

SUSTAINABLE ARCHITECTURE DESIGN STUDIO: “CHANT DES GRENOUILLES” IN FOREST

DESIGN STUDIO MA-1
BRUFACE (ULB + VUB)

2024/2025

SADS - PROJECT 2024-25

SUSTAINABLE ARCHITECTURE DESIGN STUDIO: “CHANT DES GRENOUILLES” IN FOREST

TEACHING TEAM:

AHMED Z. KHAN (COORDINATOR), CAROLE ASPESLAGH & GIULIA
CATERINA VERGA (ULB)

HERA VAN SANDE, PIETER DE WALSCHE & PELLE DARRAS (VUB)

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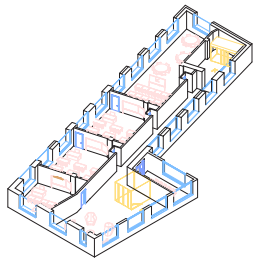
PROJECTS:

- 01 FORESTECH
- 02 FORT
- 03 SYNAPSE
- 04 AGRI-HUB
- 05 THE SPINE
- 06 CÉRÈS
- 07 DYNOMA
- 08 SYLVA INSTITUTE

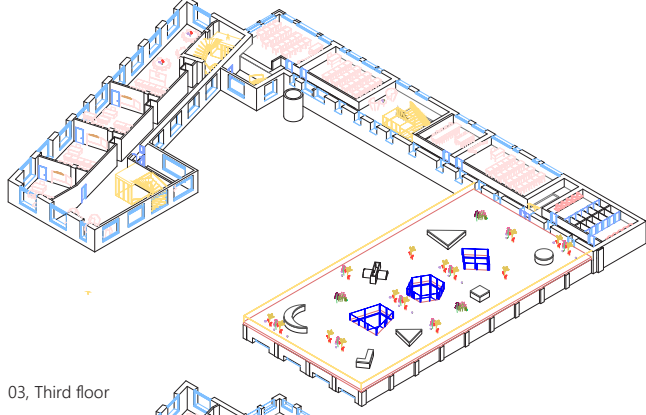
01

FORESTECH

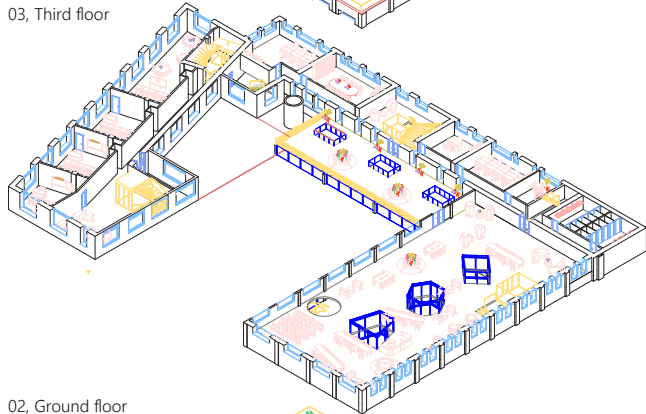
The stimulation of your people to pursue a career in a technical profession is becoming increasingly complicated in Europe. The intervention of a new type of education and an educational building that fits in the context of the new education form is needed. The typological experiment in such buildings that will result in having a new form of education for the future and not only for the present time. Forestech is place that combines spaces for theoretical and practical education, with areas designed especially for recreation, workshops, startups. The extended opening hours (7:00-23:00 every working day) help to increase the school's role as an educational building providing a platform for the industry to showcase new technology hub that excites young people to work in the technical field. And working hand in hand with students.



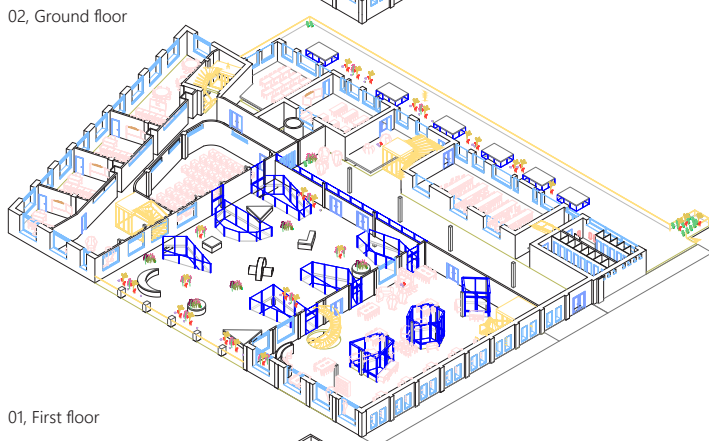
04-05, Forth - Fifth floor



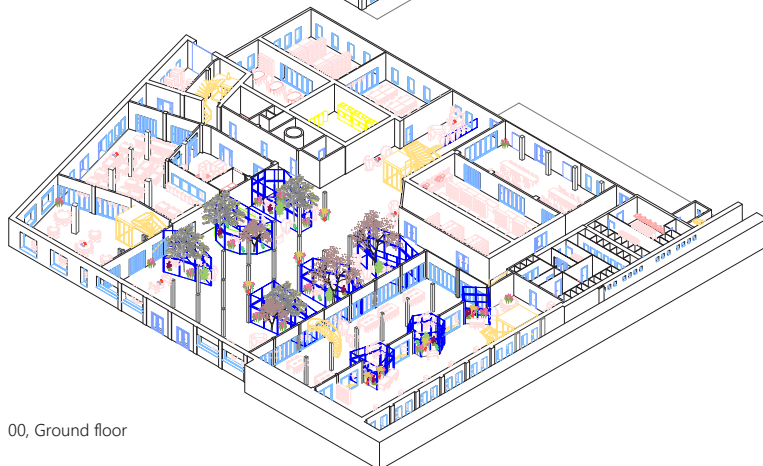
03, Third floor



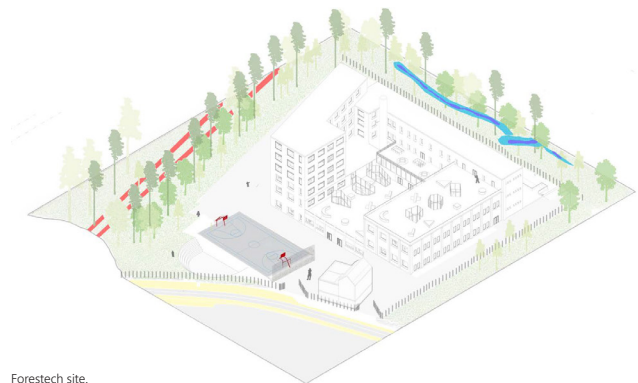
02, Ground floor



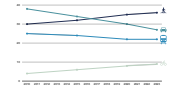
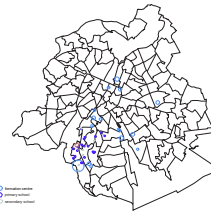
01, First floor



00, Ground floor



Forestech site.
Chaussée de Bruxelles, 112 - 1190 Forest -Brusselsesteenweg, 112. 1190 Voors



Lack of secondary schools in the municipality. Students must attend secondary schools in neighbouring municipalities. Need of new typology is needed.



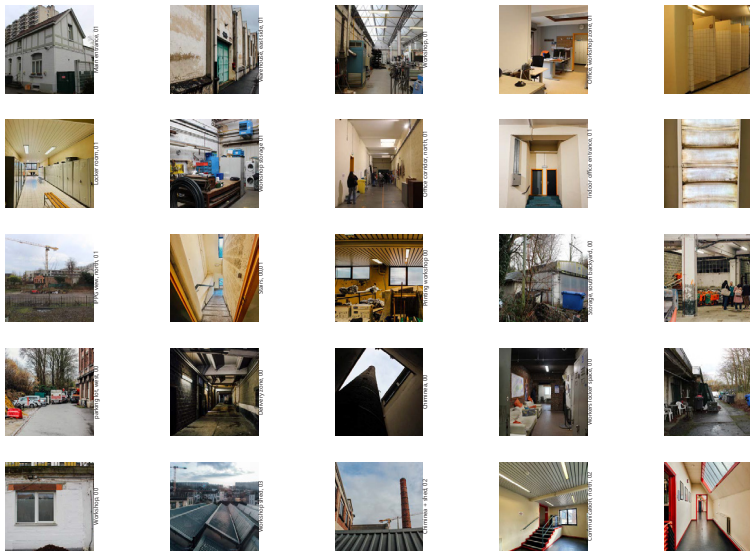
site surroundings map

AFTER

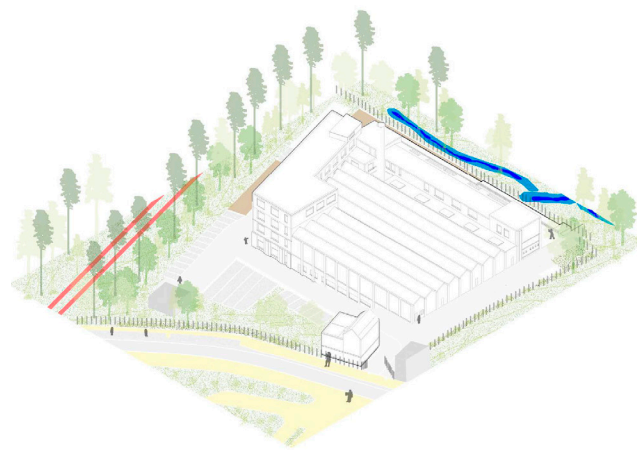


BEFORE



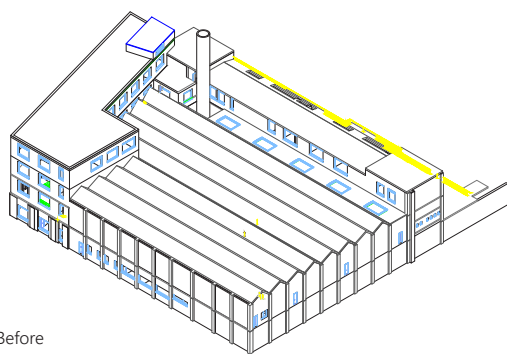
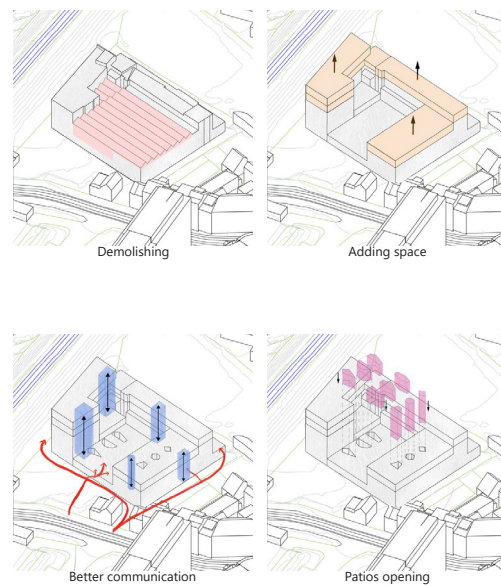
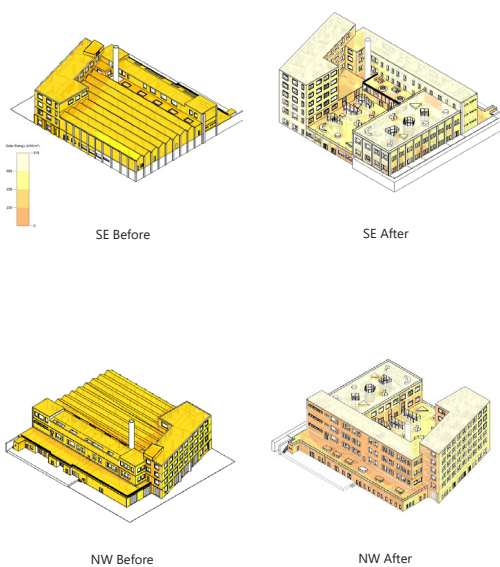


Building conditions



Old site 3D plan

Functional program
 The project includes secondary school, with a startup fab lab area. Outdoor gym and a multifunctional building. It is conceived as a STEM school that integrates a school activity into one large number of services open to the community in which students, parents and citizens have a chance to become active protagonists. The aim is to create a space with complementary activity in a unique school complex. The working FabLab is the pillar of the program. The patio system The system presents a dynamic plan, that allows the space to freely create public or private areas and the best relation between both internal and external spaces and teaching areas and open courtyard. The patio structure helps to divide the layout in a dynamic way, that not only helps the space to functions, but also to keep the idea of outdoor space indoors.



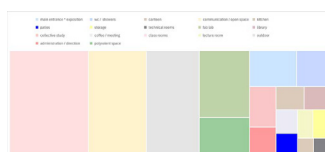
Before

storage
 parking
 technical room
 service
 communication
 workshop
 canteen / kitchen
 sanitary / wc
 office

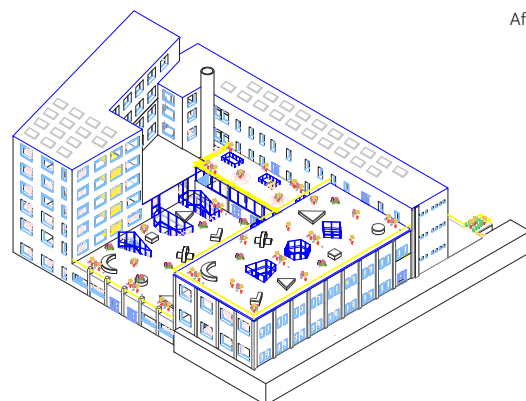


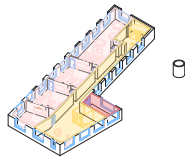
main entrance * exposition
 wc / showers
 canteen
 communication / open space
 kitchen
 patios
 storage
 technical rooms
 fab lab
 library
 collective study
 coffee / meeting
 class rooms
 lecture room
 outdoor
 administration / direction
 polyvalent space

525
 345
 202
 1890
 88
 151
 129
 77
 1049
 168
 333
 157
 2580
 136
 1734
 236
 595
 10395



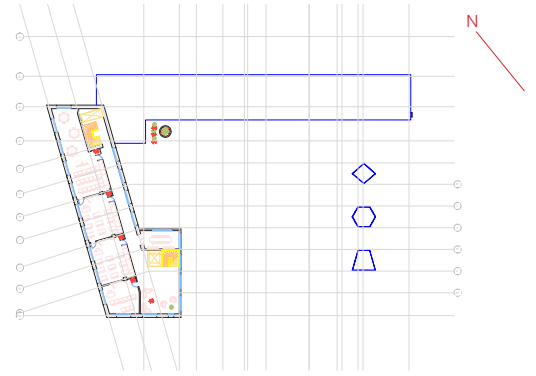
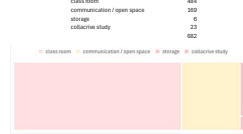
After





04-05, Forth - Fifth floor

Flexibility and interdisciplinary
The indoor spaces of Forestech are designed as a stimulating landscape, in which every student develops his autonomy and curiosity, especially with the FabLab areas open and visible to their view. All environments, formal and informal, enable an active involvement of the student, leaving space to the creativity of the individual who freely chooses how to appropriate himself spaces. In this sense many areas of the school are transformative, they adapt to the needs through modular furniture, movable walls, curtains, etc.



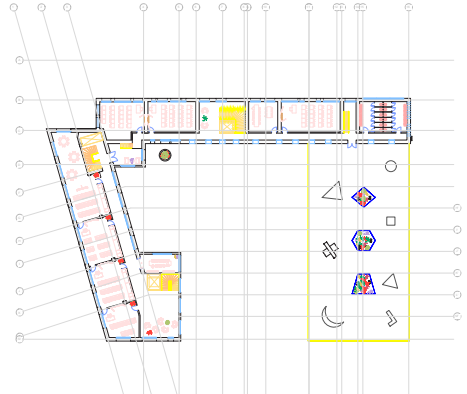
Project strategies
The project proposes a measured intervention that confronts the landscape through simple geometries, attention to proportions and the use of natural materials. The architectural system presents a dynamic structure of independent four volumes that are linked together in space that guarantee a continuous relationship between inside and outside, between educational spaces and open courts on the natural landscape or just outdoor open space.

2	class room	644
	wc	47
	communication / open space	319
	storage	6
	collective study	23
	administration	52
	outdoor	1670

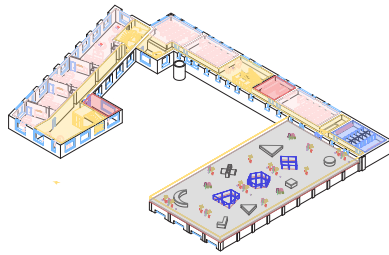


The "home base" classroom
The classroom is thought as an "home base" defined by deep flexibility and variability depending to the use: the movable and modular furnishing give the possibility to change the settings of the classroom according to the different teaching activity, ensuring the carrying out of activities in small or medium-sized groups, discussion and brainstorming, teacher exhibitions, presentations by the students, exercises involving the whole class etc...

2	class room	484
	wc	47
	communication / open space	319
	storage	6
	collective study	23
	administration	52
	outdoor	1670

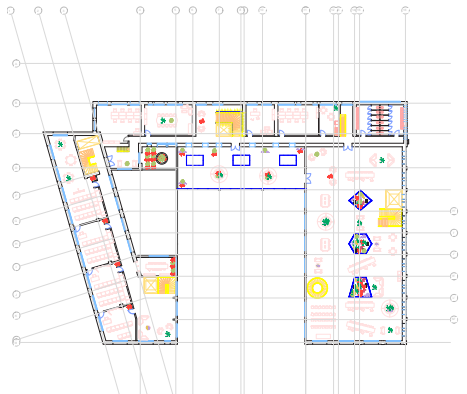


03, Third floor

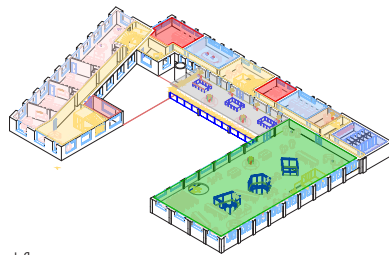


The Common Areas
About the design of the school, one really important element is the design of common areas: the patios spatial design allows defining a system of open courts which limits areas for common use: squares, public gardens, semi-public. Even the interior spaces of the building zones are equipped with a series of common areas like the zen zones, the common room, collective study rooms and the practicable rooftops: they are flexible spaces, thought as ateliers, with modular furnishing, to satisfy any activity.

1	class rooms	484
	lecture rooms	136
	communication / open space	517
	WC	40
	fab lab office startups	402
	patio	132
	storage	6
	outdoor	1662
		2186

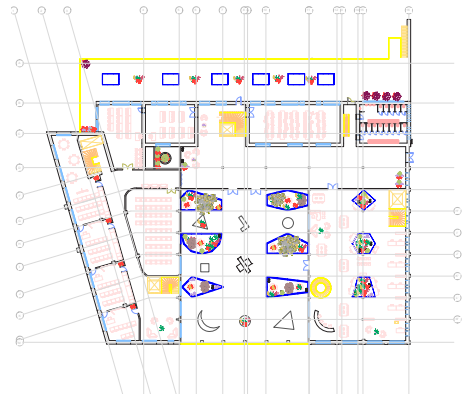


02, Ground floor

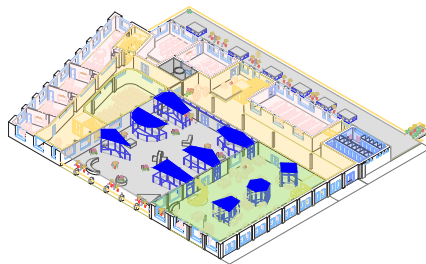


The patio system
The system presents a dynamic plan, that allows the space to freely create public or private areas and the best relation between both internal and external spaces and teaching areas and open courtyard. The patio structure helps to divide the layout in a dynamic way, that not only helps the space to functions, but also to keep the idea of outdoor space indoors.

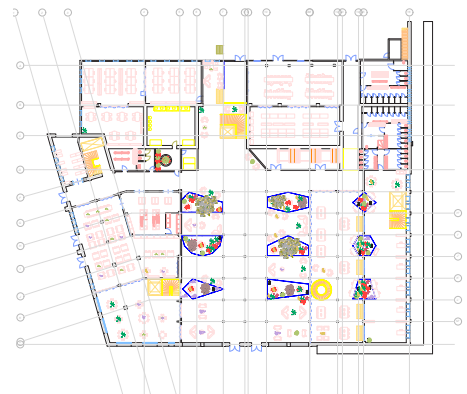
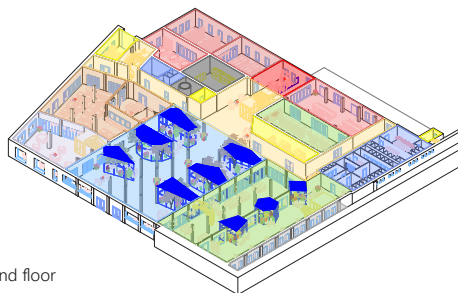
0	main entrance + exposition	525
	wc / showers	231
	canteen	202
	communication / open space	267
	kitchen	68
	patio	132
	storage	111
	technical rooms	77
	fab lab	482
	library	158
	collective study	211
	information	64
	coffee / meeting	107
	school fab lab	116
		2919



01, First floor

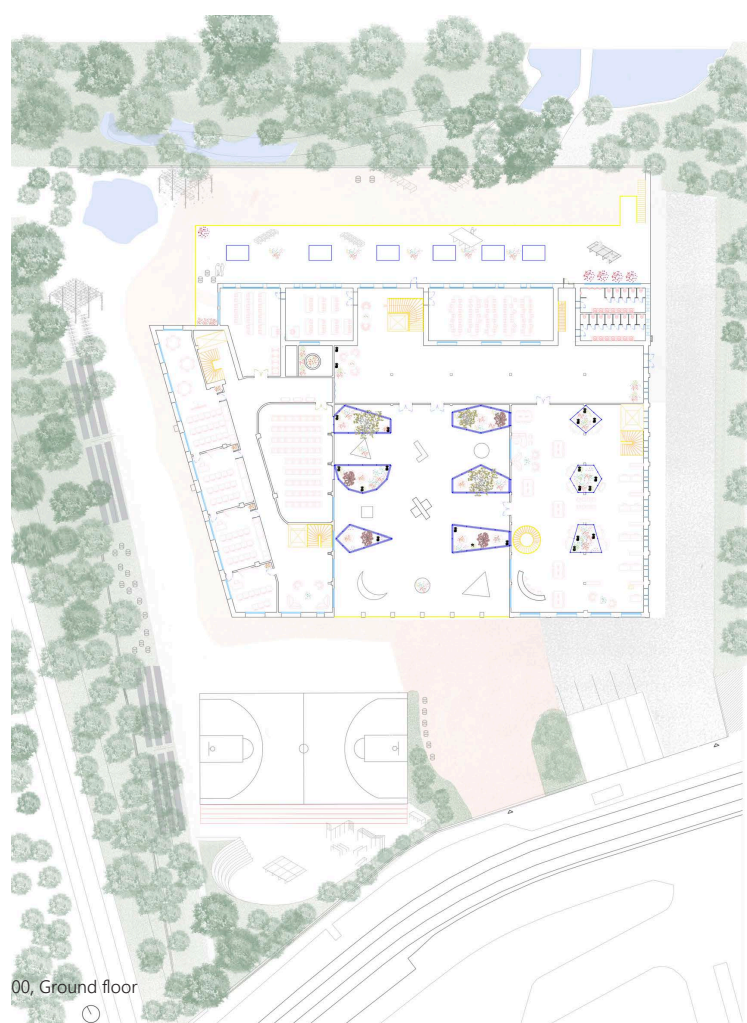


00, Ground floor

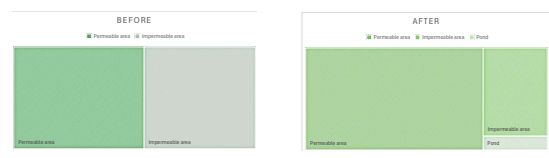




The gardens and the squares
The outdoor classroom is a space suitable for conducting open-air educational activities in which the green and its various forms are a predominant element, but they can also be used for play or as a small stage for school performances during the warmer season. The garden of the educational orchard with its small vegetable gardens in form of steps, gives the students the possibility to learn the nature cycles, take care of it and collect the fruits during the different seasons. The Welcome Square is a large entrance space that it does filter between inside and outside where you can eat, play, socialize. The sport garden integrates outdoor sport spaces paved with green and the colored concrete flooring allows you to have a joyful and fun space.



00, Ground floor



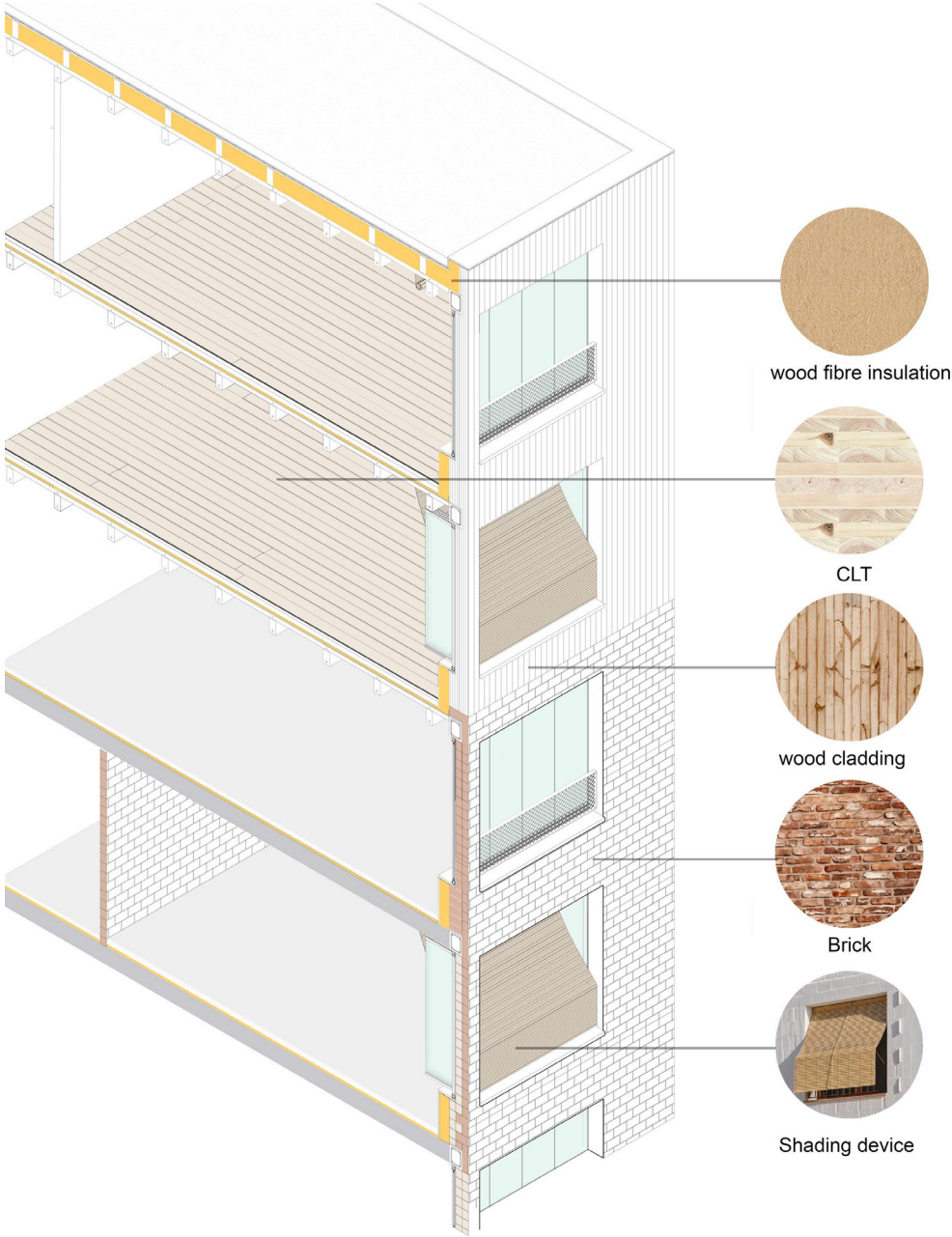
The park project plays a primary role in the redefining of the new Sassa school complex where the natural space is also important as a place of learning full of incitement and fun. The annual circles of the tree trunks become generators of the landscape project as a conceptual metaphor, as a symbolic image of the growth of children and also formal in which the walk continues to crown the school complex and it is enriched with activities and equipment along the way. The green frame is the hinge element of the outer belt of the external ring that, in addition to acting as a visual filter to the outside and to the parking area, creates a constantly evolving magical place where light, filtering in different ways, contributes to the perception of this space as fascinating, mysterious and generating spectacular scenery.

