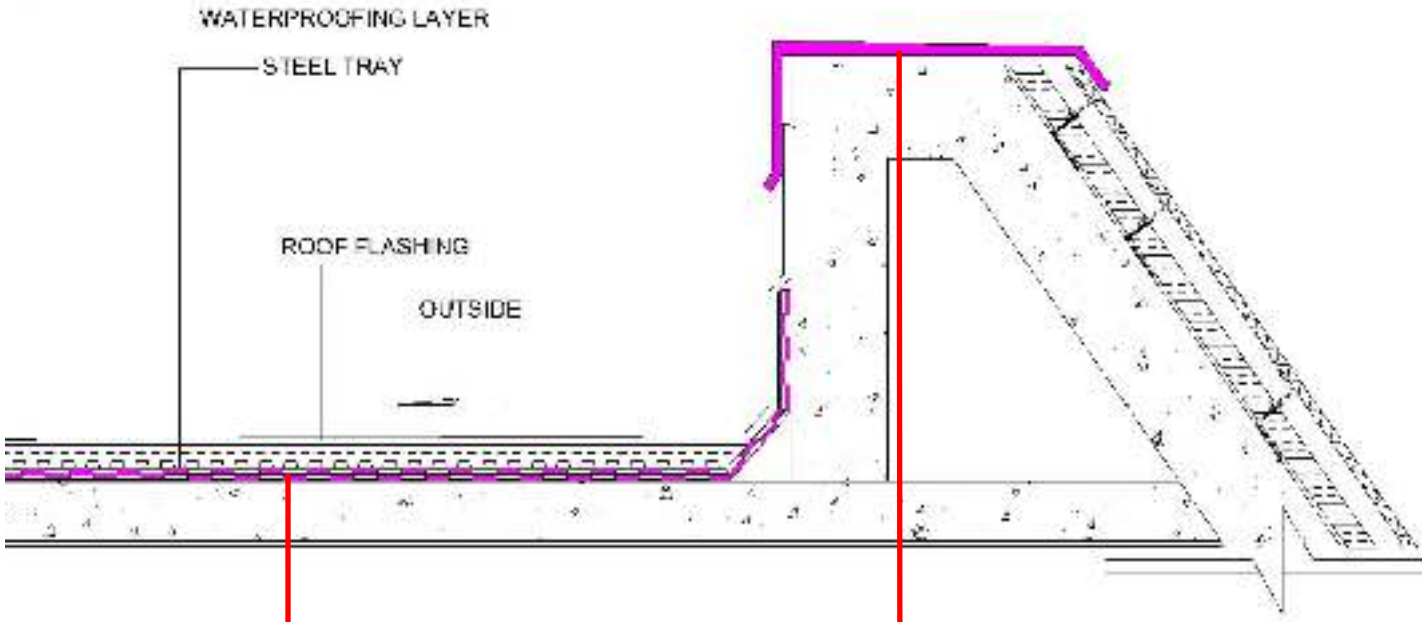
HEAVY WALL protecting against outside noises **(Brick150x230x450mm)**

WATERPROOFING



Waterproofing under The window

Waterproofing above The window



Inclinaison 2%

Waterproofing for roof

Top cover “Couvertine”

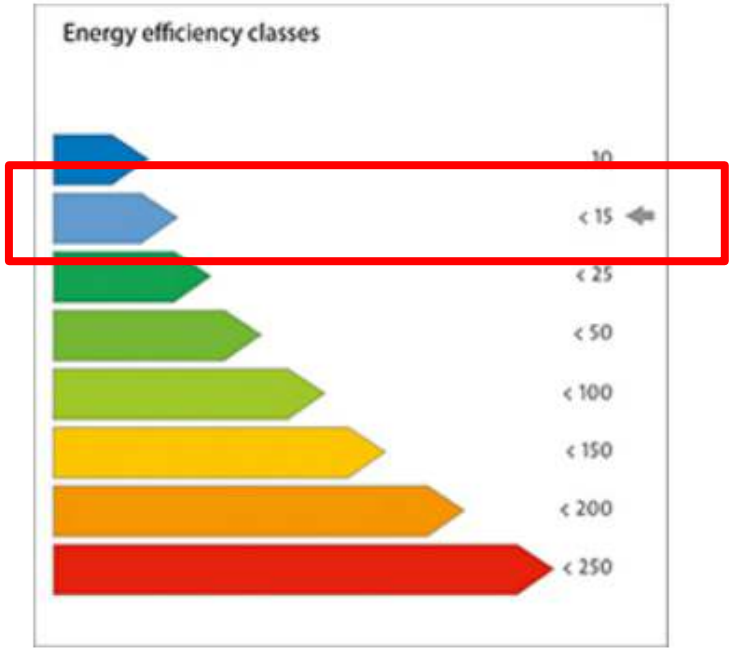
Multi-Comfort Designer

Calculations:

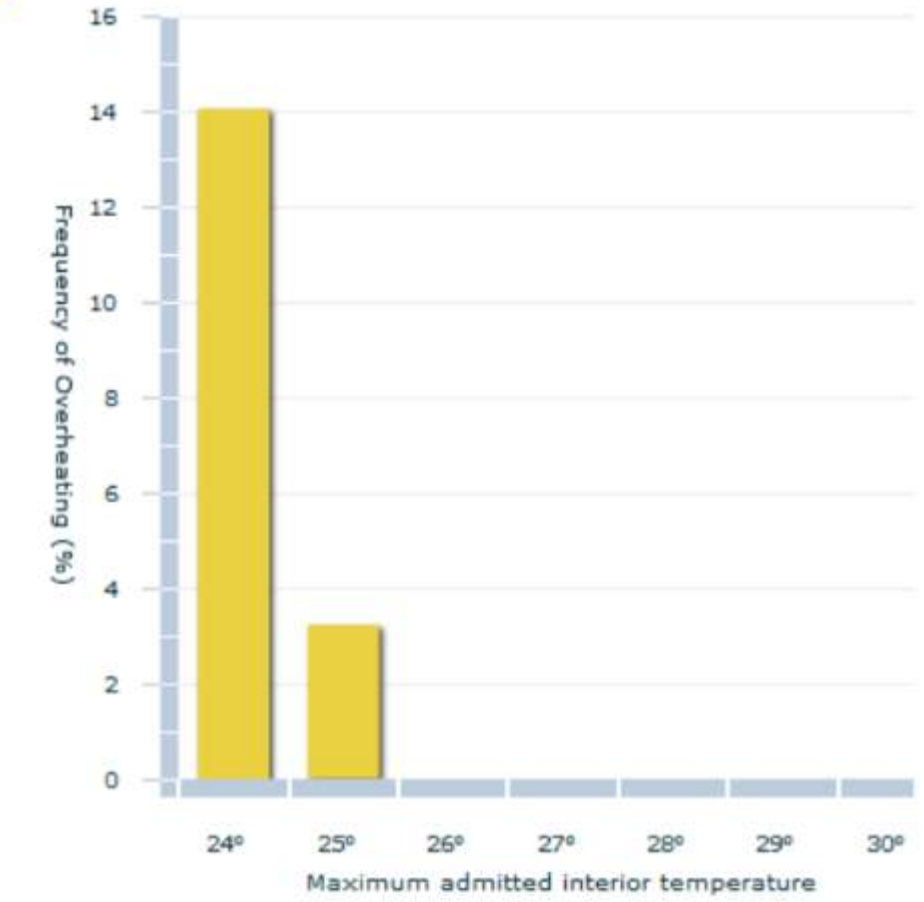
Energy efficiency goal reached:
12.72 kWh/(m2a)

CALCULATIONS

Specific Heat Demand		
Transmission Heat Losses:	35684.24	kWh/a
Ventilation Heat Losses:	13264.71	kWh/a
Total Heat Losses:	48948.95	kWh/a
Internal Heat Gains:	18414.35	kWh/a
Solar Heat Gains:	7715.95	kWh/a
Total Heat Gains:	25589.71	kWh/a
Annual Heat Demand:	23359.24	kWh/a
Specific Heat Demand:	12.72	kWh/(m2a)



Overheating		
Exterior Thermal Transmittance:	440.08	W/K
Ground Thermal Transmittance:	34.00	W/K
Ventilation Transmittion Ambient:	254.85	W/K
Ventilation Transmission Ground:	0.00	W/K
Solar Aperture:	41.62	m2
Frequency of Overheating:	14.03	%




THANK YOU