FabLab office



01, First floor

MATERIALITY



Flexibility and interdisciplinarity
The indoor spaces of the school are designed as a stimulating landscape, in which every student develops his autonomy and curiosity. All environments, formal and informal, enable an active involvement of the student in the STEM, leaving space to the creativity of the individual who freely chooses how to appropriate himself spaces. In this sense many areas of the school are transformative, they adapt to the needs through modular furniture, movable walls, curtains, etc.

The atrium - agora
All the school is characterized by an entrance hall which, in addition to the functions of control, reception and sorting of flows, is structured as a common space to live, a real indoor square. This space is designed to be a multipurpose space, in which many different activities happen. Such the exposition of the STEM work, workshops, or just simply to be a space for studying and gathering. The library / collective study
The library of the new school is defined as an open book shelves space, designed by movable or fixed furnishing. The collective study area is in the public areas (hall, common class, informal spaces), where the student can freely walk, freely decide where to sit, which space more fit his needs, he can read alone or in company.

The "home base" classroom
The classroom is thought as an "home base" defined by deep flexibility and variability depending to the use: the movable and modular furnishing give the possibility to change the settings of the classroom according to the different teaching activity, ensuring the carrying out of activities in small or medium-sized groups, discussion and brainstorming, teacher exhibitions, presentations by the students, exercises involving the whole class etc... The use of movable walls allows to the class to expand by involving the interchange spaces and common spaces, making the borders very flexible. Also the presence of sliding doors allows the connection between the classrooms that are interconnected, facilitating the development of inter-class activities. And the involvement of the teaching methods from the startup spaces.

The common class
The common class is mostly located in the north and west side of the building, a space designed as an extension of the "home base" class that can be experienced in a multitude of ways. hosts special activities such as art and technology workshops. A "doing" space, flexible and reconfigurable that favors teaching based on manual skills.

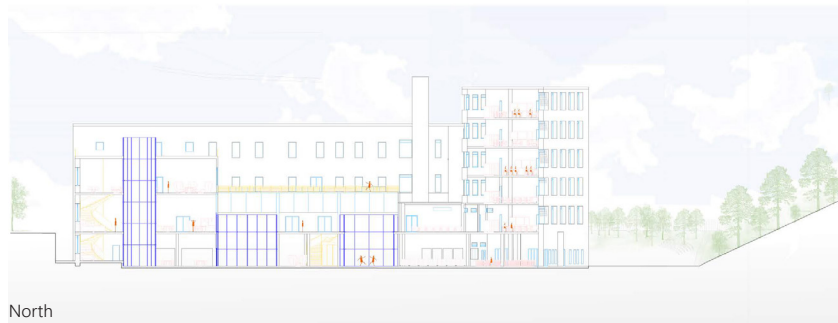


Main entrance



Polyvalent space

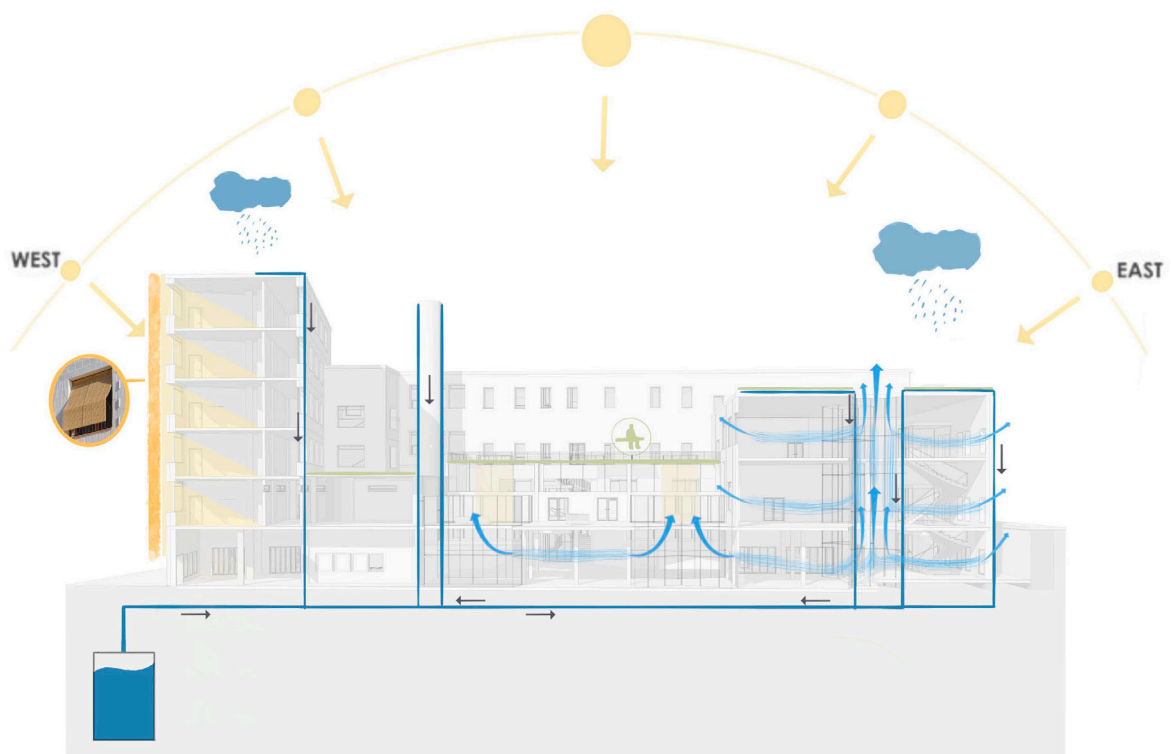
SUSTAINABLE STRATEGIES



Relationship between internal and external spaces
The buildings' ground floor level presents mostly glass patios which give value to the visual transparency of the School indoor space and also the physical relations in the external spaces, the wide windows on the facades allow more connectivity and visual with the outdoors, whereas the upper floors are characterized by more closed and compact, enhancing the alternation between full and empty spaces. Due to the big windows on the facades, all the classrooms have the strong relation to the exterior space and have also the opportunity, in summer time, to enlarge their spaces outside, working and studying in the courts and terraces.

Relationship with nature
The project brings nature into the building thanks to the windows opened to the surrounding landscape and the multiple patios. In addition, the outdoor spaces of the school are designed as a theme park where students can experience directly the variety of plants species and to study their life cycle. The green element therefore takes on a pedagogical value that accompanies students every day in the use of space education. Also, the space can be used by the community for outdoor activities, such as gardening, playing in the court.

The roofs
The roofs of the buildings of the school form an articulated system with different heights, shape and functions. They are multifunctional and equipped with furniture allowing the space to be flexible and used depending on the activities. Few are also equipped with solar panels, that supply electricity to the entire school, and the water collection system helps in the maintenance of the building, that water is collected and saved in an underground tank, once it is overflowing it fills the pond in the back of the school. Most of the schools roofs are used as green roof, but in our school it is used as playground space, there are gardens in which the students can learn about gardening and have more outdoor activities.



02

FORT

Forest Oasis of Recreation and Transformation

CONCEPT



SPORTS

Gymnastics hall
Main sports hall
Dance & Pilates room
Climbing wall
Outside sports
Fitness



HEALTH

Doctor
Physiotherapist
Nutritionist
Mental health coach
Workshops



COMMERCIAL

(Bike) Repair shop
Rental service
Sports store
Restaurant & Café

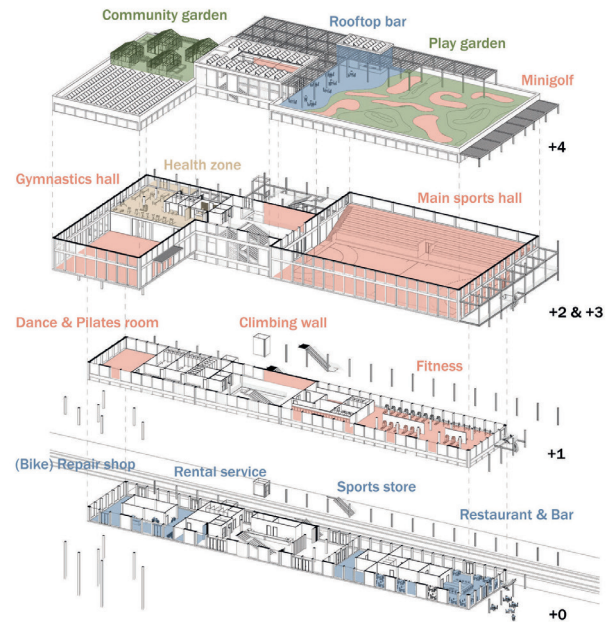


COMMUNITY GARDEN

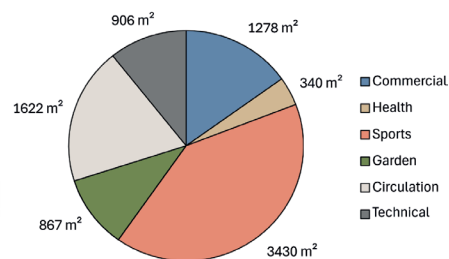
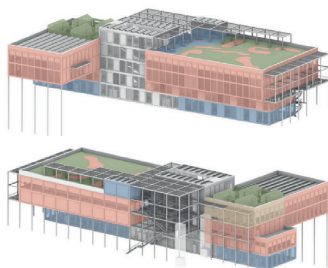
Greenhouses
Workshops about food
Providing for restaurant
Intergenerational



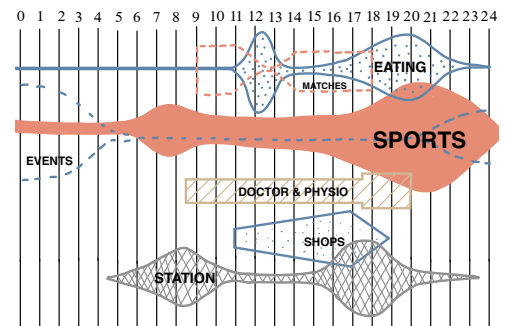
FLOORPLANS



PROGRAM

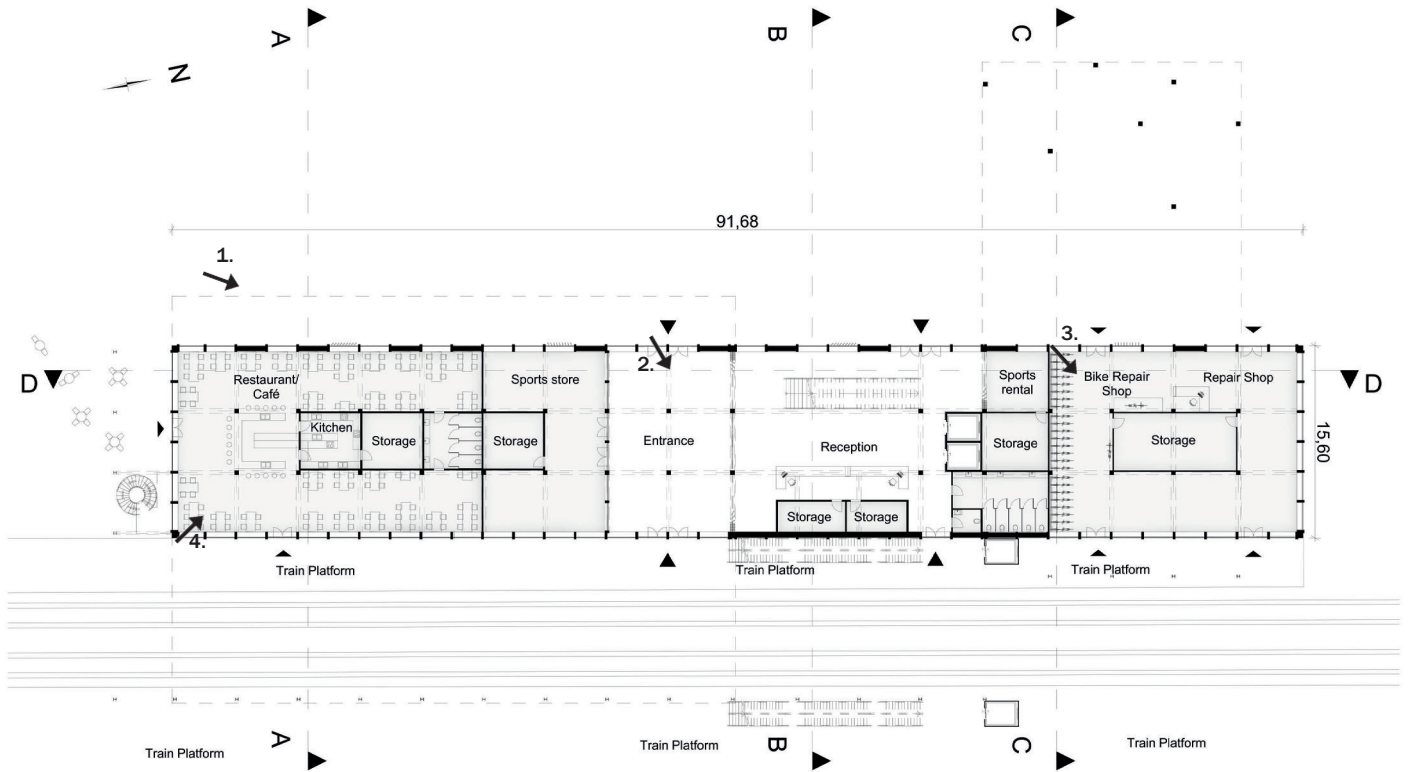


TIMESCHEDULE

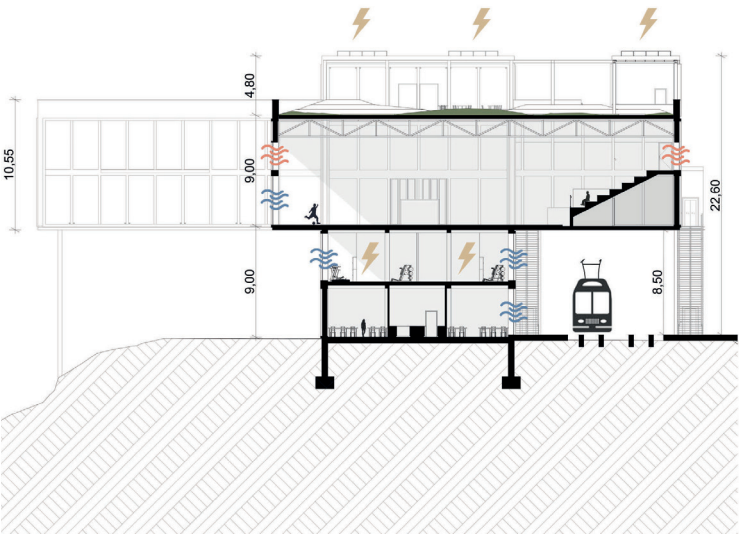


CONTEXT

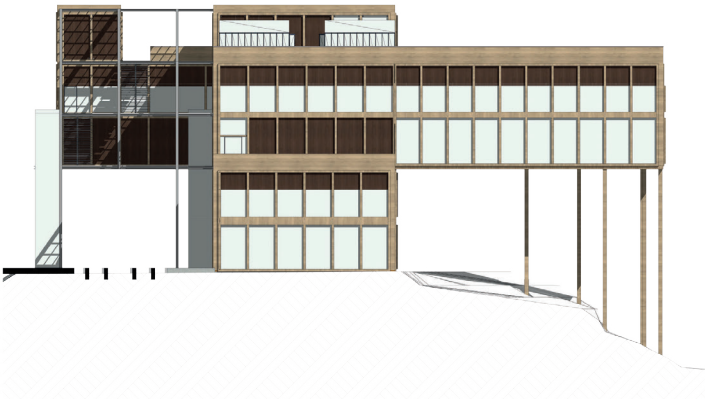




GROUND FLOOR 1:200



SECTION AA 1:200



NORTH ELEVATION 1:200



1.



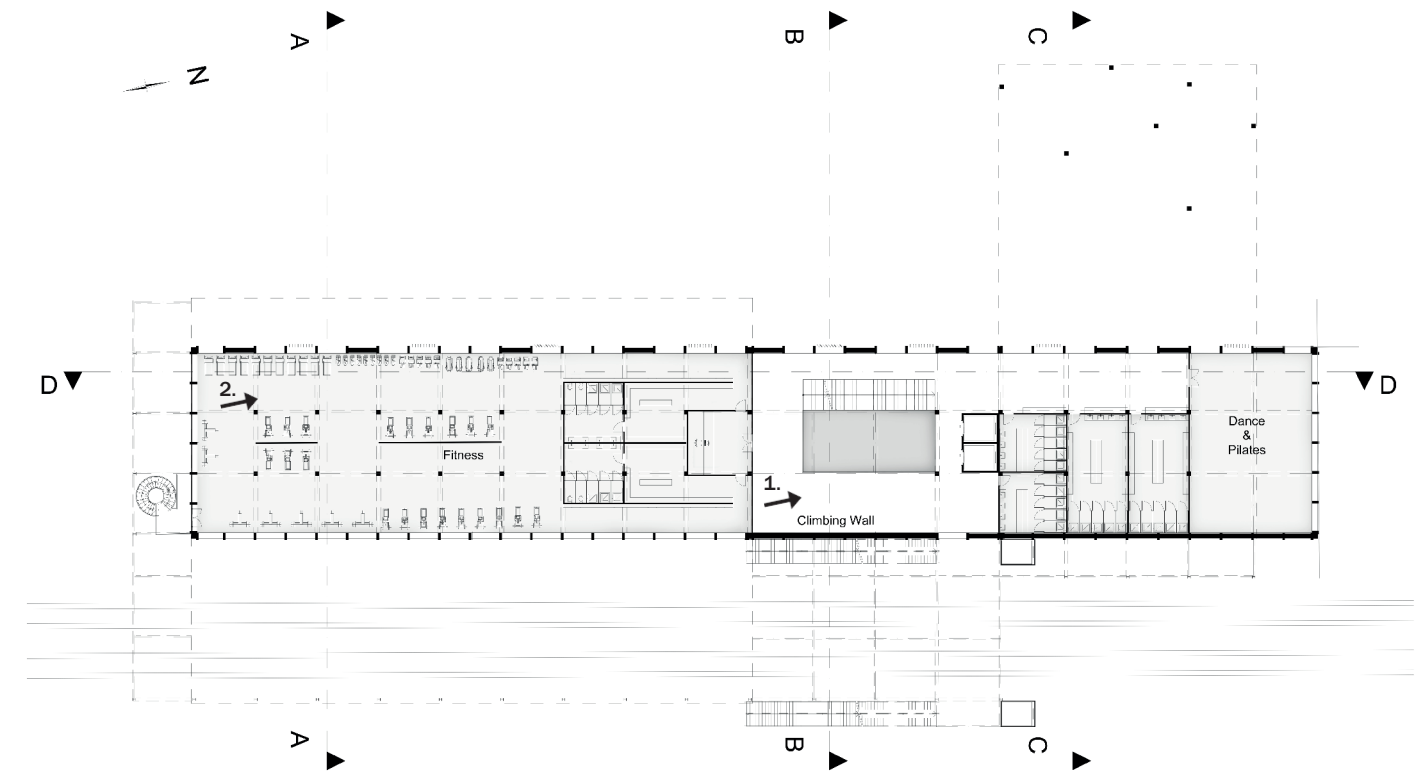
2.



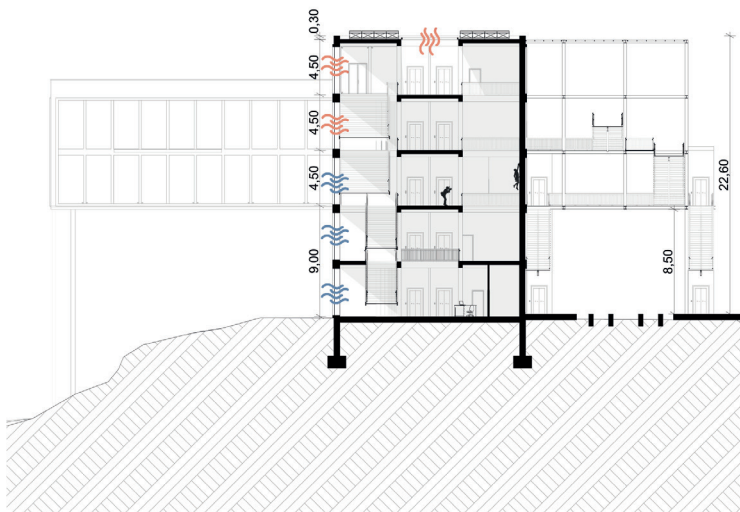
3.



4.



FLOOR +1 1:200



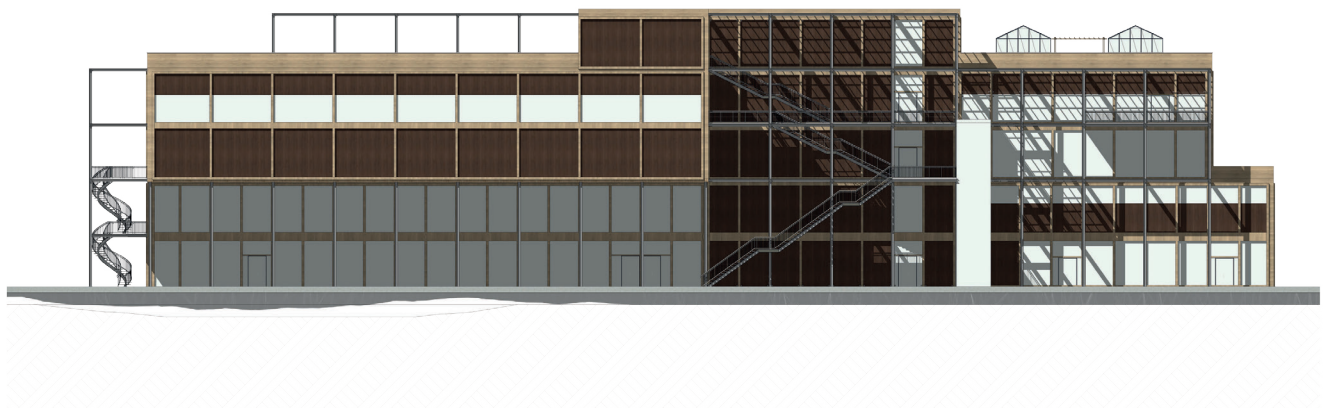
SECTION BB 1:200



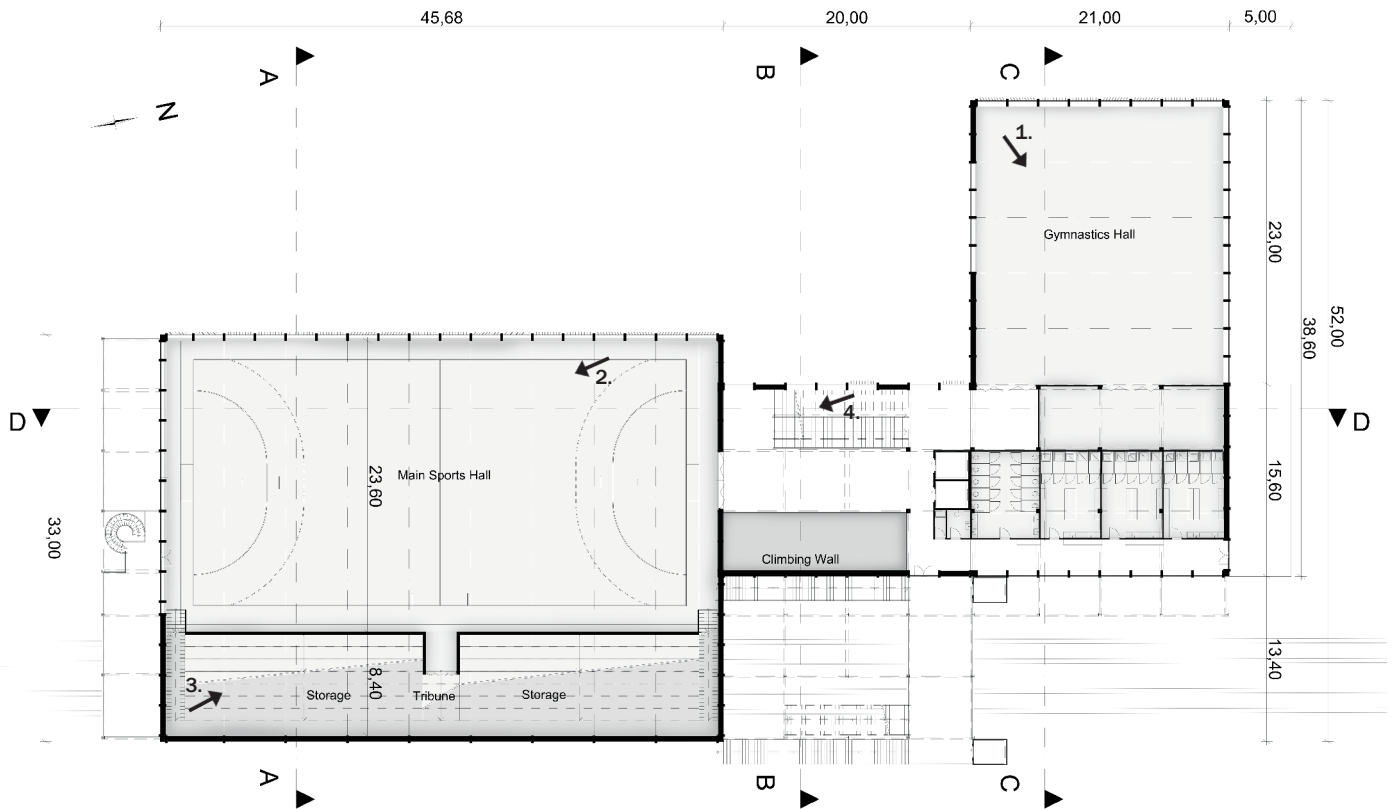
1.



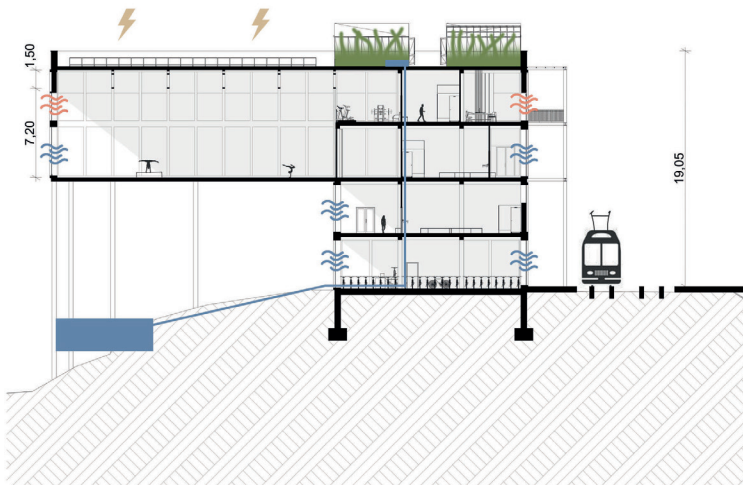
2.



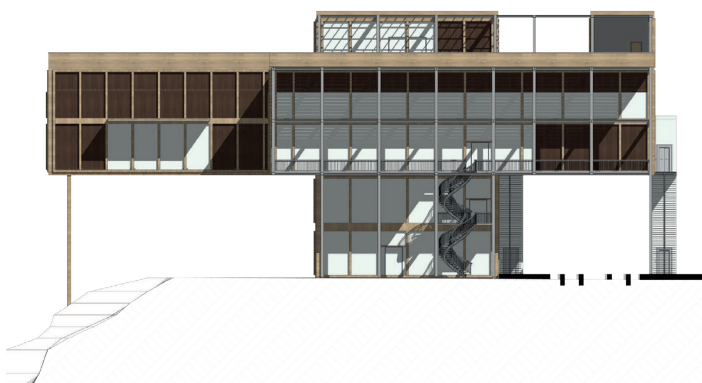
EAST ELEVATION 1:200



FLOOR +2 1:200



SECTION CC 1:200



SOUTH ELEVATION 1:200



1.



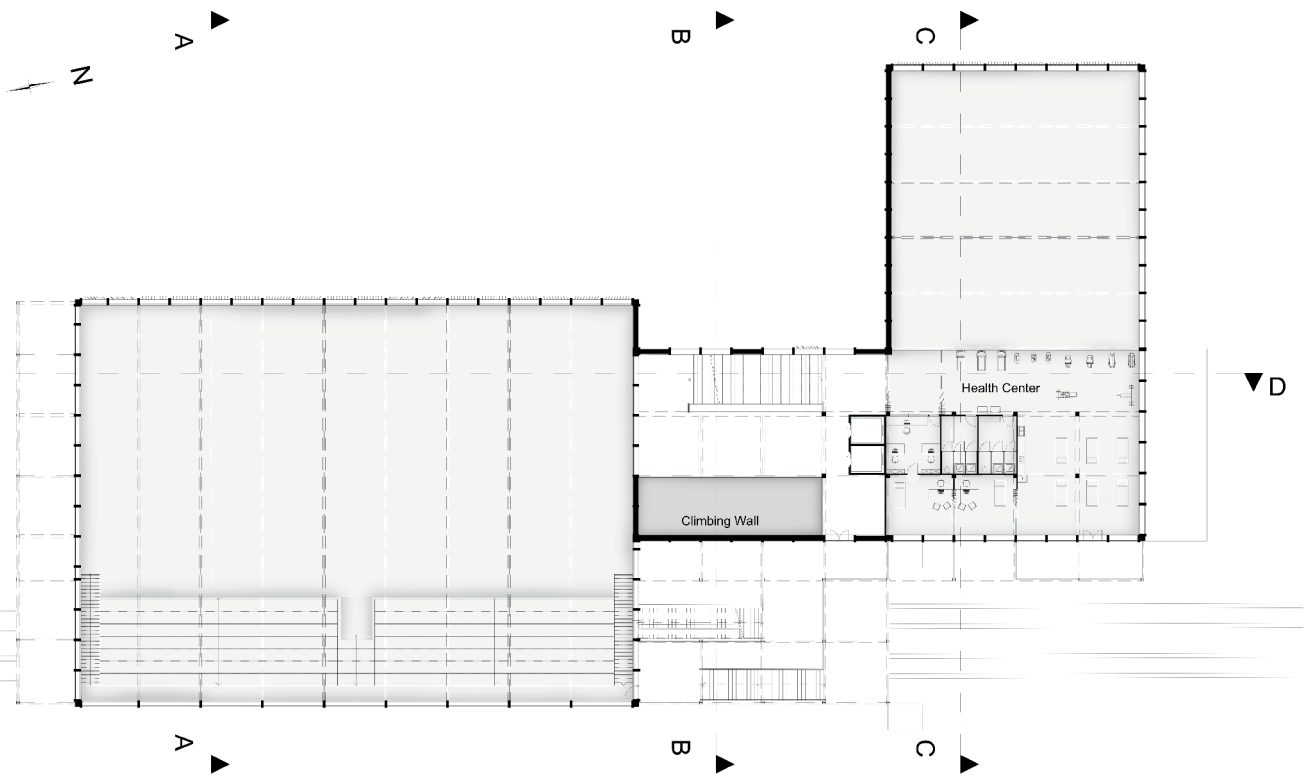
2.



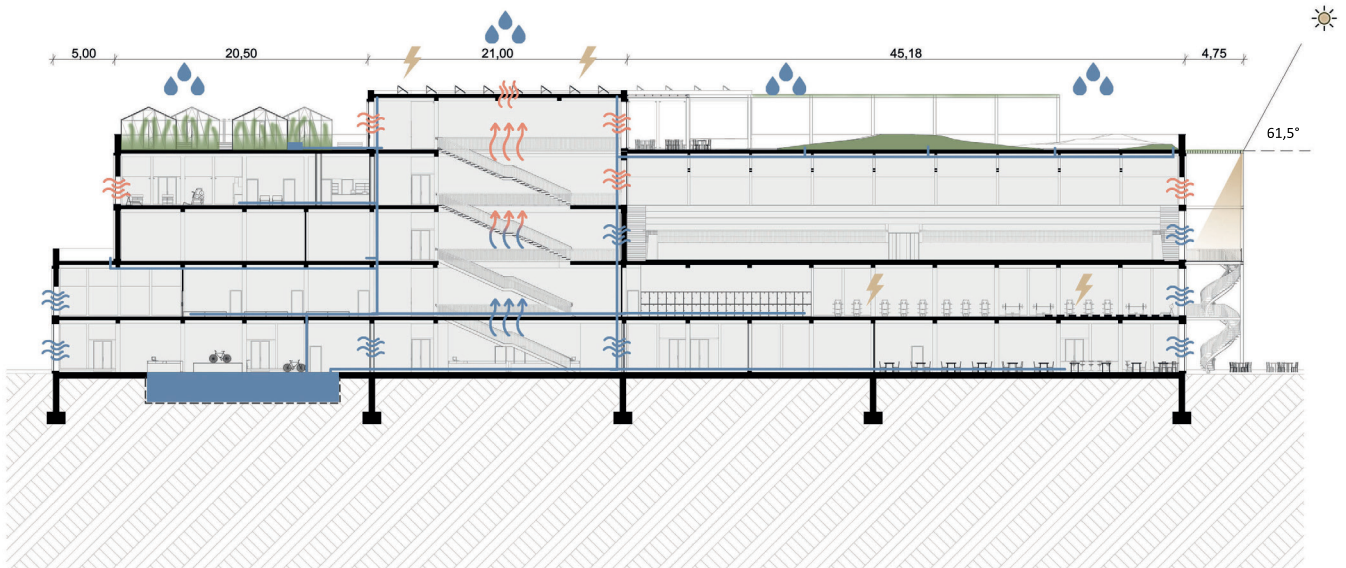
3.



4.



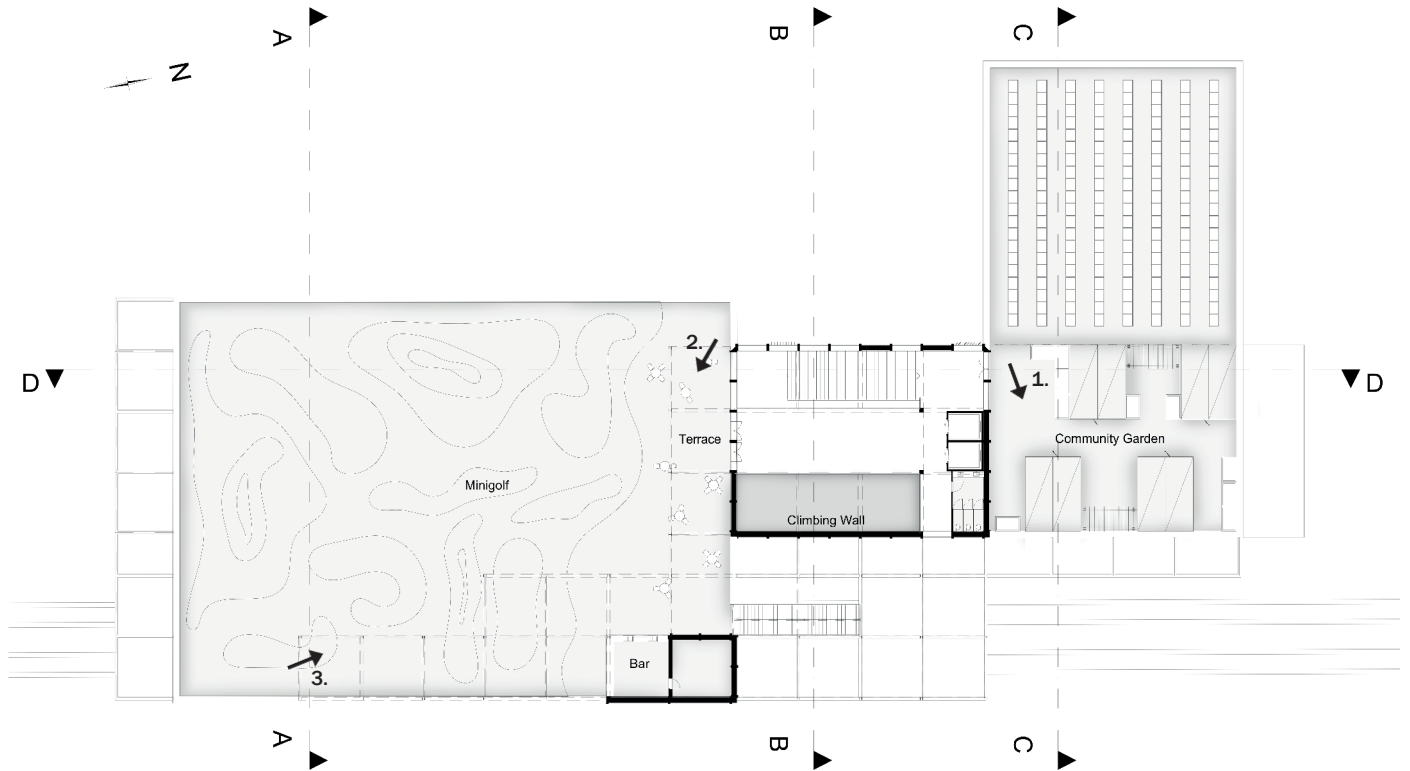
FLOOR +3 1:200



SECTION DD 1:200



WEST ELEVATION 1:200



FLOOR +4 1:200



1.



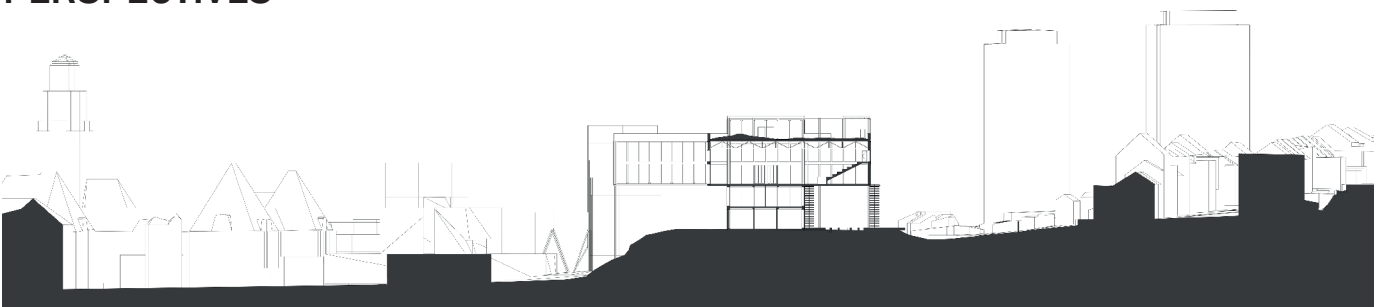
2.



3.



PERSPECTIVES



SECTION IN CONTEXT 1:500

03

SYNAPSE



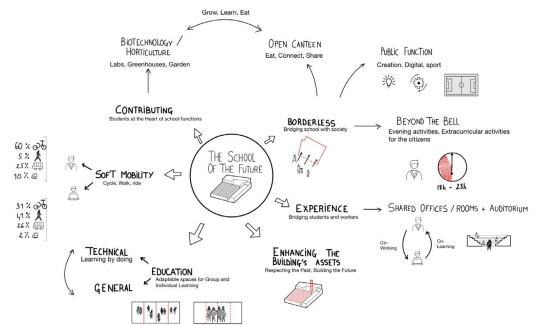
SYNAPSE – interconnection, growth, ecology; those are the roots of this secondary school's educative project.

Situated in the heart of Forest, on a site previously occupied by the municipal urban planning department, the school offers a multitude of learning spaces fit for theory- and practice-based learning in accordance to its electives being horticulture, biotechnology and digital fabrication. Synapse aims at benefitting the local community through sharing spaces outside school hours for trainings, sports competitions, and private events. Those shareable spaces are located on the two first floors of the school, while the upper floors welcome semi-private and private spaces.

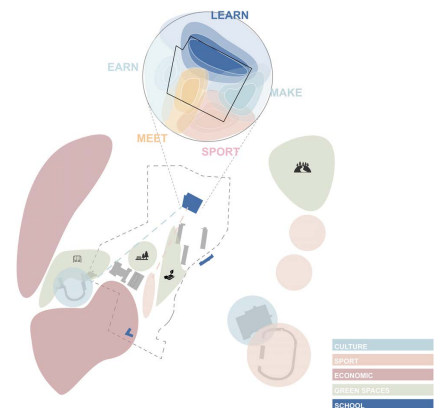
Roof stacking was necessary to preserve the open space wrapping around the building. In total, 5560 m² were reused, 2900 m² built, and 850 m² used (which were previously unexploited). From parking space to landscaped playground, this area became part of the students' learning path and contributes to inside comfort.

Sustainable strategies are fully integrated into both indoor and outdoor spaces. A green barrier helps mitigate noise pollution, creates a microclimate, and contributes to the overall ecological sustainability, along with the use of retention basins. Various types of green and outdoor spaces are designed to offer diverse uses and experiences. Public spaces and functions are conceived with modularity and collaborative design in mind. Inspired by the concept of a future-minded school, the space promotes a progressive form of education where manual learning is valued as much as intellectual development. The school aims to shape future citizens who are engaged and environmentally responsible.

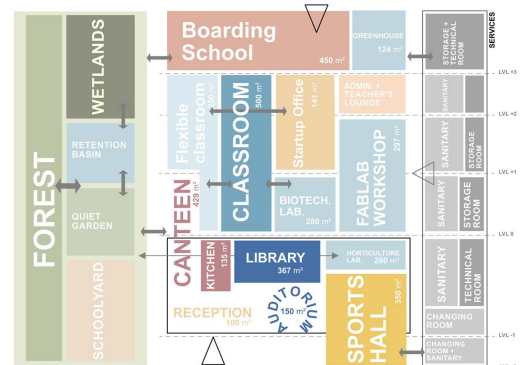
Economic strategies were developed in line with the ambition to offer more than just a school to the community. A democratic and sustainable canteen incorporates produce grown by the students. Several spaces, such as the sport hall and public level, are available for rent. Office spaces are open to Forest community and the boarding school operates throughout the entire year.



CONCEPT



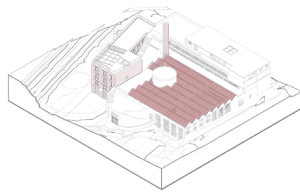
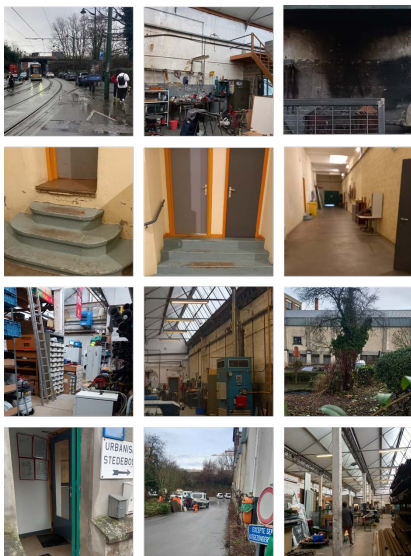
CONNECTION



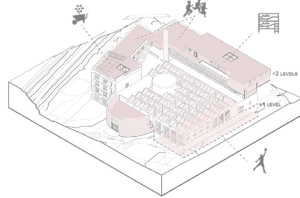
CONTEXT

ALAÏS BOCKSTAEL & JULIE SREY - SYNAPSE - MAY 2025 - N°1

PROGRAM

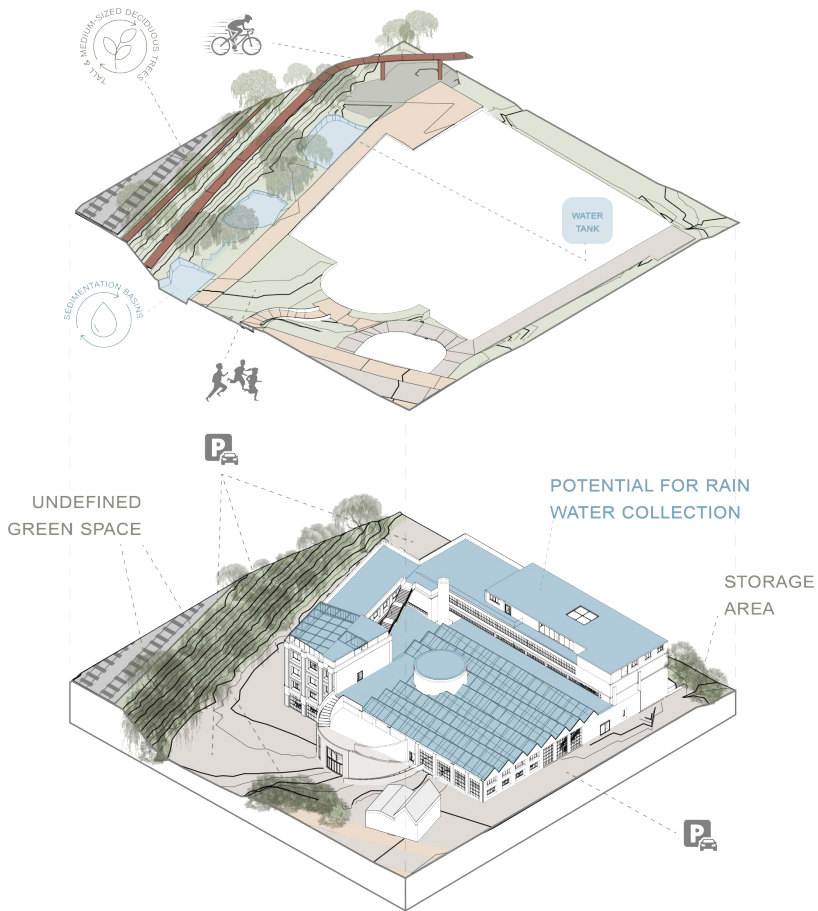


HONOURING



ASSESSING

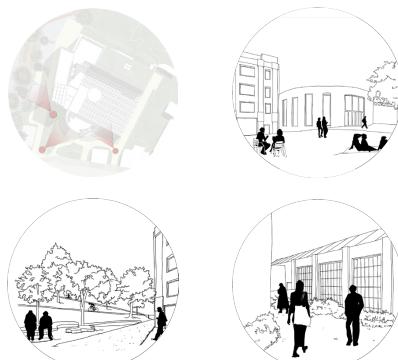
ADAPTING



ADAPTING

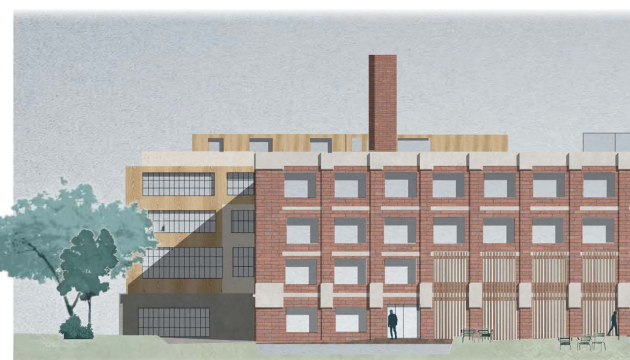


SITE PLAN 1/250

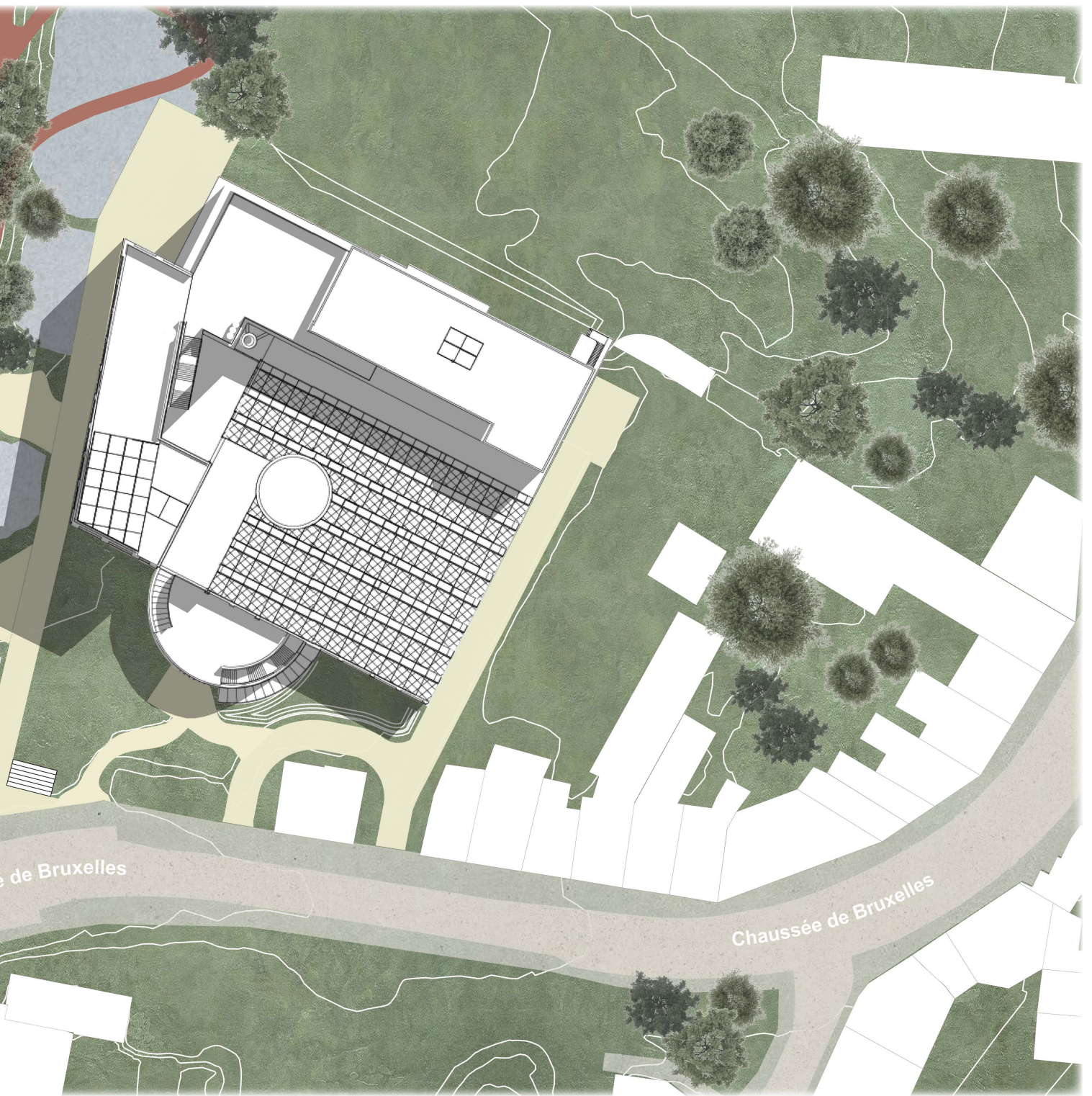


EXTERIOR ATMOSPHERE

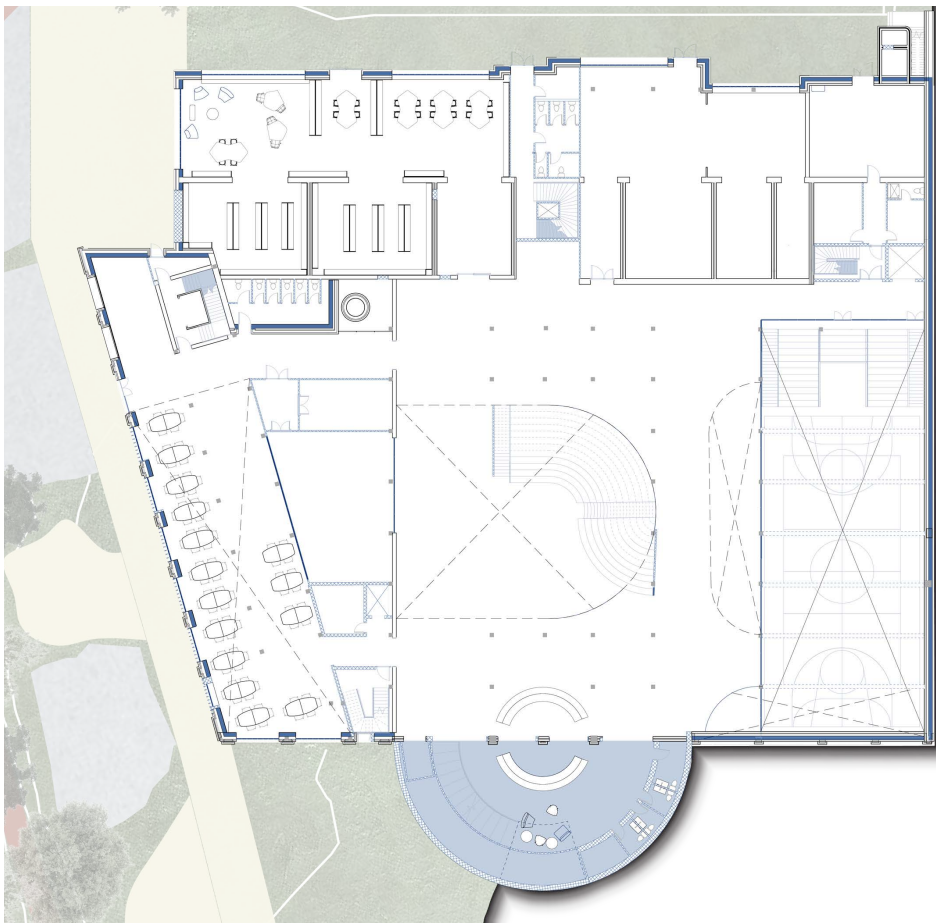
ALAÏS BOCKSTAEL & JULIE SREY - SYNAPSE - MAY 2025 - N°2



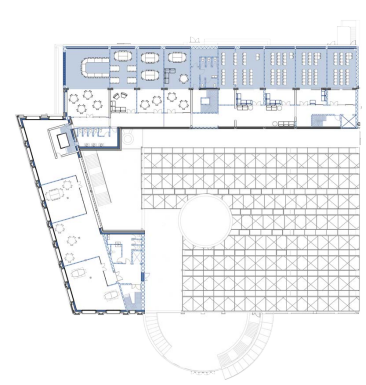
WEST FAÇADE 1:200



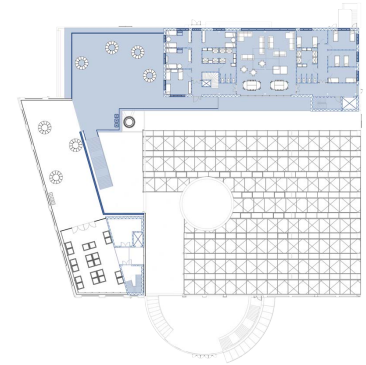
SOUTH-SOUTHWEST FAÇADE 1:200



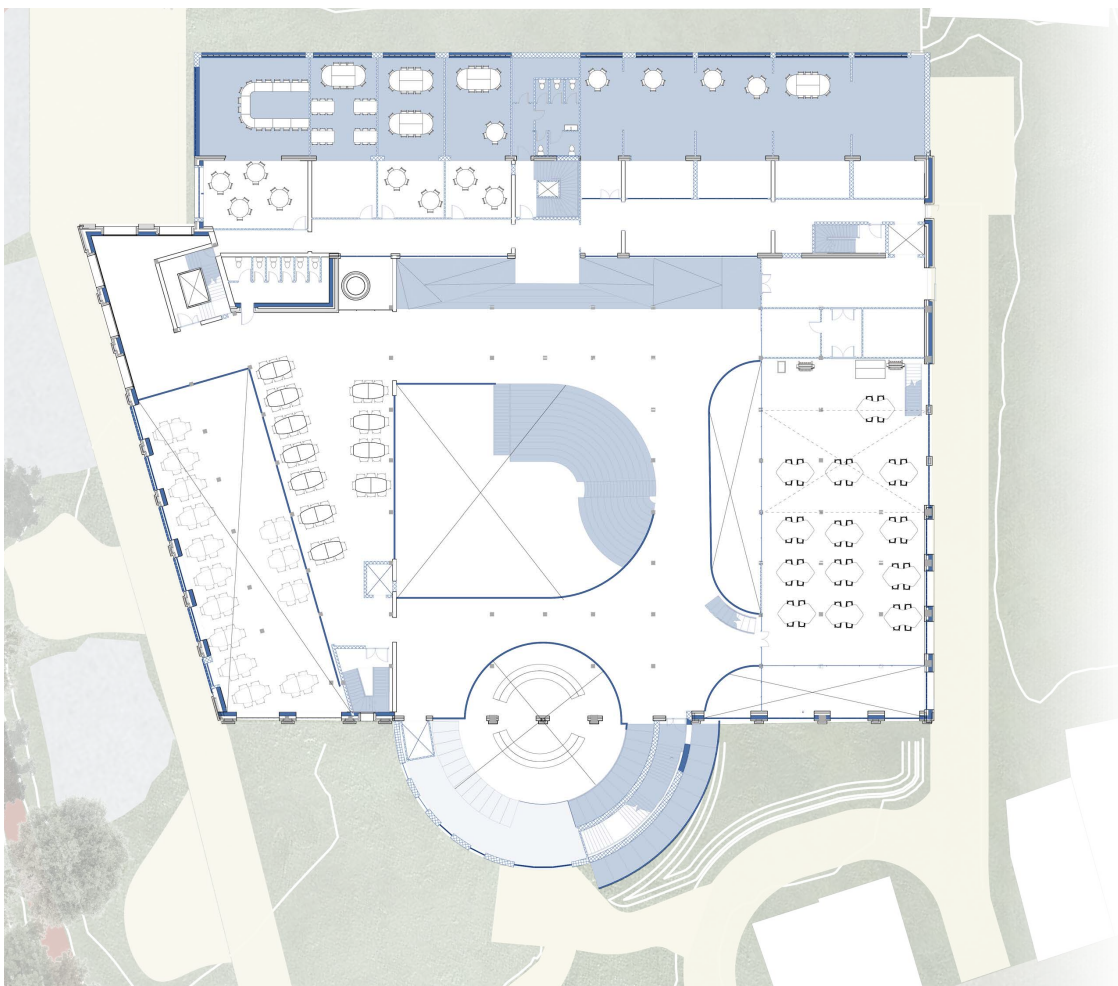
FLOORPLAN LVL -1 1:200



FLOORPLAN LVL 1 & 2 1:500



FLOORPLAN LVL 3 1:500



FLOORPLAN LVL 0 1:200



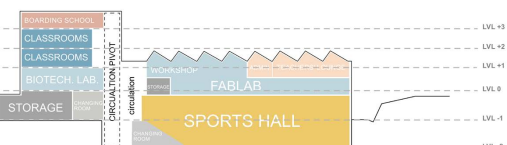
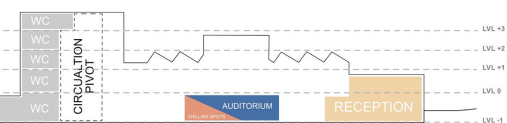
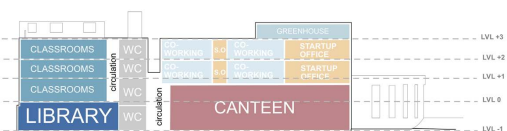
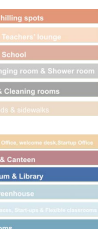
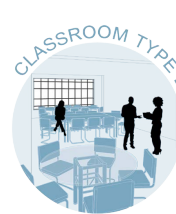
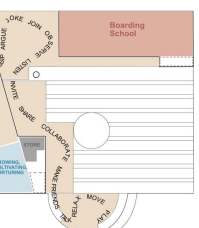
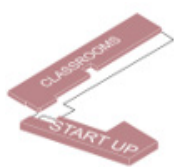
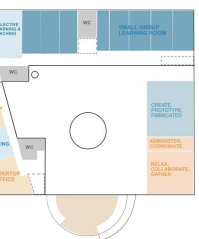
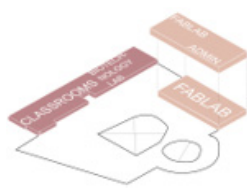
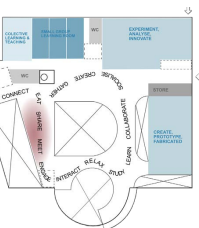
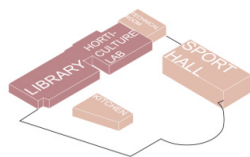
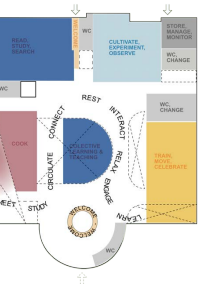
LVL -1

LVL 0

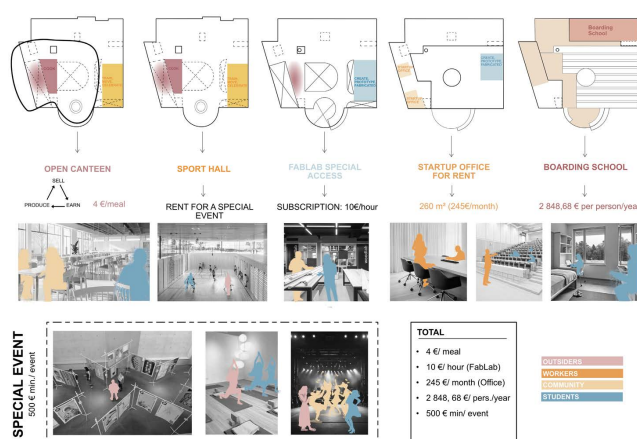
LVL 1

LVL 3

SPA

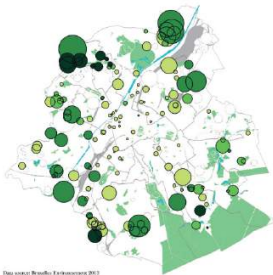


ATIAL CONCEPT



ECONOMIC SUSTAINABILITY

04



Des cartes de Bruxelles Environnement 2017
BÉNÉDICTE ZITOUNI ET AL., TERRES DES VILLES: ENQUÊTES
POTAGÈRES AUX PREMIÈRES SAISONS DU 21^E SIÈCLE (BRUXELLES:
EDITION DE L'ÉCLAT, 2017), 7

Historic of urban agriculture

Productive + Economical
Paradigm

VS

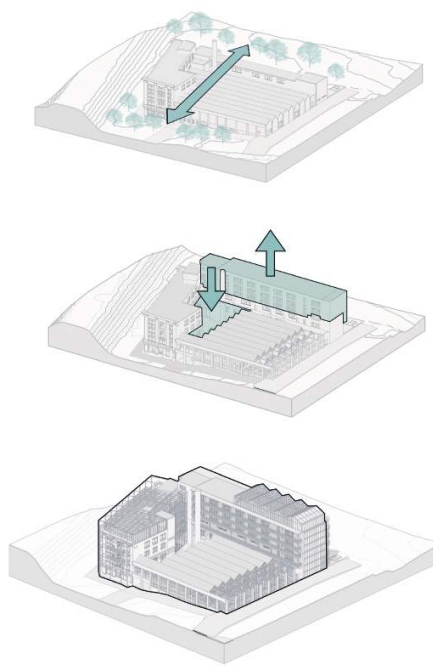
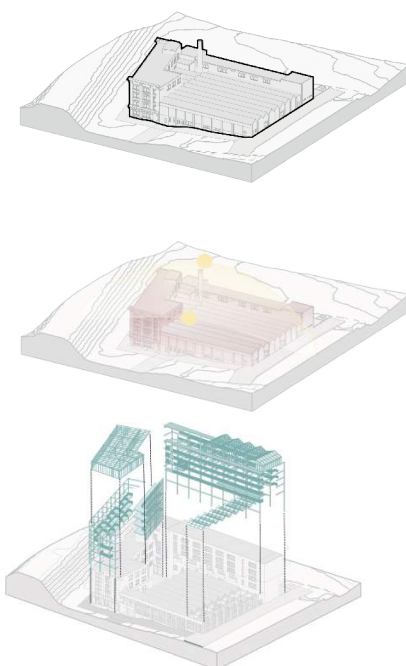
Social + human-centered
Paradigm

ROSELYNE DE LESTRANGE, DIR., NOUVELLES AGRICULTURES
METROPOLITAINES: AGROÉCOLOGIES BRUXELLOISES
(BRUXELLES: MÉTROPOLIA, 2020, 9-30)

Urban agriculture paradigms



Sustainability ambitions



Form findings

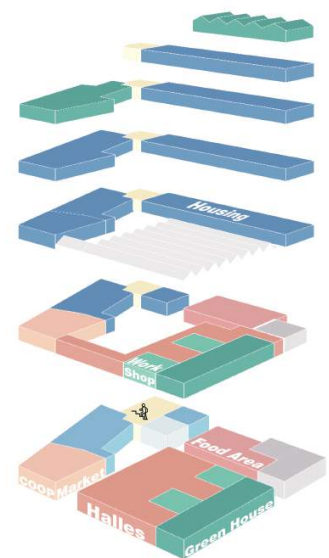
Agrihub aims to revive the rich history of urban agriculture in Brussels. By integrating housing, retail, and a dedicated learning and awareness centre, the project engages with contemporary social needs. Through its design, it cultivates a strong sense of community, effectively implements urban agriculture, and ensures both economic viability and social inclusion.



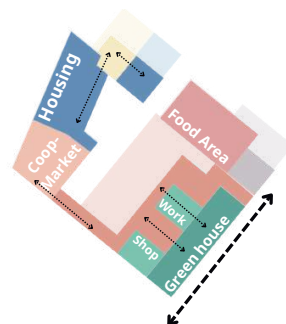
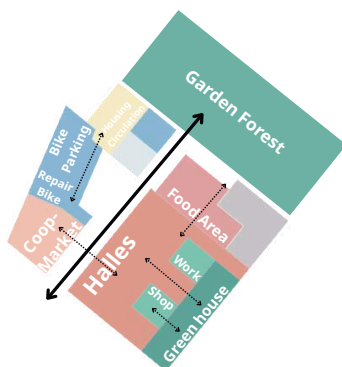
Contextual section



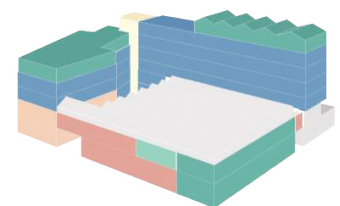
Implantation plan



Axonometric view program



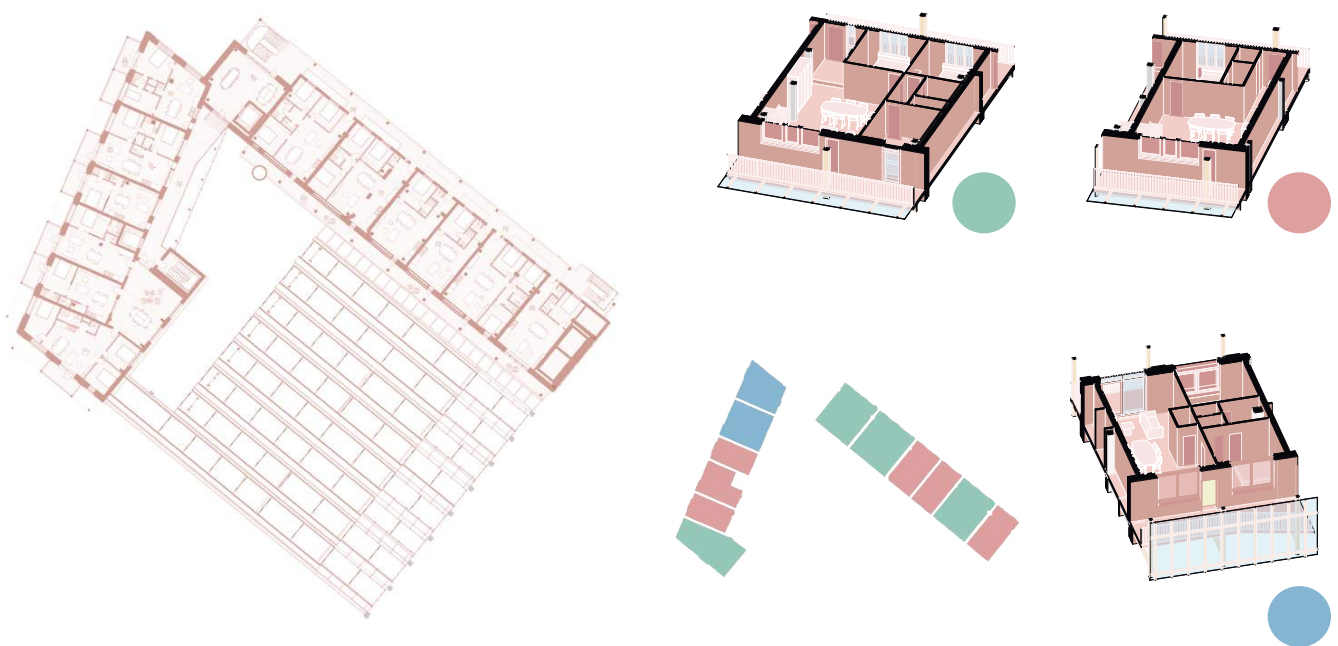
Concept program



Volumetric view program



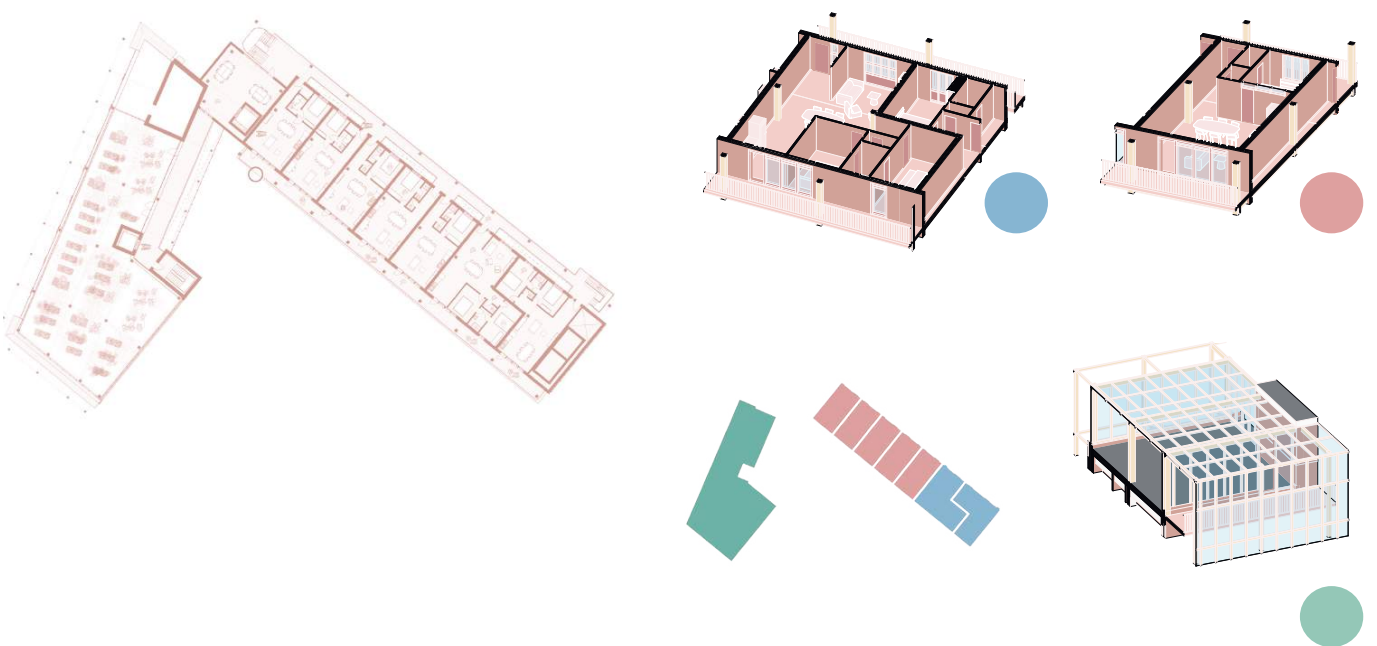
Ground floor plan 1/200



Second floor plan & typical housing units



First floor plan 1/200



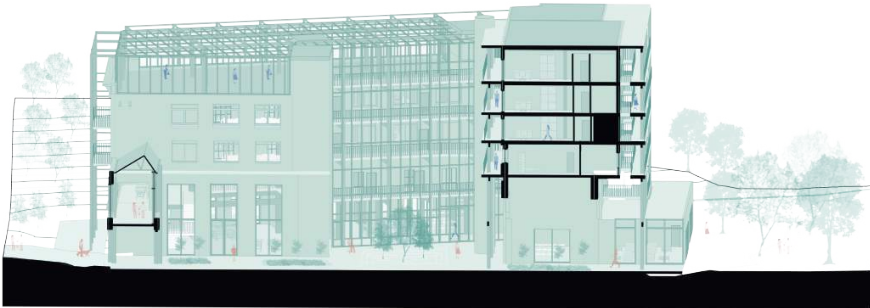
Fourth floor plan & typical housing units



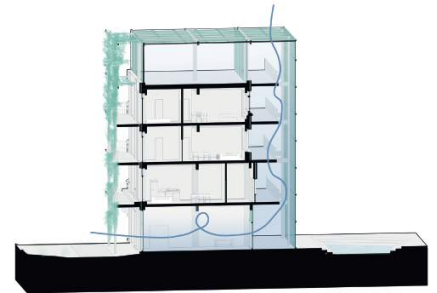
Transverse section 1/500



Passive heating strategy



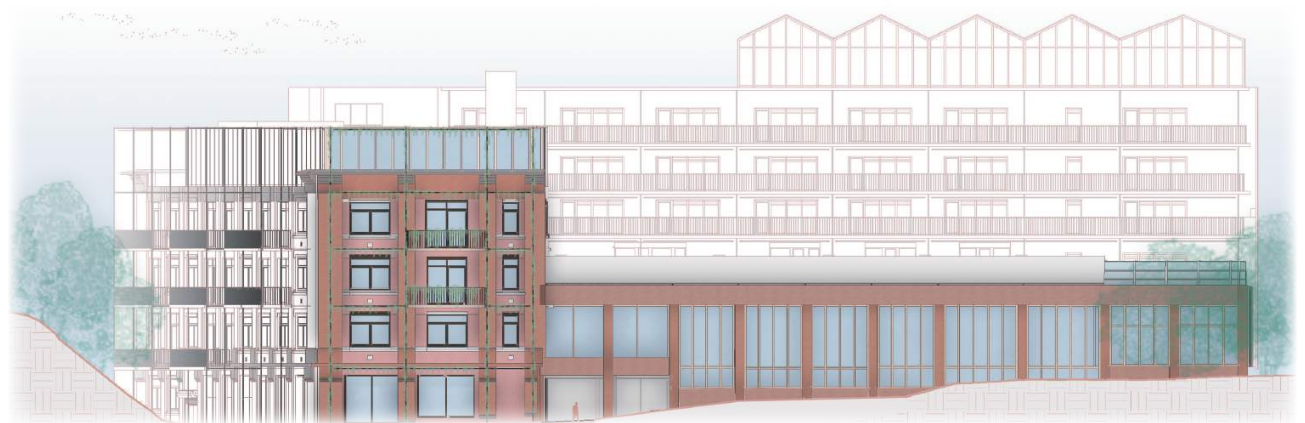
Longitudinal section 1/500



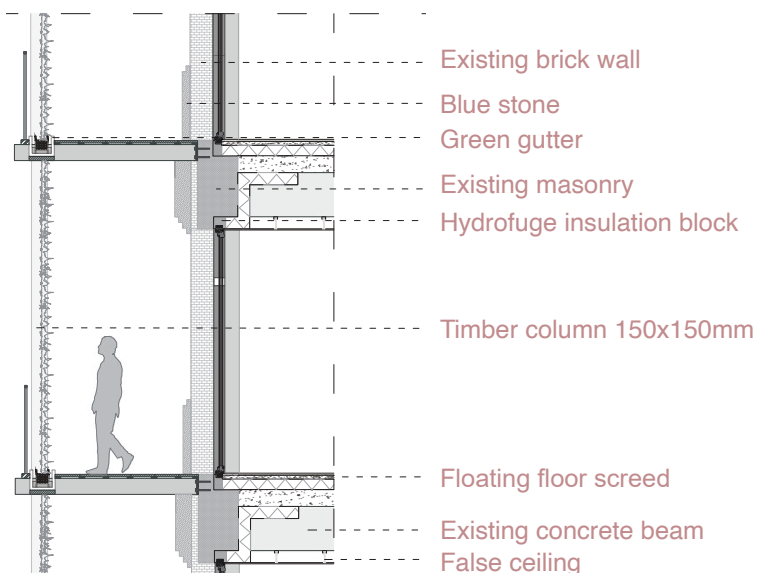
Passive cooling strategy



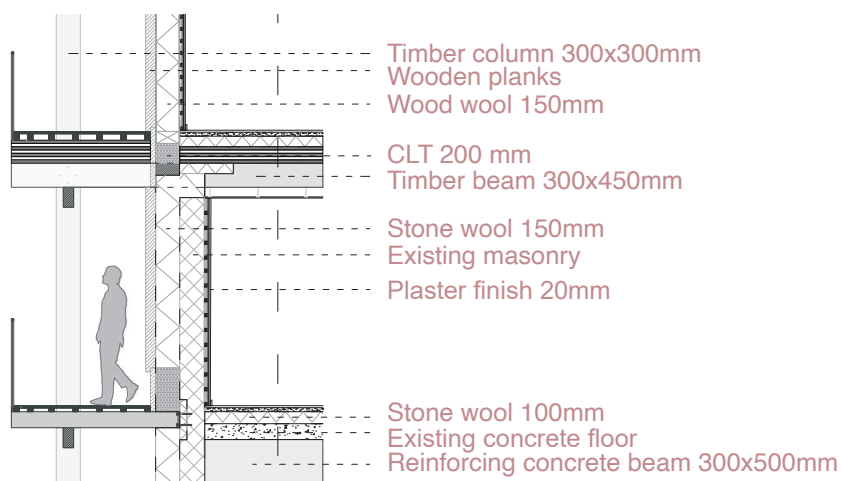
Views and atmospheres from Agri-Hub



North elevation



Technical detail renovation building 1/30



Technical detail extension 1/30



05

THE SPINE

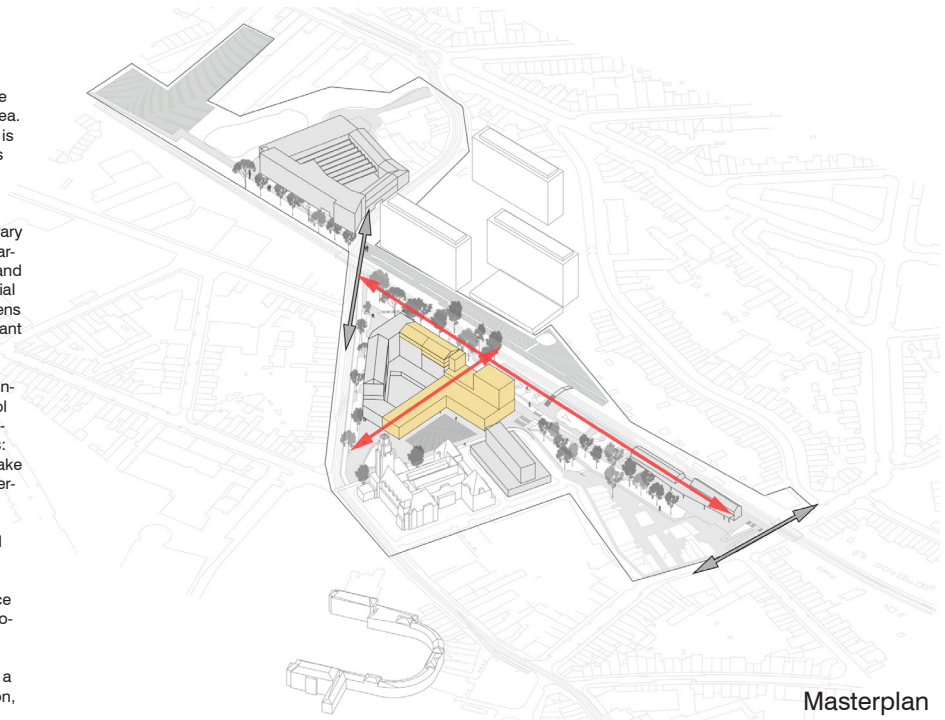
At the heart of our new development on the Triangel site, the Spine forms a powerful new axis that connects the entire area. This central backbone is much more than just a passage, it is an experiential route that takes visitors, residents, and users on a dynamic journey through the building and its diverse functions.

Our project brings together a smart mix of uses: contemporary apartments, commercial spaces, and a pioneering Urban Farming School. The Spine serves as both the main entrance and the connecting element. It provides access to the commercial zones, guides visitors fluidly across different levels, and opens up to both the city and nature. Gentle slopes create a pleasant walk through the building, both indoors and outdoors.

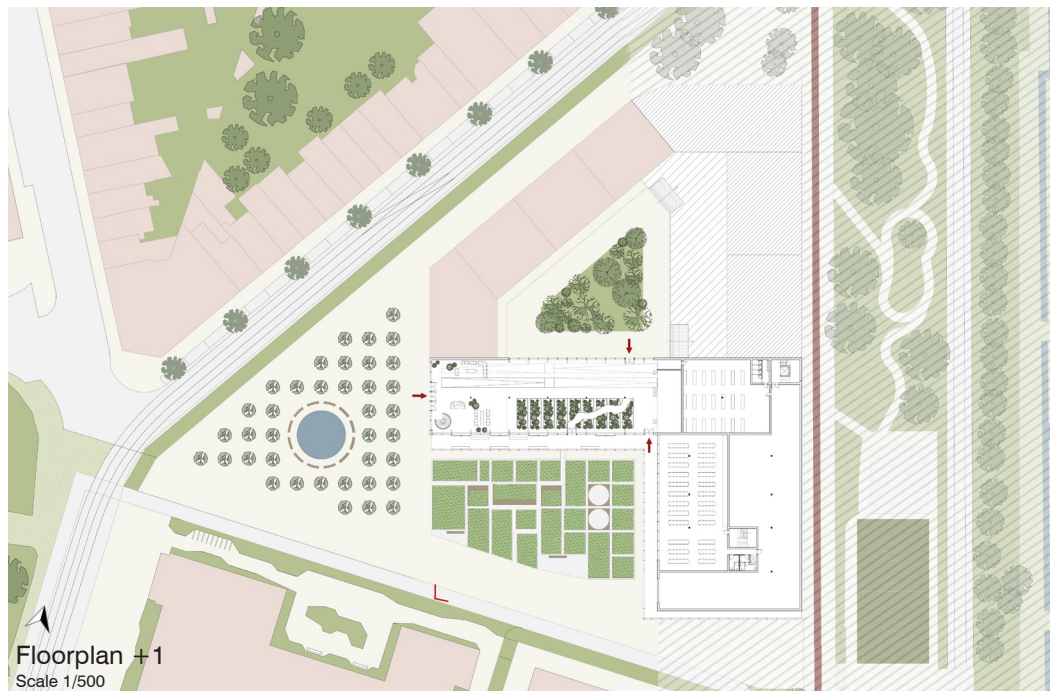
Inside, there is space dedicated to cultivation and experimentation. The Spine offers access to the Urban Farming School – a secondary school that goes beyond a traditional curriculum. Here, students learn about the entire life cycle of crops: from seed to final product. Practical lessons and research take place on the first three floors, while the upper levels are reserved for more traditional classroom education.

The school and the Spine together form an educational and social hub, with outdoor areas for cultivation and community activities. The project invites the local neighborhood to take part in its story: together, we are creating a vibrant place where learning, living, entrepreneurship, and nature come together.

The Spine is therefore not just an architectural element, but a social and sustainable statement – a place where connection, movement, and growth are central



Masterplan



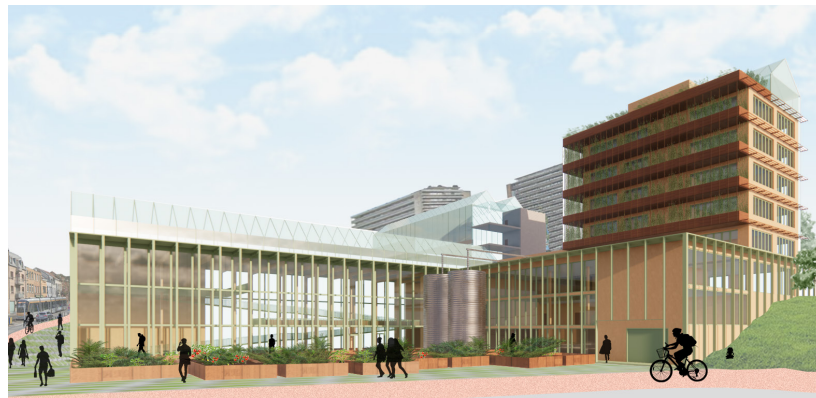
Floorplan +1
Scale 1/500

Our **urban farming school**, is a secondary school where students not only acquire fundamental knowledge in general subjects such as mathematics, French, and chemistry, but also gain **hands-on experience** in the **agricultural** sector. They develop practical skills in planting, maintaining, and harvesting crops, as well as conducting research in the laboratory.

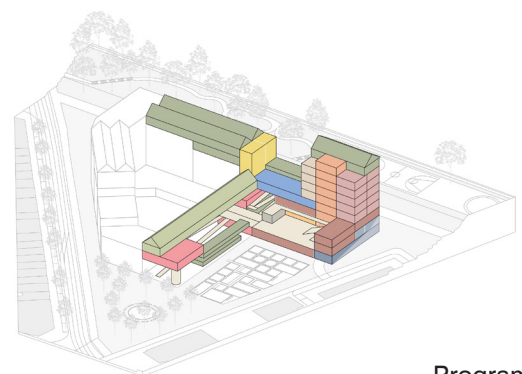
CROSS PERIOD					
Grade 1	Day 1	Day 2	Day 3	Day 4	Day 5
Class	Class	Class	Hands cultivation	Laboratory	Laboratory
Grade 2	Class	Class	Class	Hands cultivation	Laboratory
Grade 3	Class	Class	Hands cultivation	Hands cultivation	Laboratory

SCHOOL PERIOD					
Grade 1	Day 1	Day 2	Day 3	Day 4	Day 5
Class	Class	Class	Class	Hands cultivation	Hands cultivation
Grade 2	Class	Class	Hands cultivation	Hands cultivation	Laboratory
Grade 3	Class	Hands cultivation	Hands cultivation	Hands cultivation	Laboratory

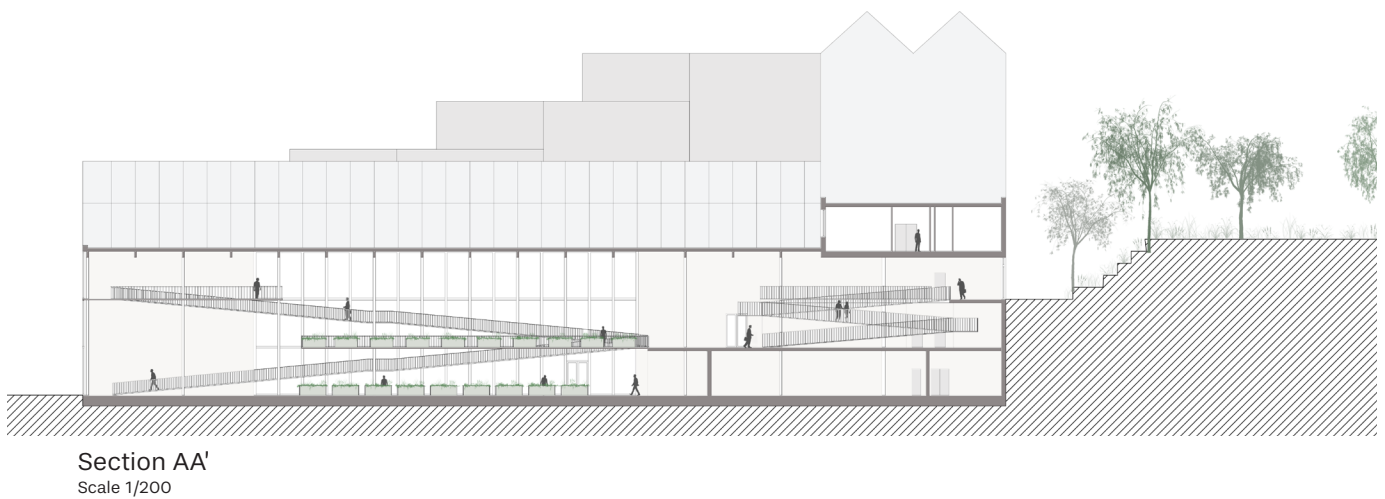
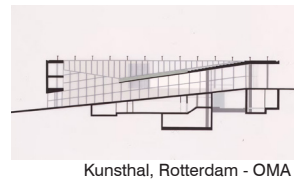
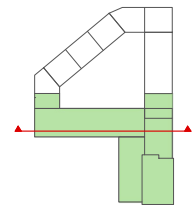
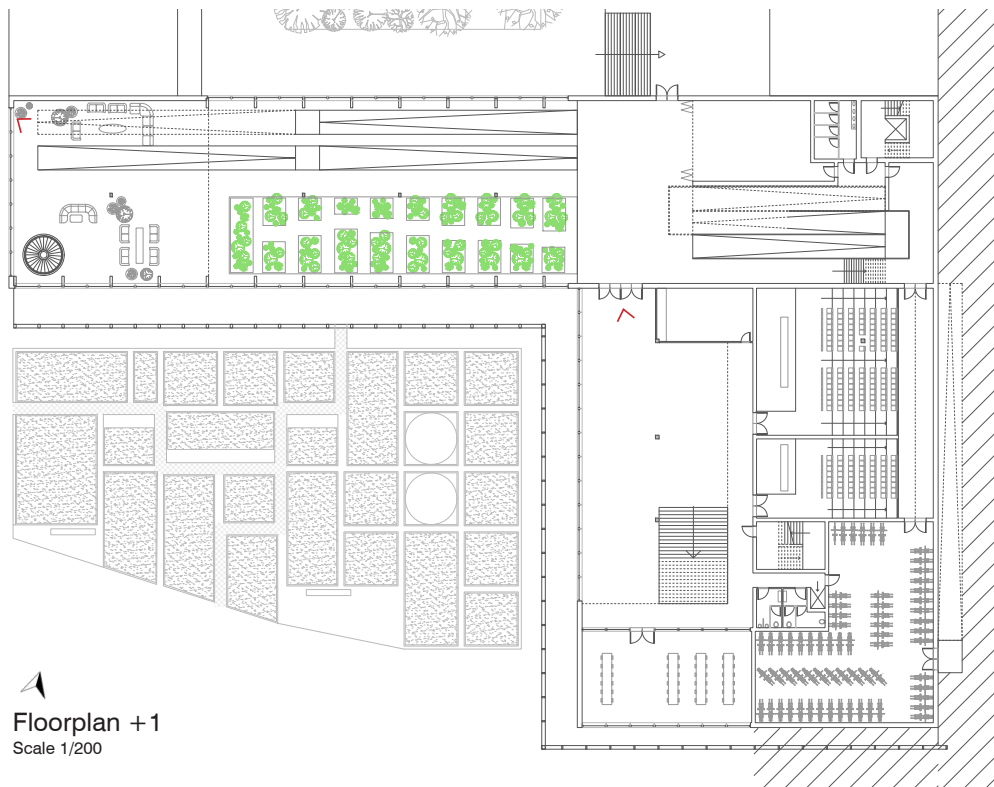
- Walkable space (1408 m²)
- School cultivation (2095 m²)
- Commercial (kiosk + market + kitchen) (334 m²)
- Secretary (36 m²)
- Auditoria (230 m²)
- Core (400 m²)
- Logistics (650 m²)
- Bicycle parking (200 m²)
- Workshop spaces (1000 m²)
- Classrooms (1000 m²)
- Resting places (228 m²)
- Core (230 m²)
- Professional cultivation (420 m²)
- Labo (450 m²)



General view



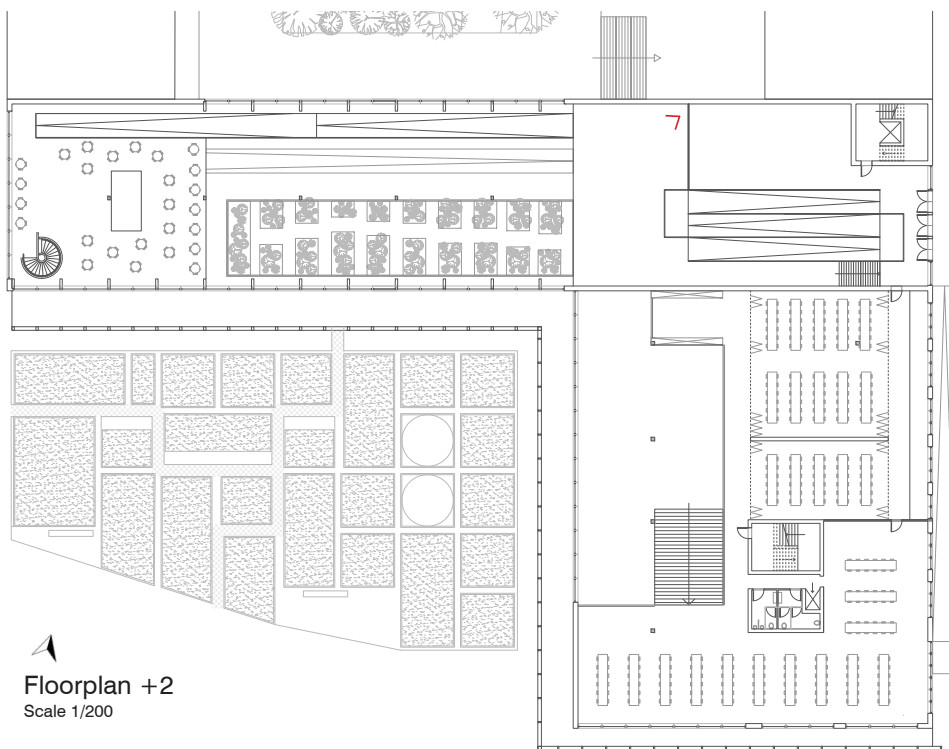
Program



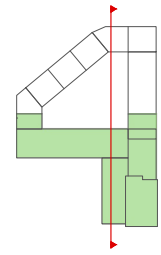
Entrance school



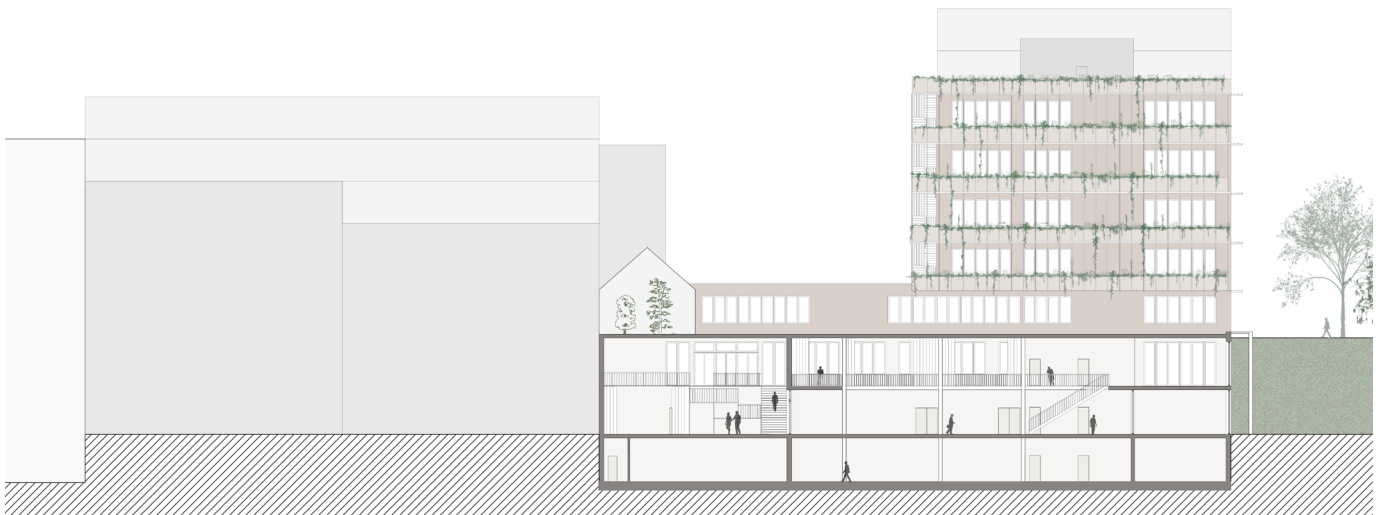
Entrance spine




Floorplan +2
 Scale 1/200



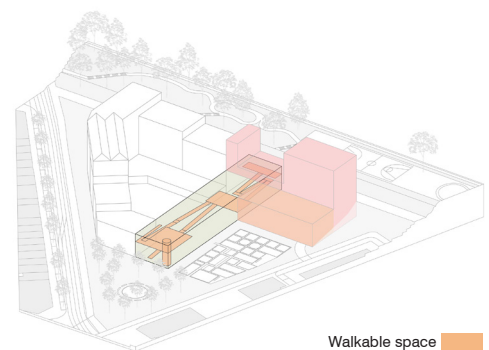
Usquare, Brussel - Evr architecten



Section BB'
 Scale 1/200

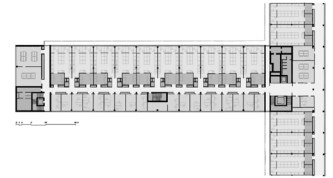
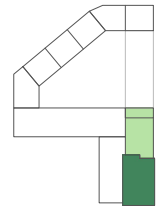
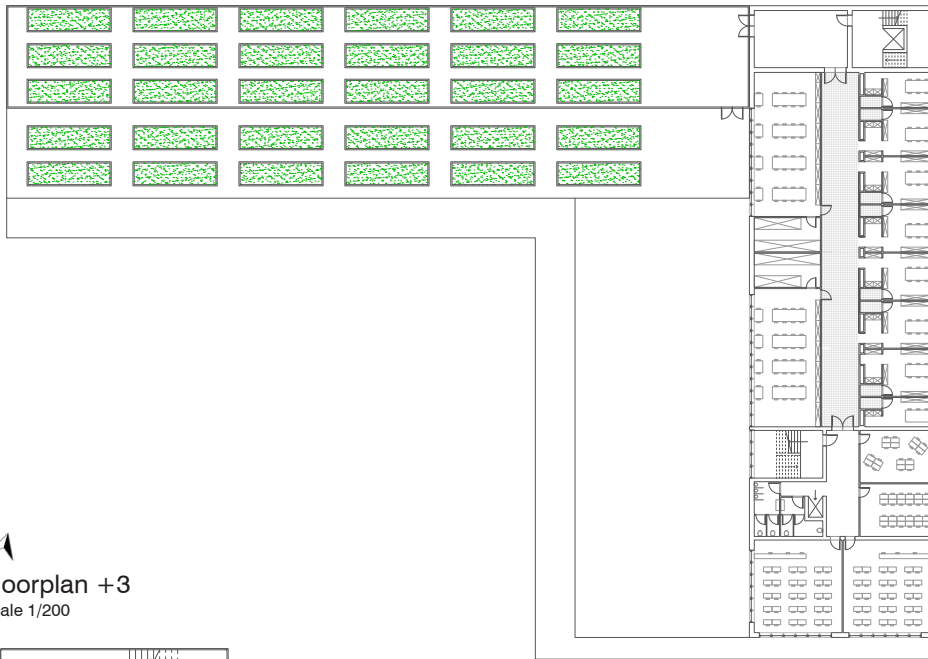


View spine on entrance school



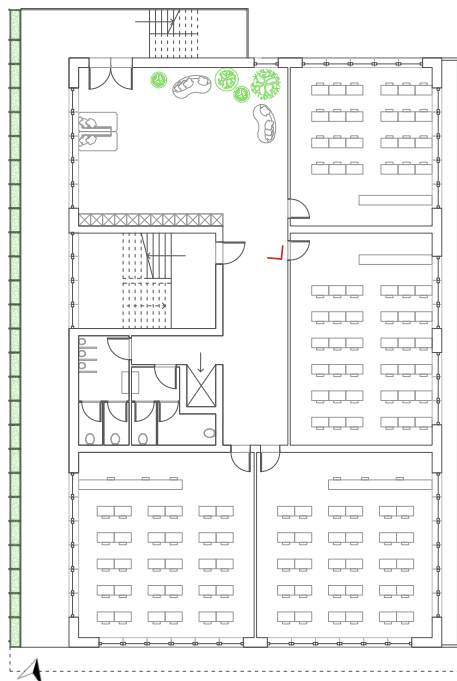
- Walkable space ■
- Public ■
- Semi-private ■
- Private ■

Public/private scheme



ETH Zurich HCI

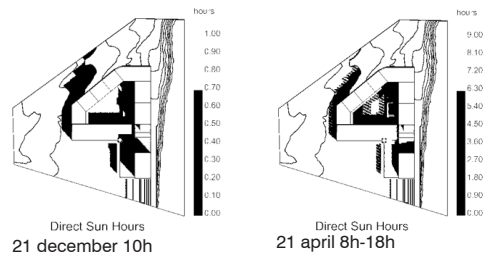
Floorplan +3
Scale 1/200



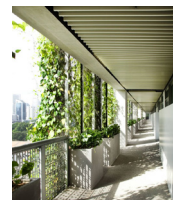
Floorplan tower
Scale 1/100



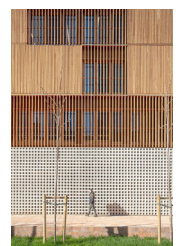
View resting place tower



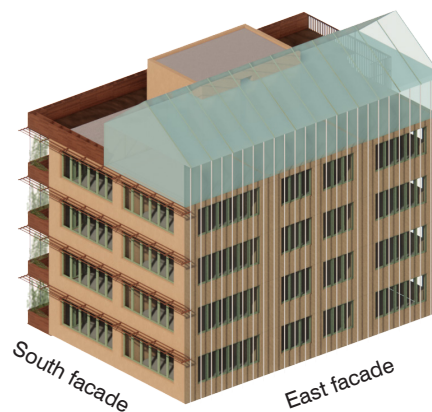
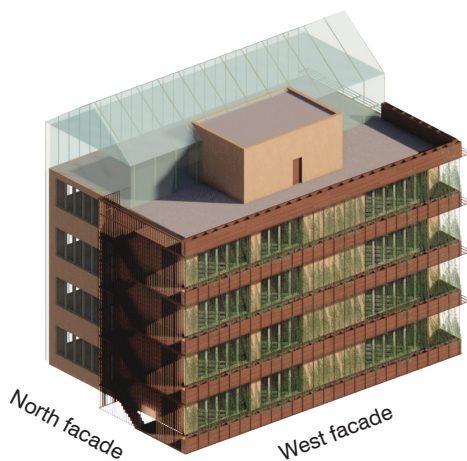
Horizontal shading



School of the Arts
WOHA

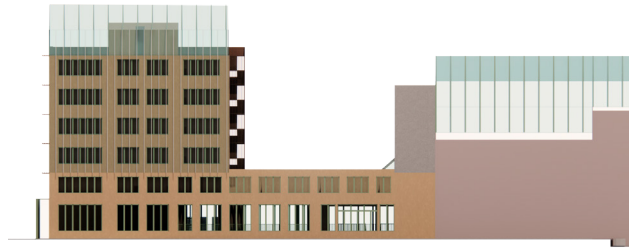


Center for Community Life
Haz Architectura

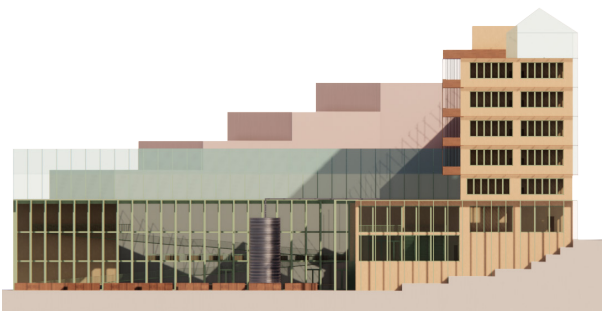




Facade view north



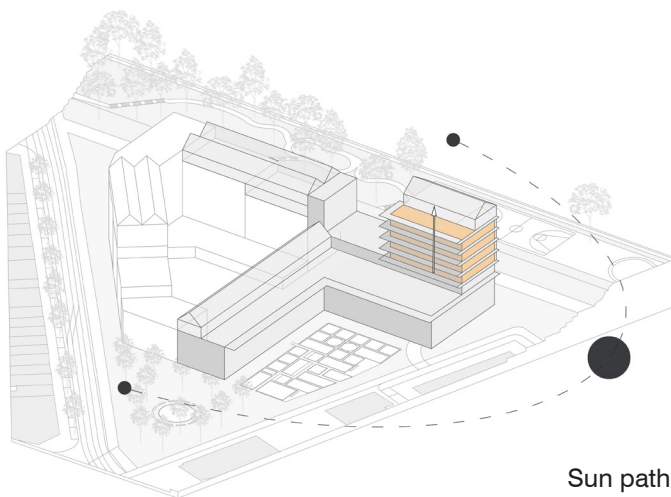
Facade view east



Facade view south

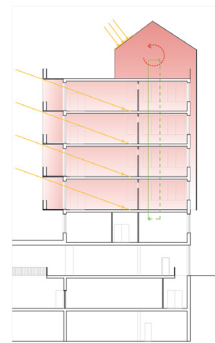


Facade view west

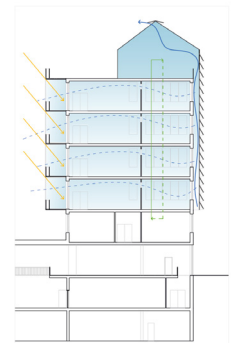


Sun path

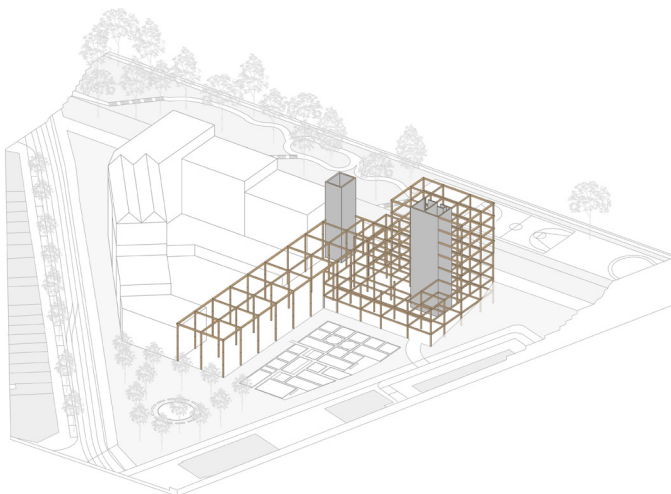
Building Integrated Greenhouse



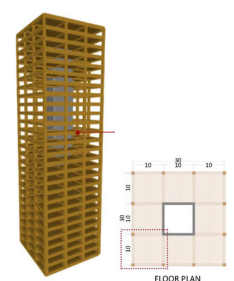
Winter
Heat recovery classrooms
Residual heat (PV Panels)



Summer
Natural ventilation
Cooling down greenhouse



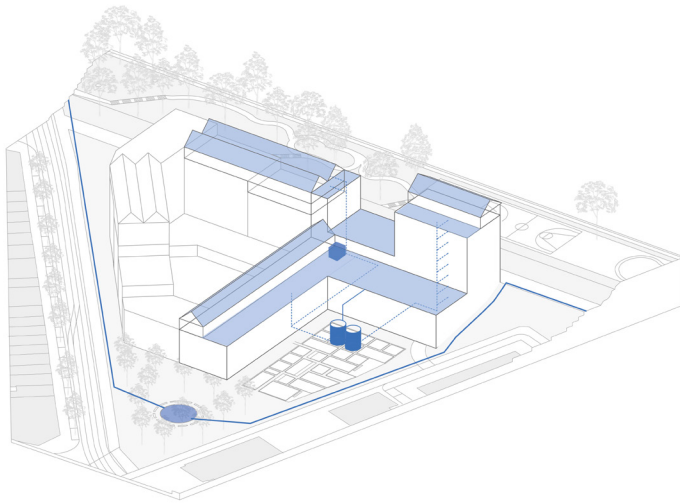
Skellefteå Cultural Center
White Arkitekter



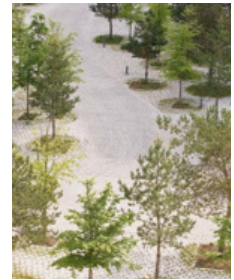
Performance assessment of
Timber High-rise

Structure

Timber frame structure acting as CO₂ storage
concrete core
wooden cladding



Firbank Sandringham Curiosity Centre - STUDIO BRIGHT



Park Dräi Eechelen Michel Desvigne

Water management

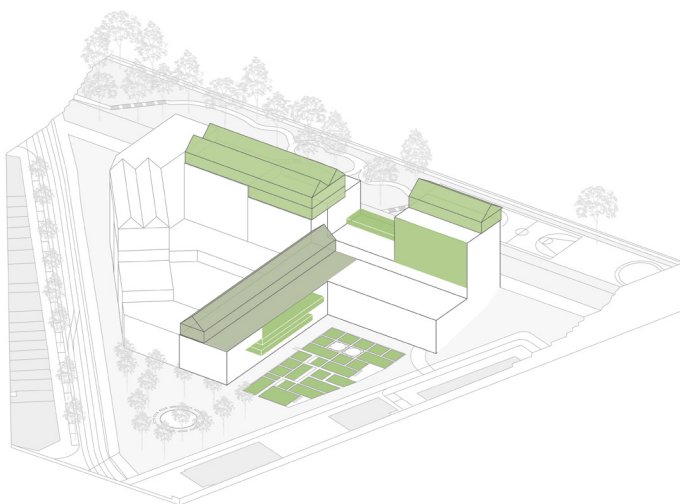
Rainwater collection (2.500.400 L/year)
Storage needed: 178 000 L (3x)
Flooding risk overflow system
Permeable surfaces

Agriculture & seasonal cultivation

Educational & professional



Bigger view cultivation



	Potatoes	Leguminous	Cabbage	Leafy	Fruit	Root
shadow						
greenhouse						
Sun						

The cultivation system on this plot covers a total of 2,500 m², combining indoor (greenhouse), outdoor, and open-field growing areas. It follows a structured, year-round rotational scheme based on natural soil fertilization and permaculture principles, ensuring ecological balance and long-term soil health.

The school cultivation program should look as following:

October - permaculture principles

November & December - cultivation planning and design

January & February - care of the soil

March - caring for water and energy

April - edges in the permaculture garden

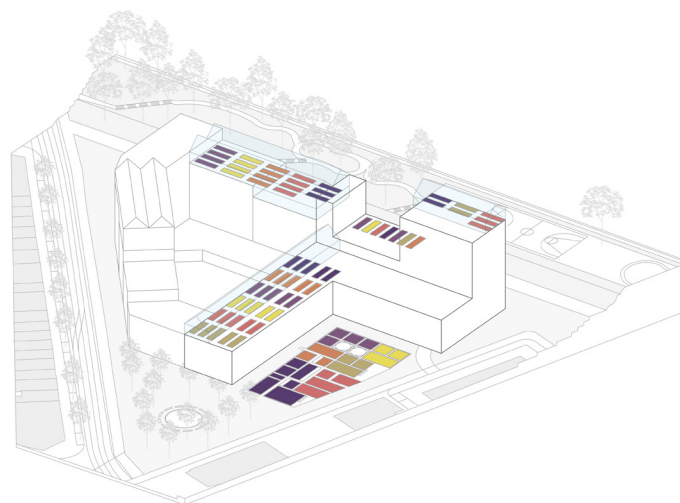
May - food forests

June - composting

July/August - holidays (community engagement)

Community engagement and educational activities during the summer holidays, fostering involvement through shared work, farm visits, and cultural events.

September - harvesting your own seeds



The 2,500 m² of cultivation space produces approximately 9,000 kilograms of crops per year, supporting up to 250 consumers—equivalent to around 36 kilograms of fresh produce per person annually. This system not only provides a consistent local food source but also fosters active community participation and ecological education, making it a resilient, regenerative, and socially connected model for sustainable food production.

06

CERES

Located in Forest, Brussels, the Cérés project proposes the adaptive reuse of a former municipal building into a vibrant urban farm integrated with affordable housing and public facilities. Positioned near the historic Forest Abbey, this transformation addresses urgent social and environmental needs, the shortage of affordable housing, unemployment, and a lack of ecological resilience in the urban fabric.

At the heart of the project lies a landmark greenhouse, both productive and symbolic. Visible from all angles of the site, it acts as a focal point, housing vertical farming systems while forming the backbone of a broader agro-ecological framework. A street-facing community garden and a permaculture-inspired forest garden complete this living landscape, offering space for education, biodiversity, and collective care.

The housing strategy includes a mix of studios, shared flats, co-living units used as buffers before social reinsertion of homeless people. To help for professional reintegration the project also include student housing constructed on top of the existing building using a timber structure and straw ball prefab module. Furthermore, some housing are dedicated for small family. All units feature bioclimatic loggias, providing semi-private outdoor spaces and allowing to preserve the historical façade.

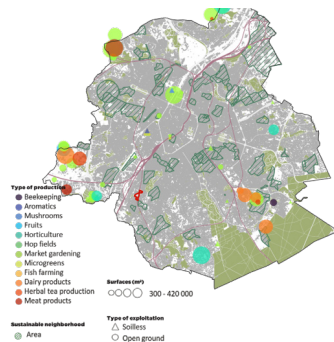
Public spaces are positioned strategically: beneath the greenhouse, a naturally lit restaurant and library welcome residents and visitors, fostering interaction between agricultural, domestic, and communal realms. This layering of programs encourages daily encounters, transparency, and a sense of shared belonging.

Cérés is envisioned as a model for urban regeneration where architecture becomes a tool for inclusion, ecology, and self-sufficiency. Through bio-sourced construction techniques (timber framing, straw and grass insulation), water-sensitive design (retention basin), and a pedestrian-prioritized layout, the project offers a new kind of city: one that is fertile, collective, and deeply rooted in its context.

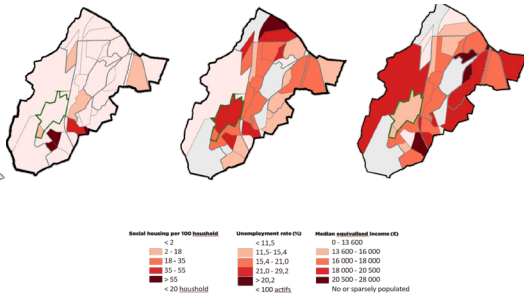
MASTERPLAN



URBAN FARM OVERVIEW



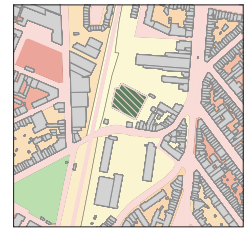
SOCIAL ANALYSIS



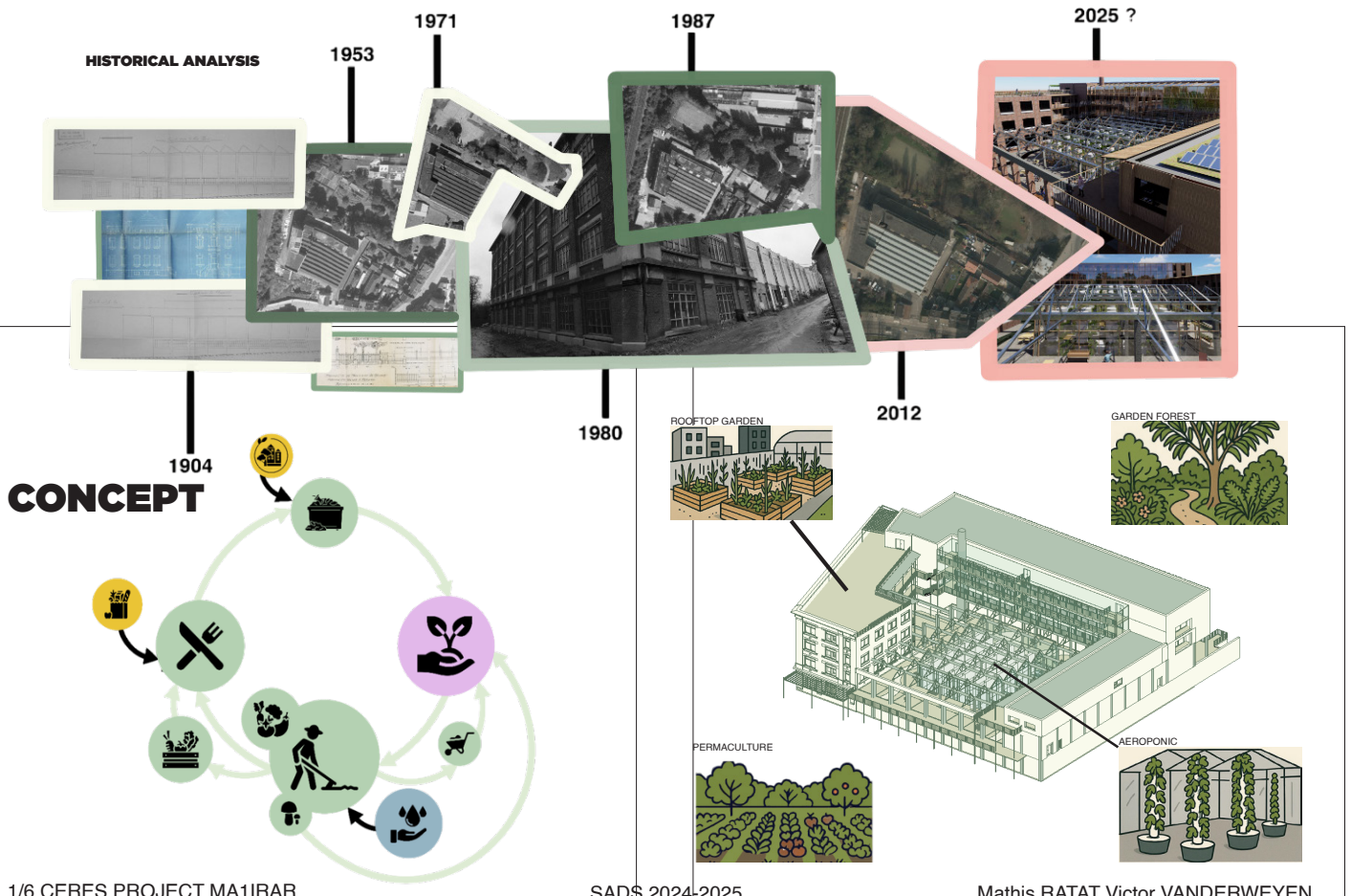
FLOODING RISK



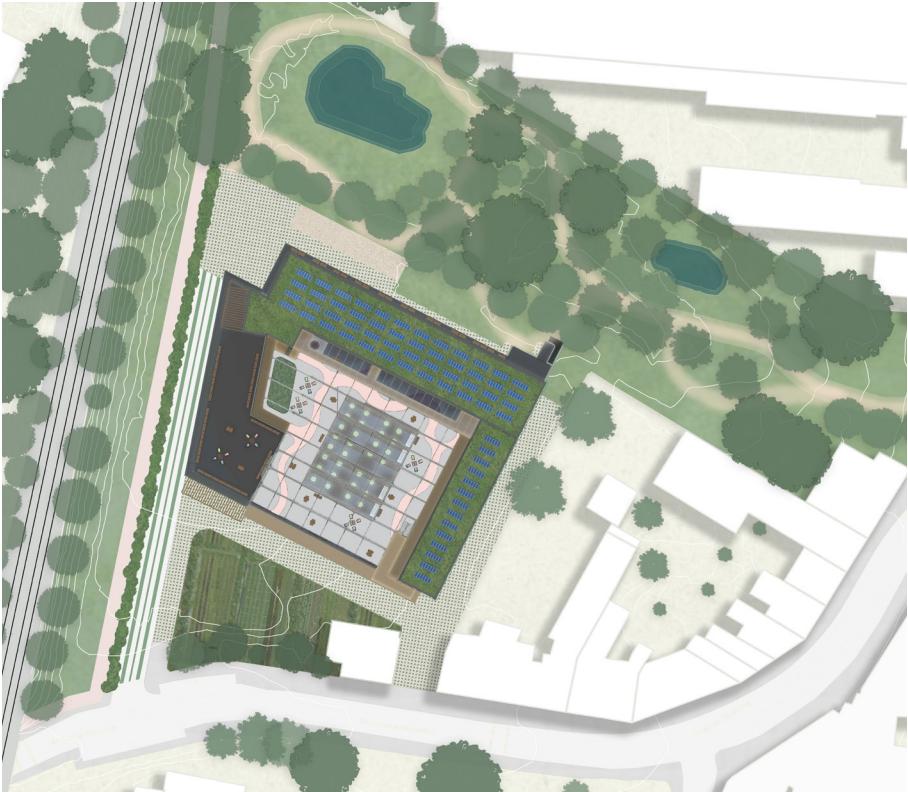
IMPERMEABILITY RATE



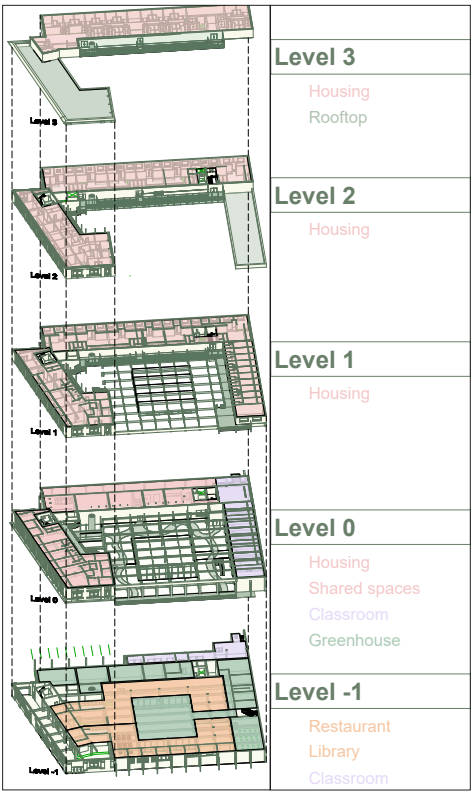
HISTORICAL ANALYSIS



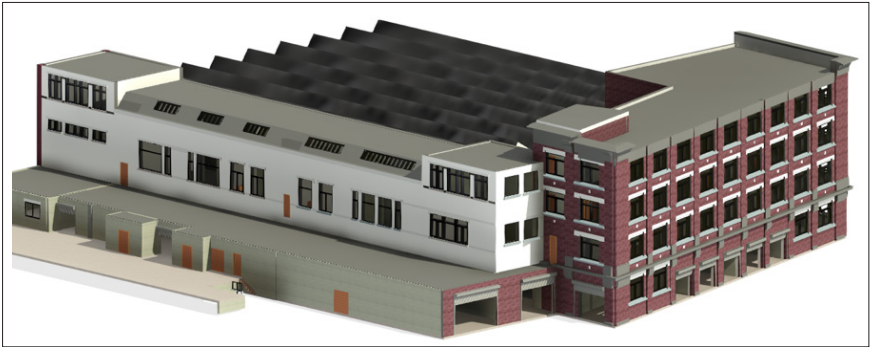
SITE PLAN 1/500



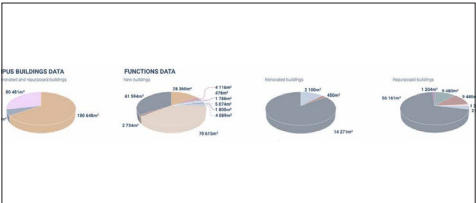
PROGRAM



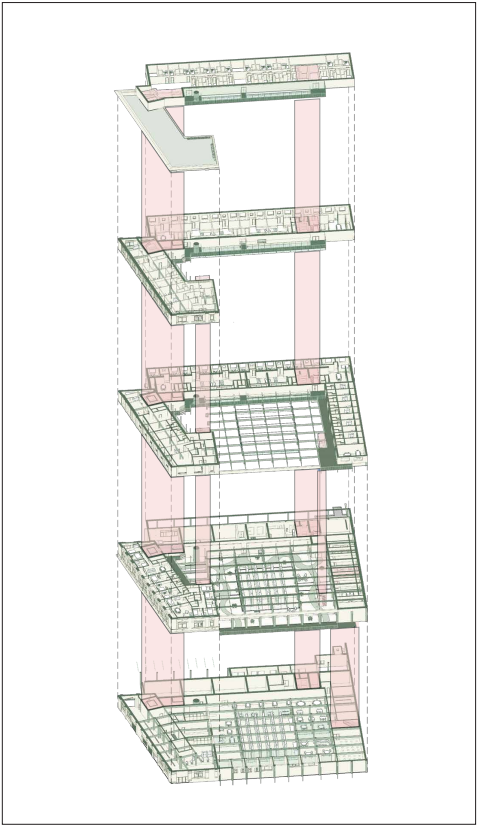
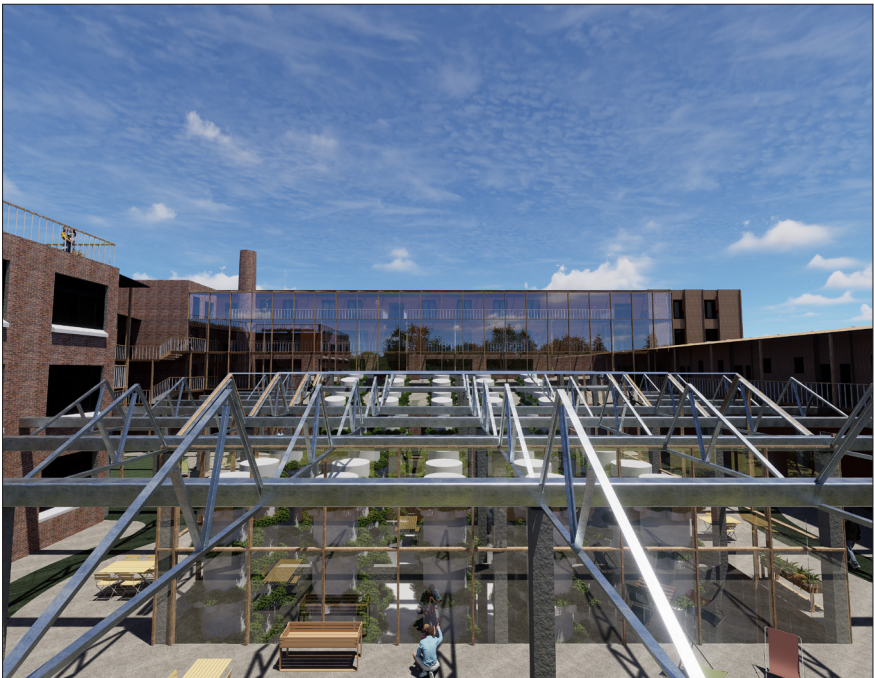
EXISTING



DATA

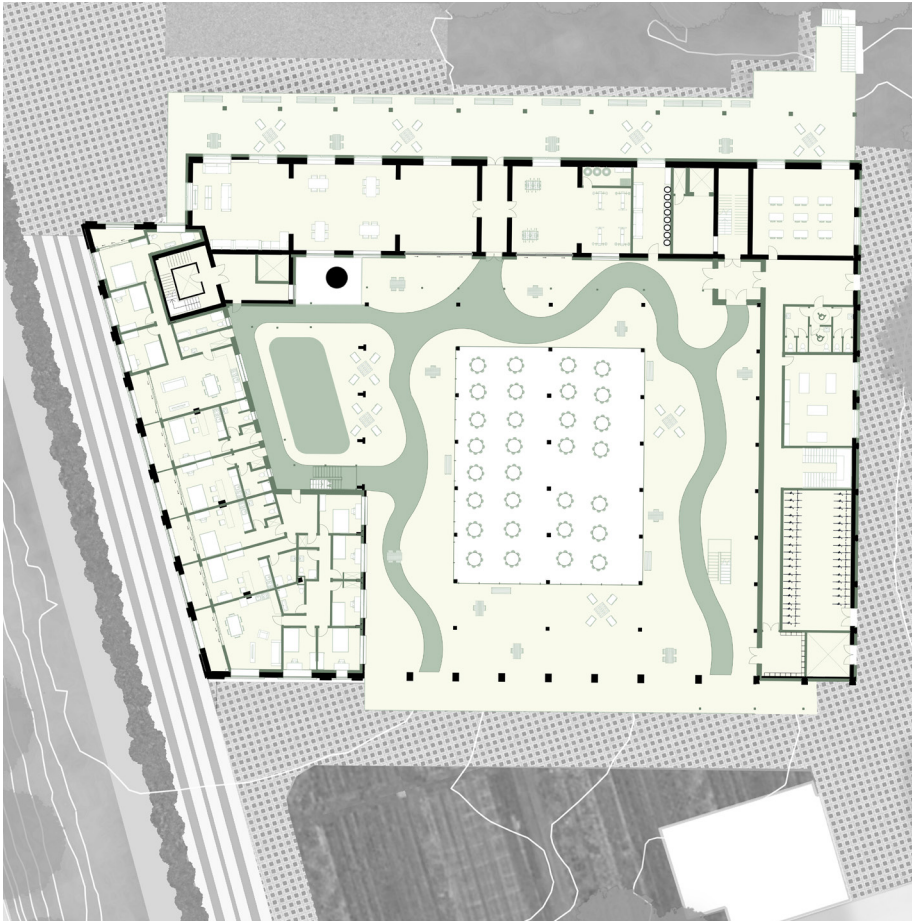


OPEN COURT

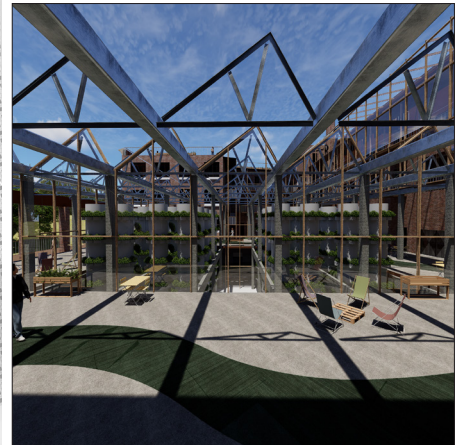
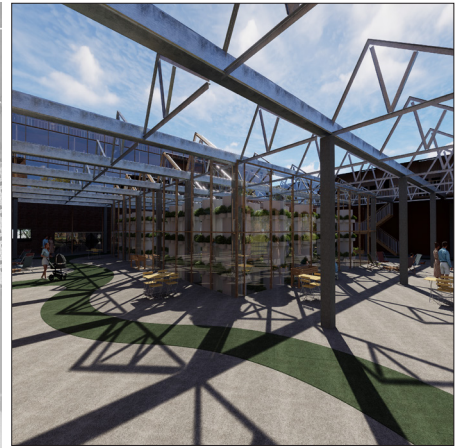


PLAN R-0

1/200

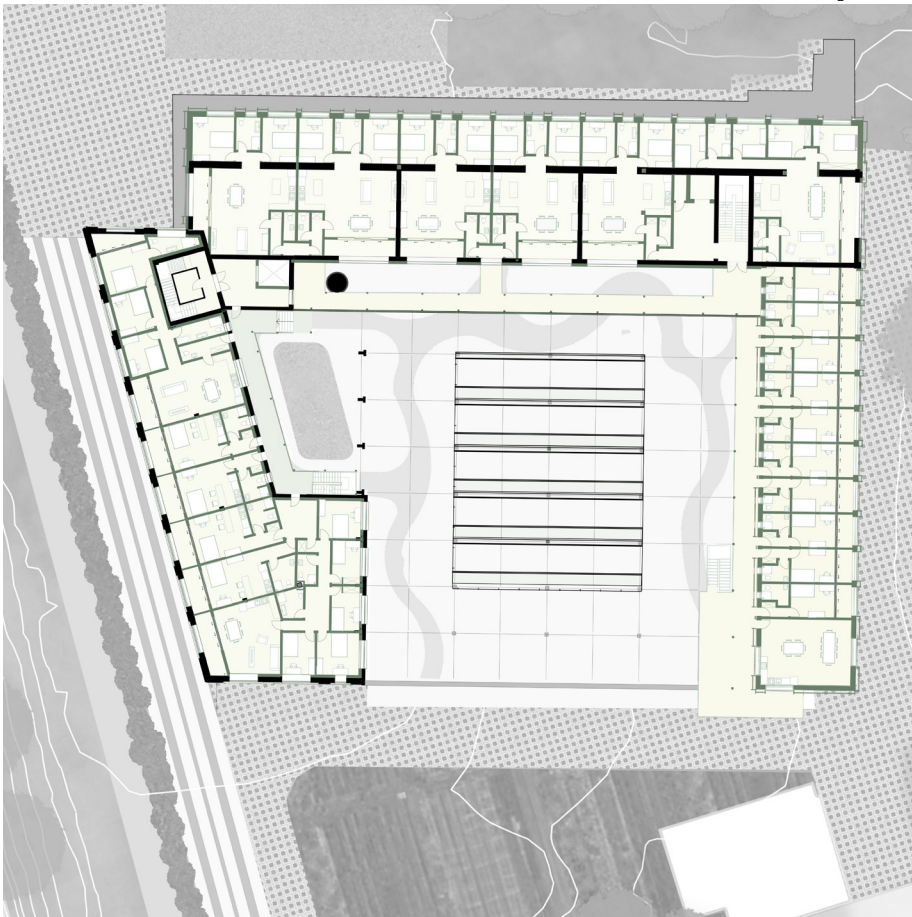


RENDERS

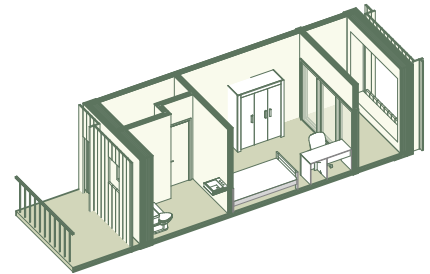


PLAN R+1

1/200



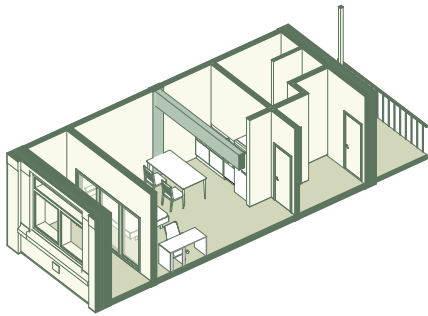
HOUSING TYPOLOGY



RENDER



HOUSING TYPOLOGY

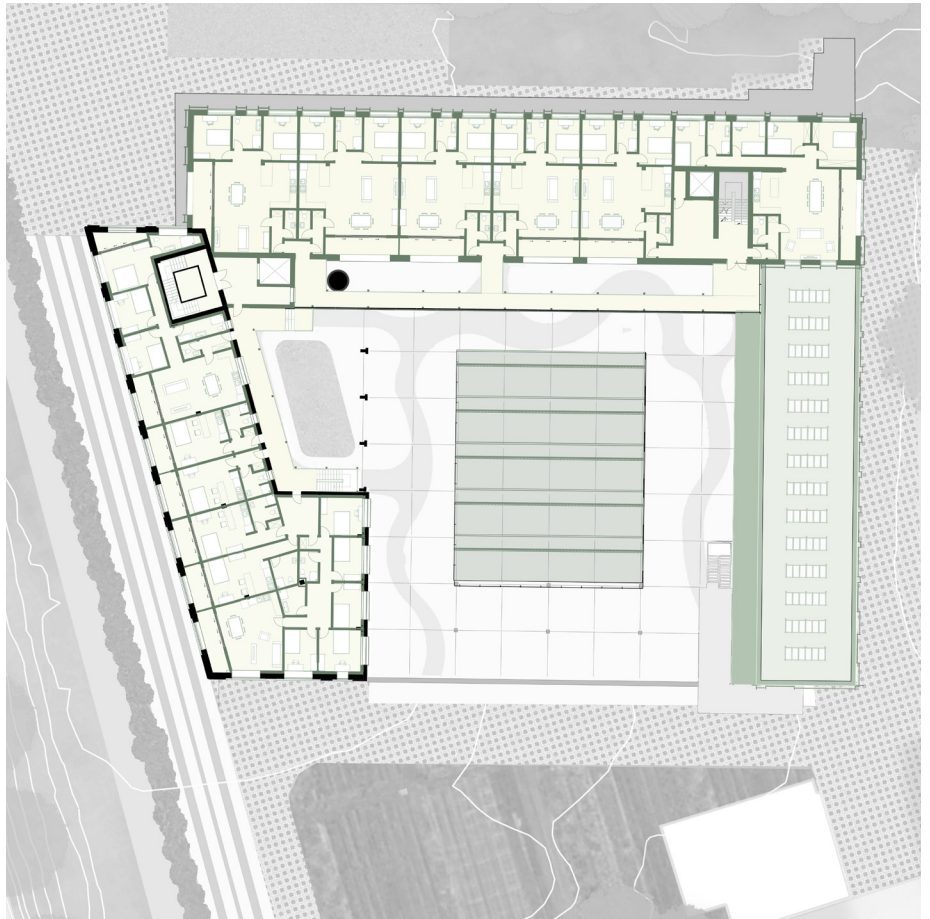


RENDER

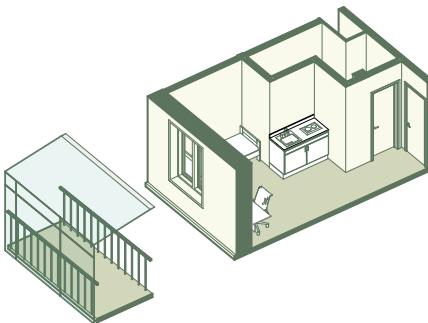


PLAN R+2

1/200



HOUSING TYPOLOGY

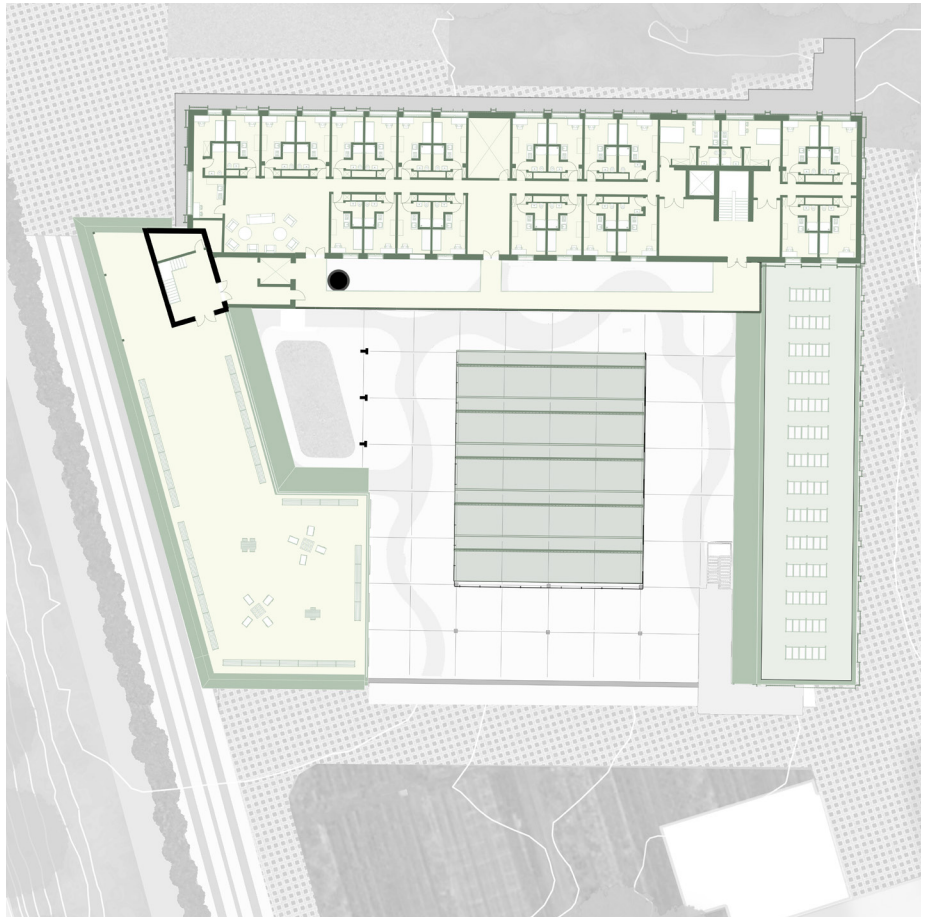


RENDER



PLAN R+3

1/200



07

DYNOVA

By Tine Ravijs & Melike Çelebi

Dynova is a visionary development project centered around a dynamic tower located within a forested heart of the city. Its primary aim is to reconnect the municipality with the center of Brussels, fostering a social, economic, and cultural revival in a sustainable and forward-thinking manner. By integrating business hotel floors with residential units and workspaces, the project activates the site throughout the day and night, aligning directly with the overarching goals of the area's masterplan. The 15-level structure gradually recedes inward, a design shaped by solar geometry and the surrounding urban context.

This form not only harmonizes with existing buildings but also maximizes solar exposure. The retracting facade creates multiple green roofs and communal outdoor terraces throughout the tower, enhancing social interaction while promoting environmental sustainability. Additional passive design strategies—such as overhanging slabs on the south-facing sides and deep-set windows—are informed by extensive environmental analysis, ensuring thermal comfort and energy efficiency. A strong emphasis is placed on material innovation. The structure is built using timber columns, and the walls are insulated with straw, a renewable and locally sourced material. This is made possible by retracting the structural columns away from the facade, allowing the envelope to remain non-load-bearing, thereby enabling lighter and more sustainable construction solutions.



Final design in masterplan context



Strong connections
with important points in Brussels



Connected and cohesive urban space
with shared identity



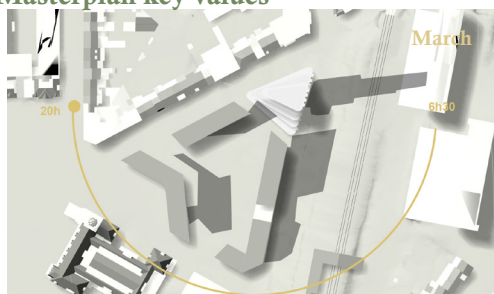
Diversify the program
Promote economic growth



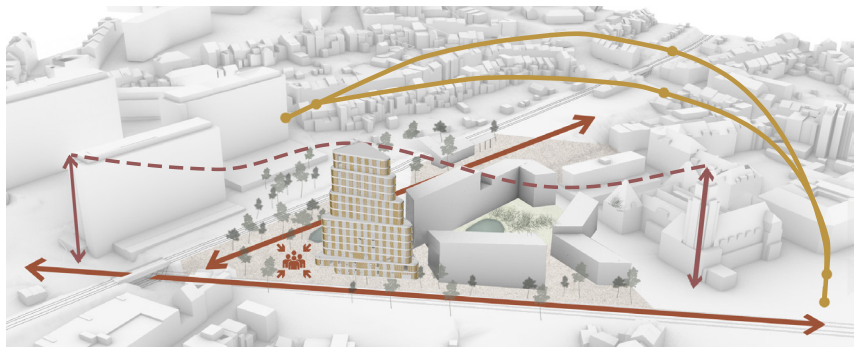
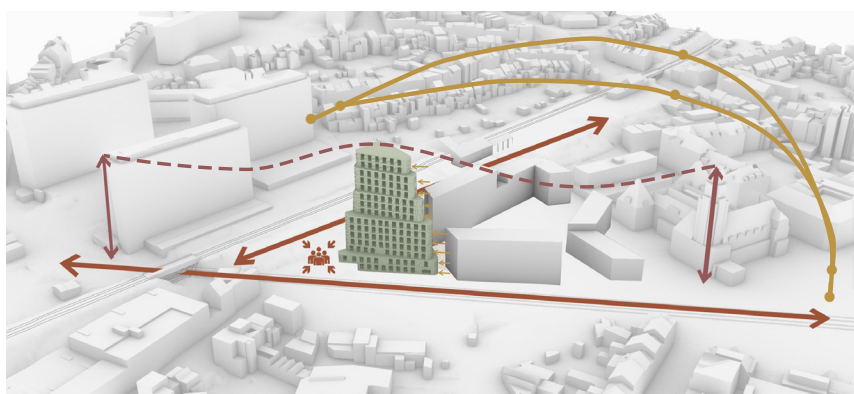
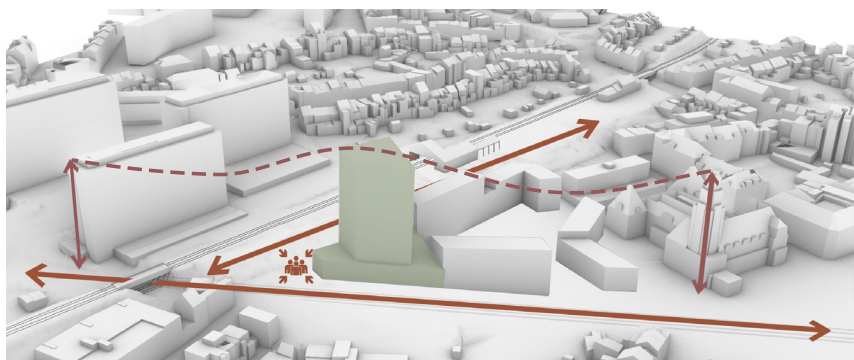
The Self-sufficient City



Masterplan key values



Solar Analysis

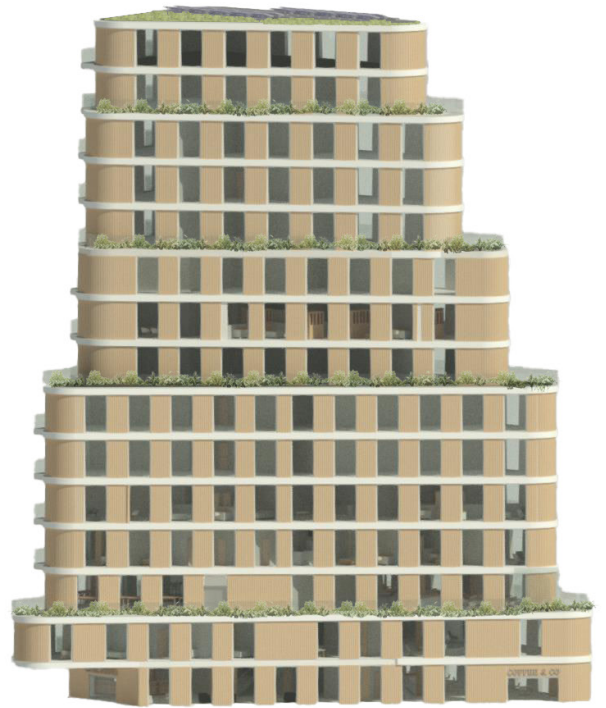


Form-finding

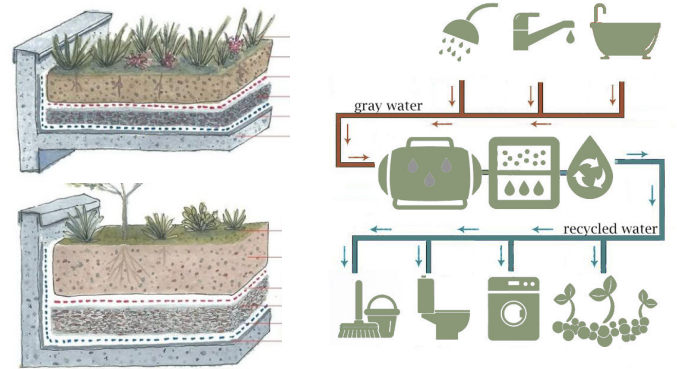


East west section

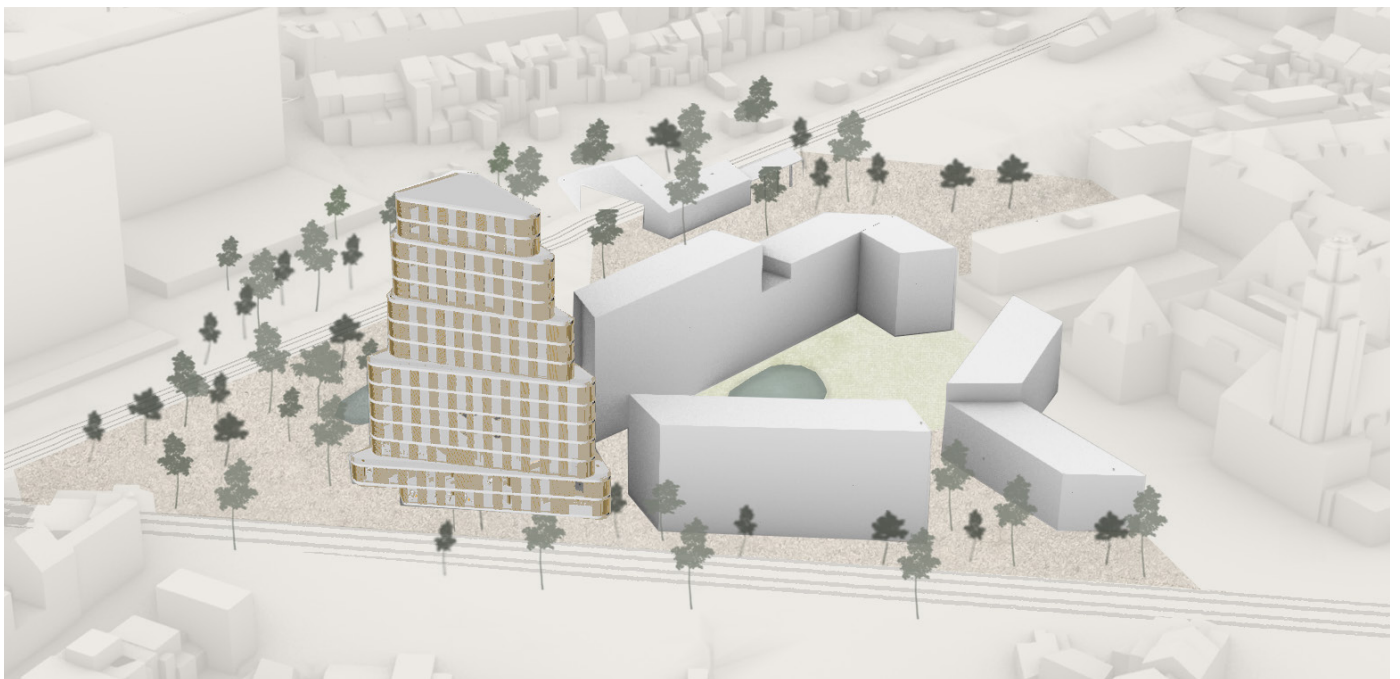
1 : 100



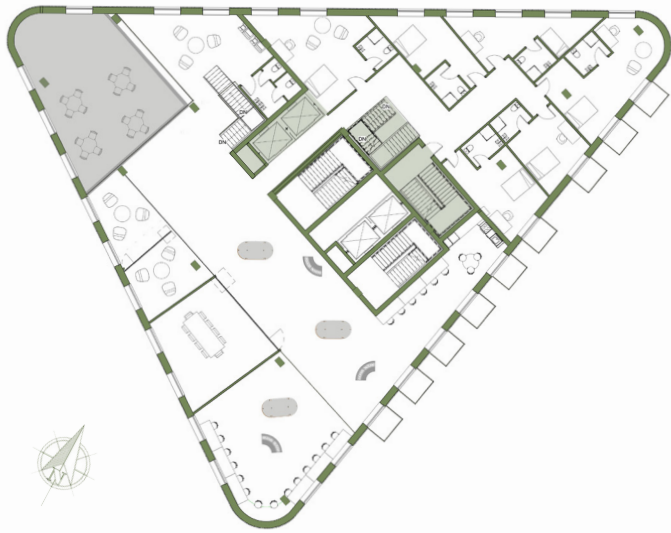
West elevation



Sustainability strategies



Final design in context north view



1st Floor

1 : 100



Cafe & mezzanine interior



2nd Floor

1 : 100



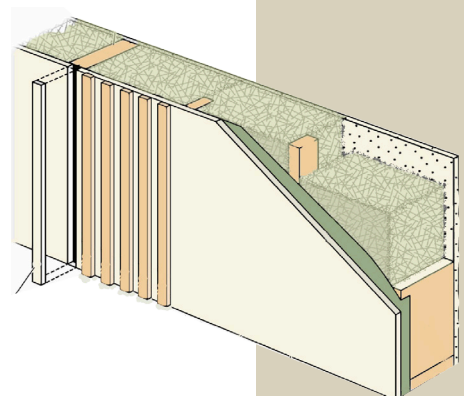
View from hotel kitchen



South East elevation



Detail wall composition



Detail wall composition



3rd Floor

1 : 100



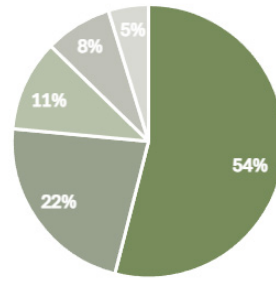
4th Floor

1 : 100



8th Floor

1 : 100



Housing

4492 m², 28 apartments

Hotel

1872 m², 17 hotel rooms

Communal spaces

900 m²

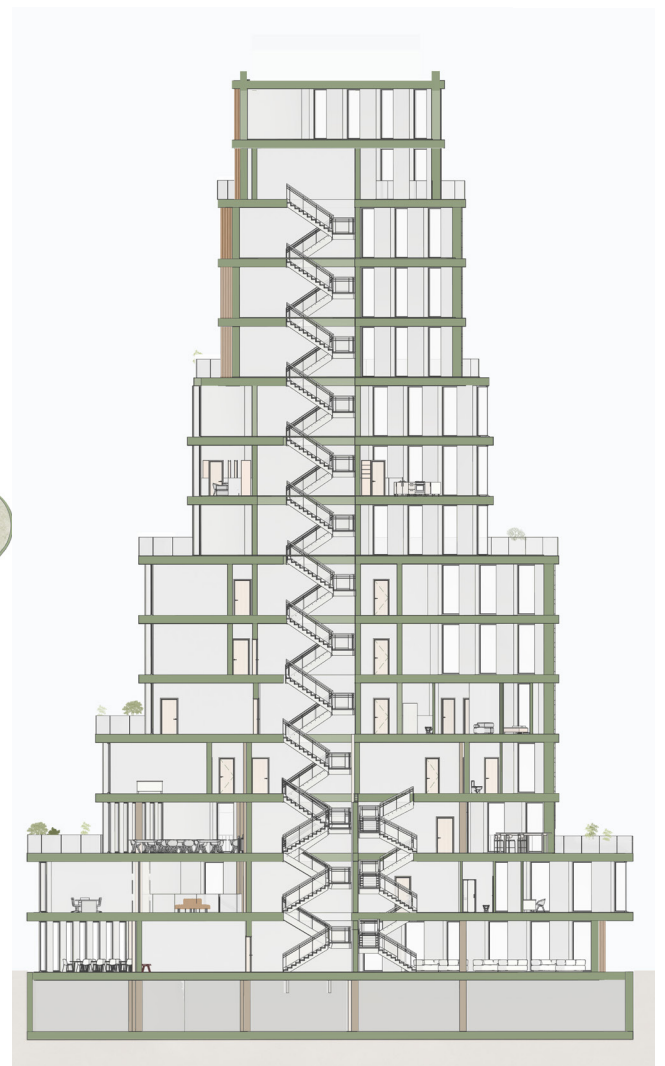
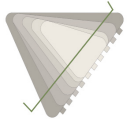
Office spaces

663 m²

Coffeeshop

396 m²

Program division



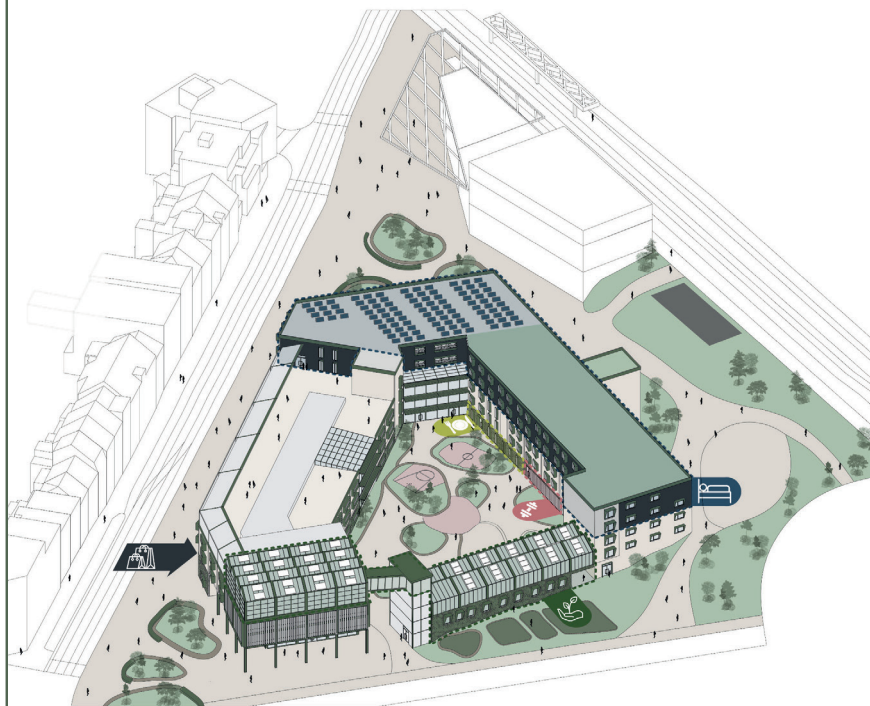
North-South section

1 : 100

08

SYLVA INSTITUT

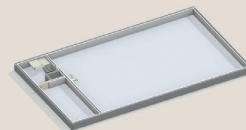
CONCEPT



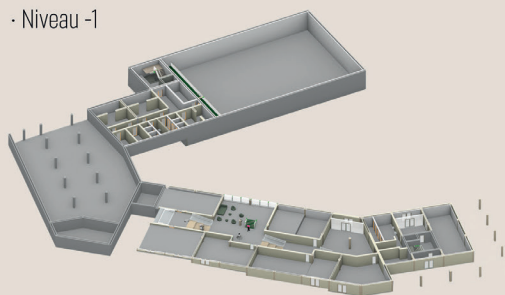
BOARDING SCHOOL 
 HORTICULTURE 
 SPORTS HALL 
 REFECTORY 
 WORKSHOPS 



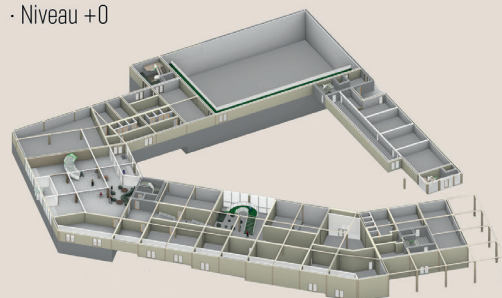
· Niveau -1.5



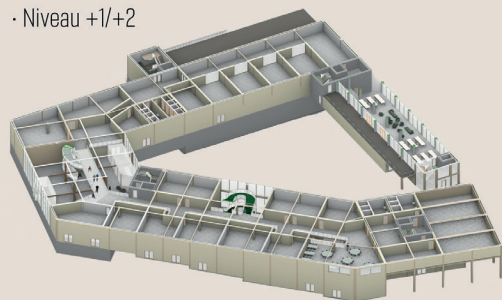
· Niveau -1



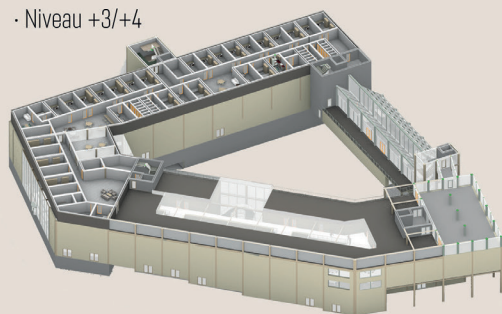
· Niveau +0

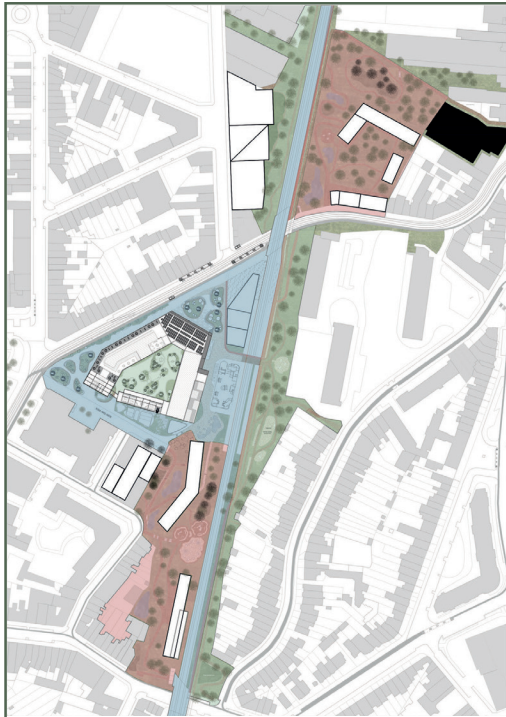


· Niveau +1/+2



· Niveau +3/+4





MASTERPLAN

- RESIDENTIAL AREA
- MULTIMODAL HUB
- QUALITATIVE PUBLIC (GREEN) SPACE

Sylva Institut - Learning to live with nature

Located in the heart of Forest's green triangle, the Sylva Institut is more than a high school; it is a living ecosystem where education, sustainability and community spirit come together. This innovative design is an example of how architecture can create social impact.

From the first pencil line, low density was chosen to give valuable public green spaces back to the neighborhood. This idea of "bartering" with the community is deeply woven into the DNA of the project: the gymnasium, refectory, greenhouses and even the studios are accessible to local residents—which makes the infrastructure usable 24/7.

Sustainability is not only in the program, but also in the physical construction of the building. Passive ventilation through solar chimneys, daylighting through strategically placed skylights, and a design that follows the natural relief of the site ensure a healthy indoor environment without wasting energy. The materialization underscores this ethos: walls made of straw bales, lime plaster, burnt wood, terrazzo from onsite waste, and even foundations that use shells instead of cement. Each element testifies to conscious, circular choices.

These ambitions are also translated into the program: 50% general education, 20% boarding, 6% horticulture, and 24% green space. The latter is not treated as residual space, but as an integral learning and living area. The greenhouses—both on the roof and on the playground—and the southern communal garden make food production a daily reality for students.

The Sylva Institut is a response to urgent social and ecological challenges. Not by shouting loudly, but by coherently and with integrity building a living environment in which young people learn to care-for themselves, each other and the planet.

PROFILES



Alex
14 year
Forest

A student at Sylva Institut, actively engaged in our inspiring horticultural classes.



Bob
17 year
Brussels

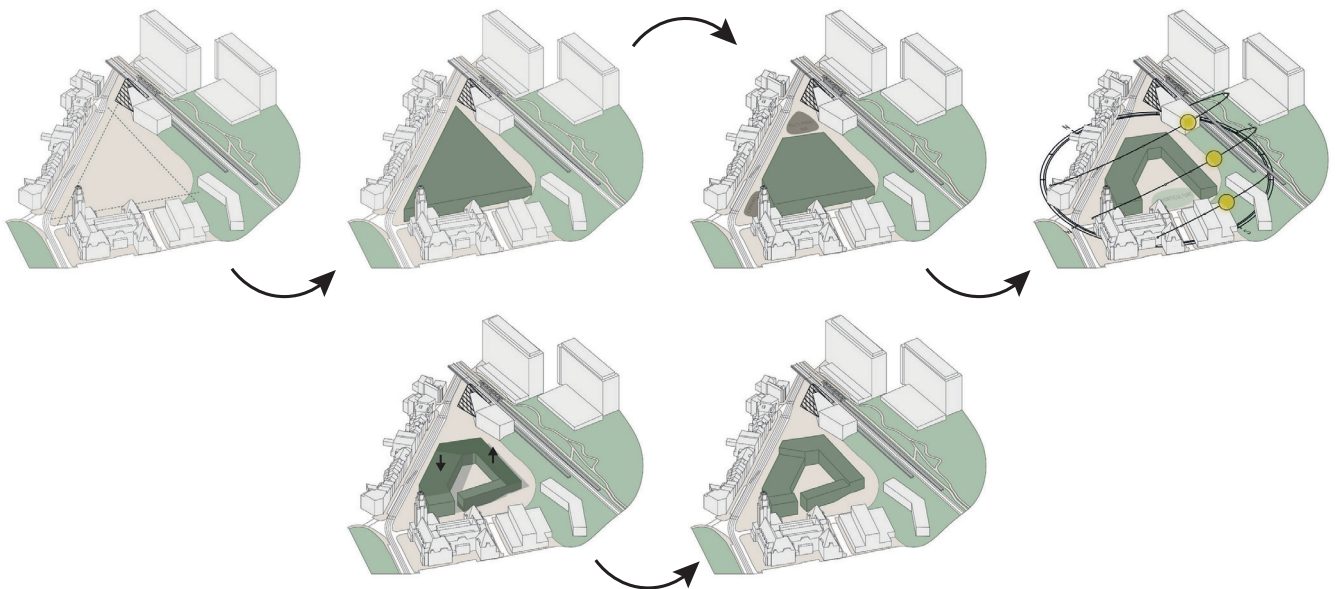
A student at Sylva Institut, taking part in our boarding school — for the journey, but above all for the unique experience.



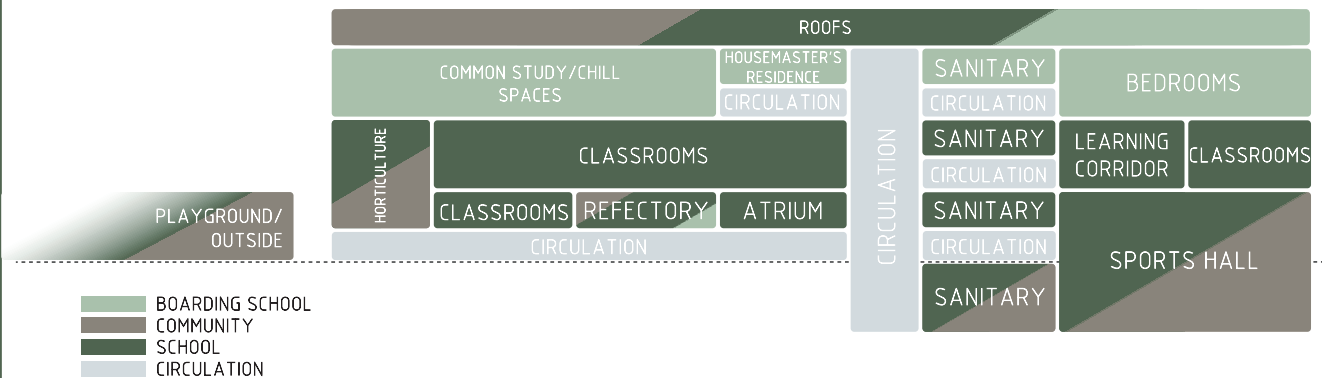
Sandra
32 year
Forest

A Forest resident who enjoys the shared spaces at Sylva Institut — open to the community even after school hours.

FORM FINDING



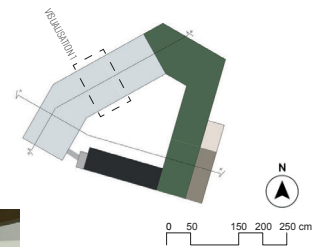
PROGRAM



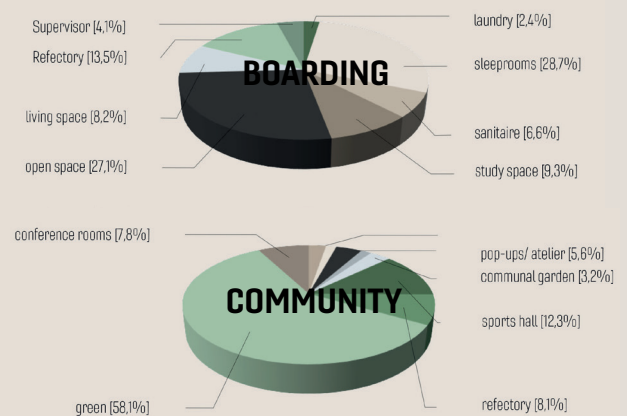
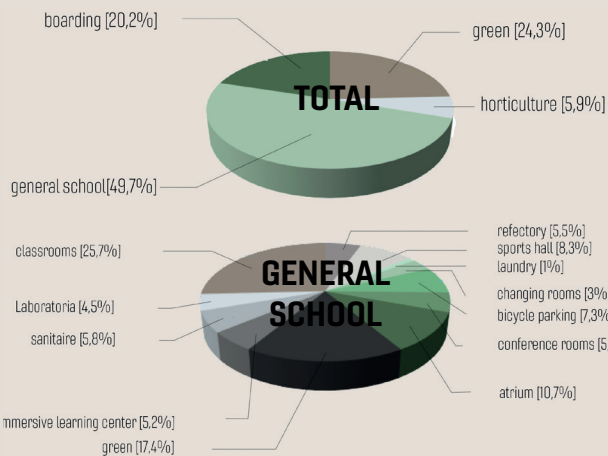
FLOORPLANS BASE LEVEL



SECTION BB'

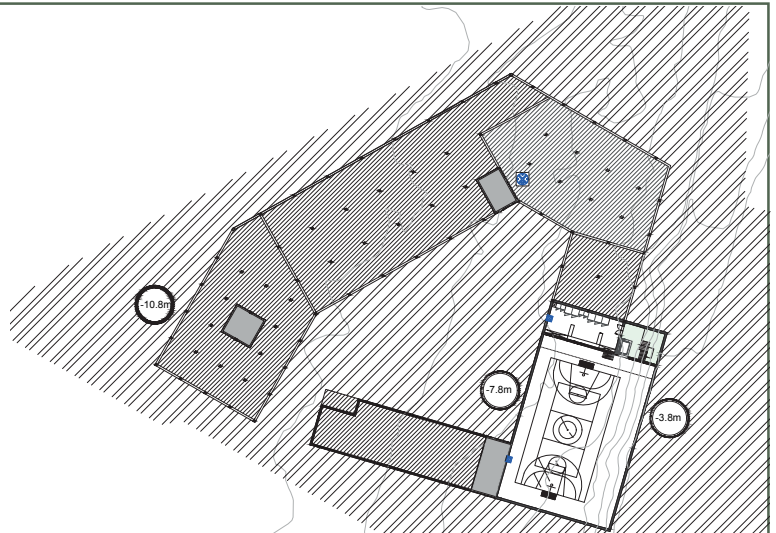
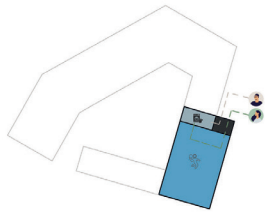


CIRCULATION FOLLOWING NATURAL SLOPE...

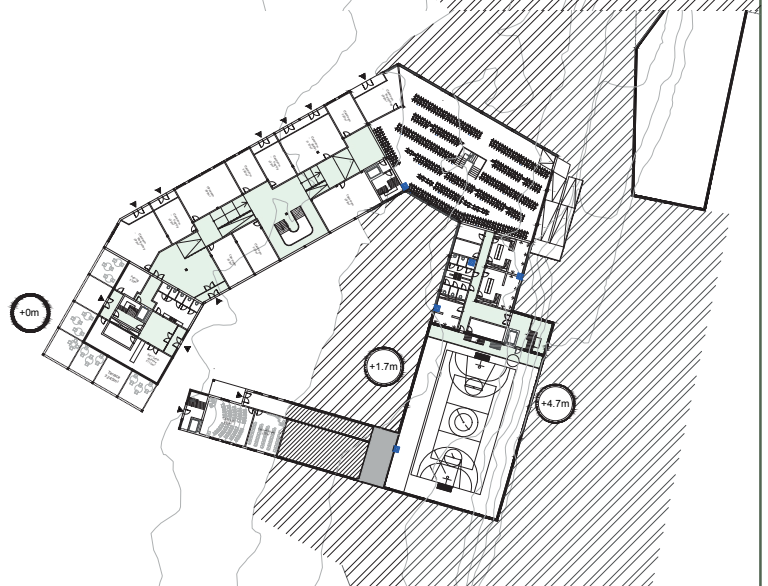
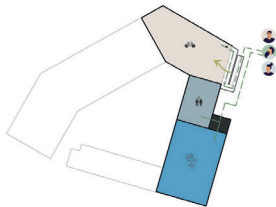


FLOORPLANS

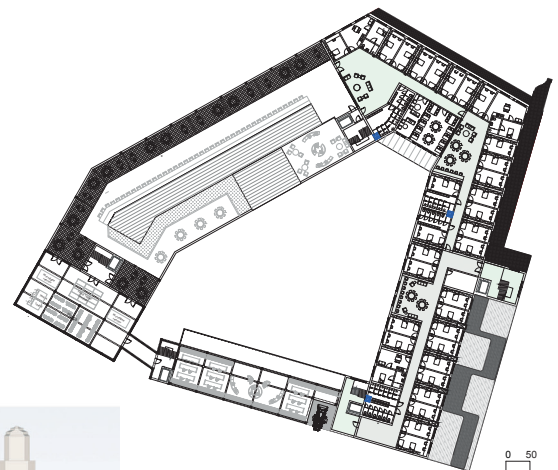
LEVEL -1.5



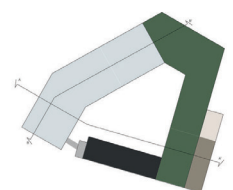
LEVEL -1



LEVEL +3/+4

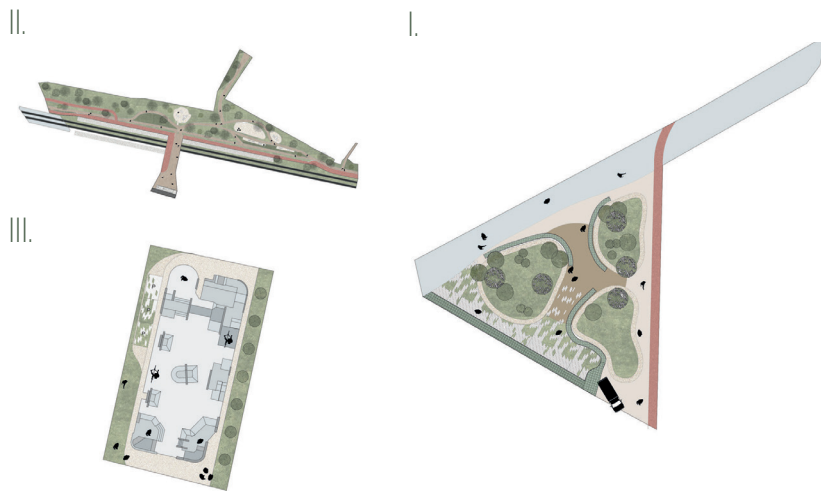
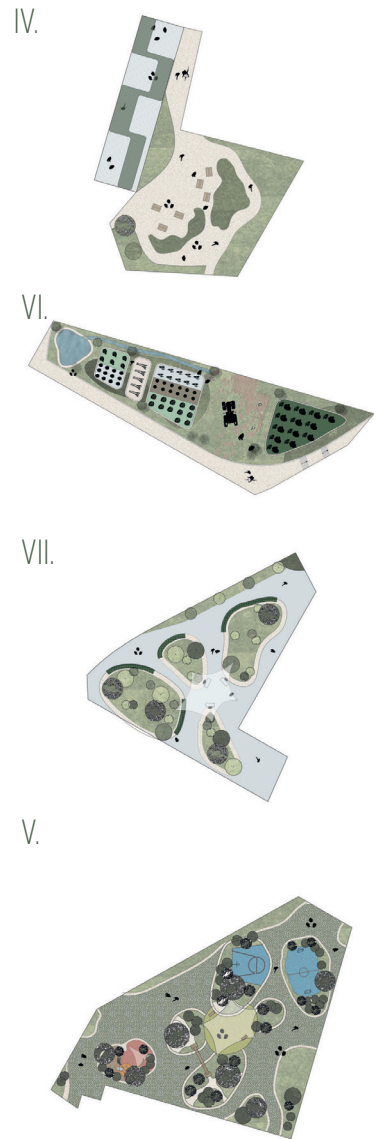
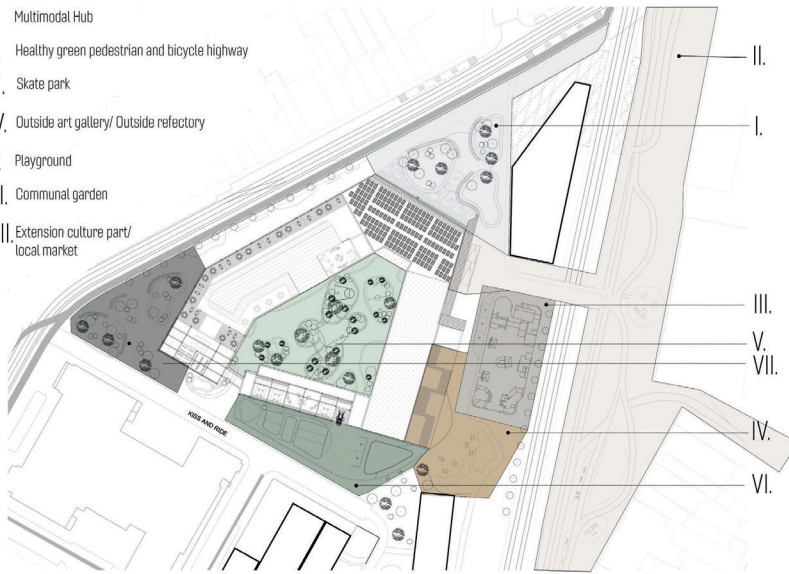


SECTION AA'

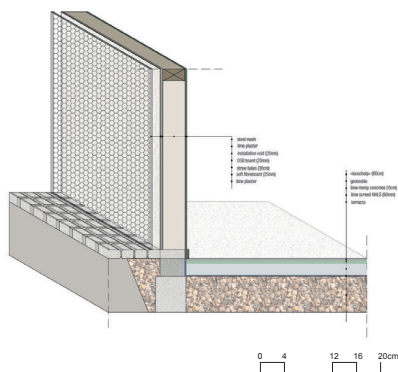


OUTSIDE ACTIVITIES

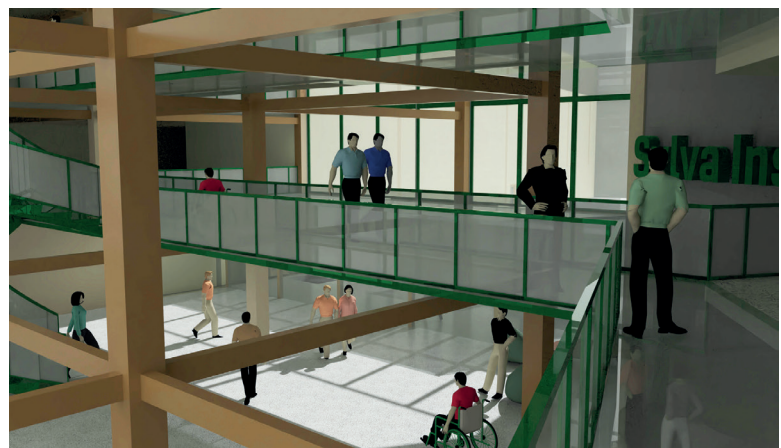
- I. Multimodal Hub
- II. Healthy green pedestrian and bicycle highway
- III. Skate park
- IV. Outside art gallery/ Outside refectory
- V. Playground
- VI. Communal garden
- VII. Extension culture part/ local market



TECHNICAL DETAIL FOUNDATION - WALL

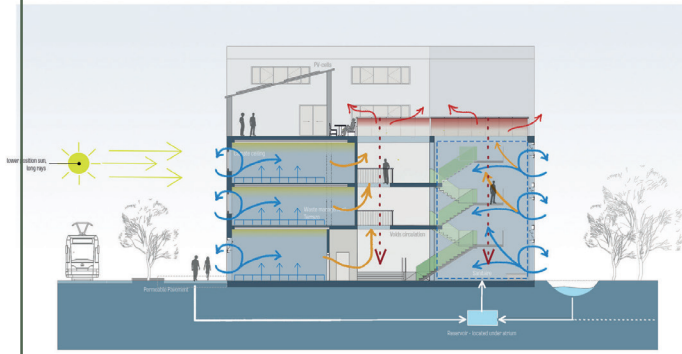


A VIEW FROM INSIDE THE ATRIUM...



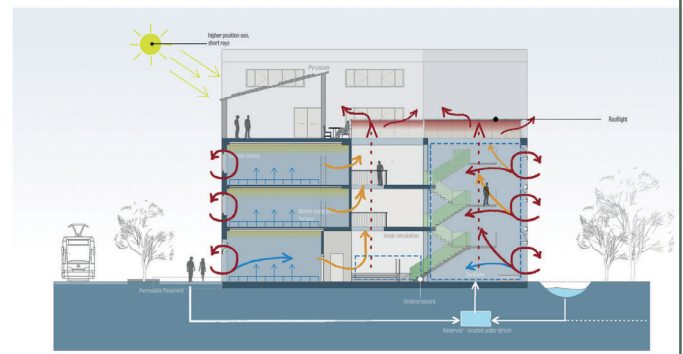
SUSTAINABLE STRATEGIES

WINTER



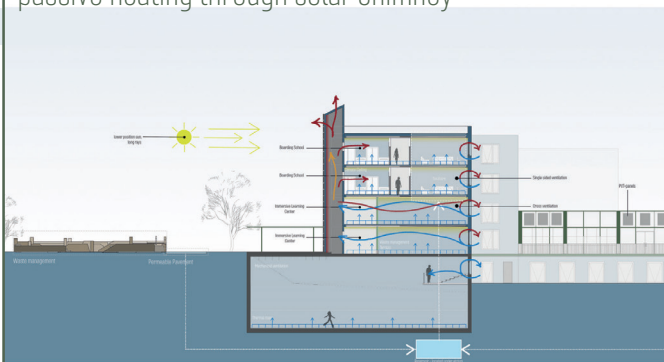
Sustainable section 1

SUMMER



WINTER

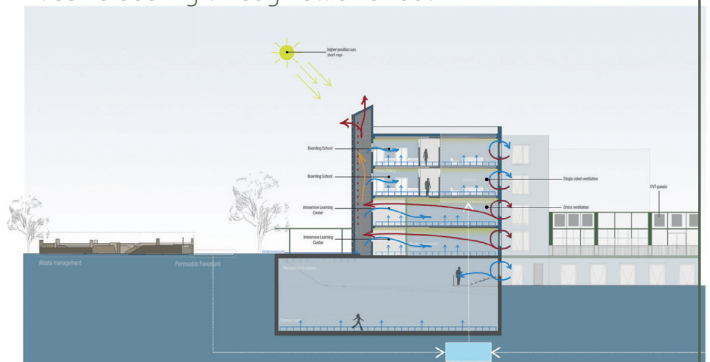
passive heating through solar chimney



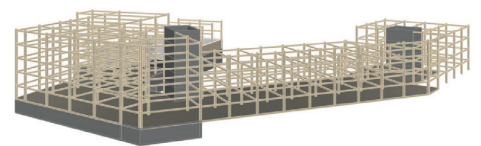
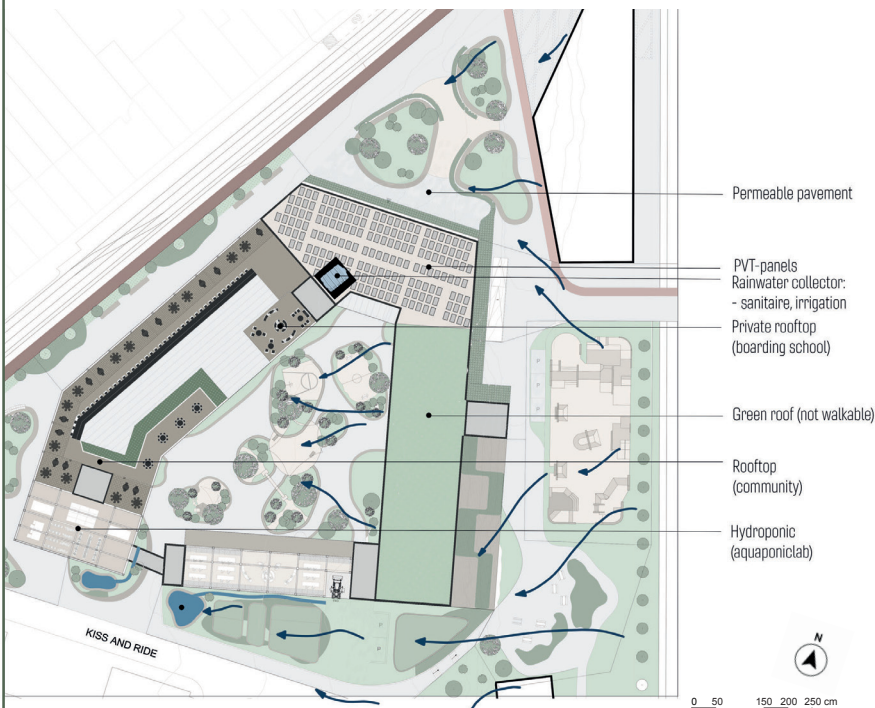
Sustainable section 2

SUMMER

Passive cooling through stack effect



WATER MANAGEMENT



SUSTAINABLE ARCHITECTURE DESIGN STUDIO, MA-1
BRUFACE - ULB + VUB - 2024/2025