ARCHITECTURE STUDENT CONTEST

20th INTERNATIONAL EDITION, NORD ISÈRE 2025

MEMBERS BOARD

Egyptian Team, ***#29001***

Cairo University, Faculty of Engineering, Department of Architecture

Team Leader
Shahd Dergham

Team Member
Sandy Moris

Team Member
Fatma Ehab

Teacher
Prof. Dr. Mohsen Aboulnaga

Presents…

GREEN NEXUS

ARCHITECTURE STUDENT CONTEST

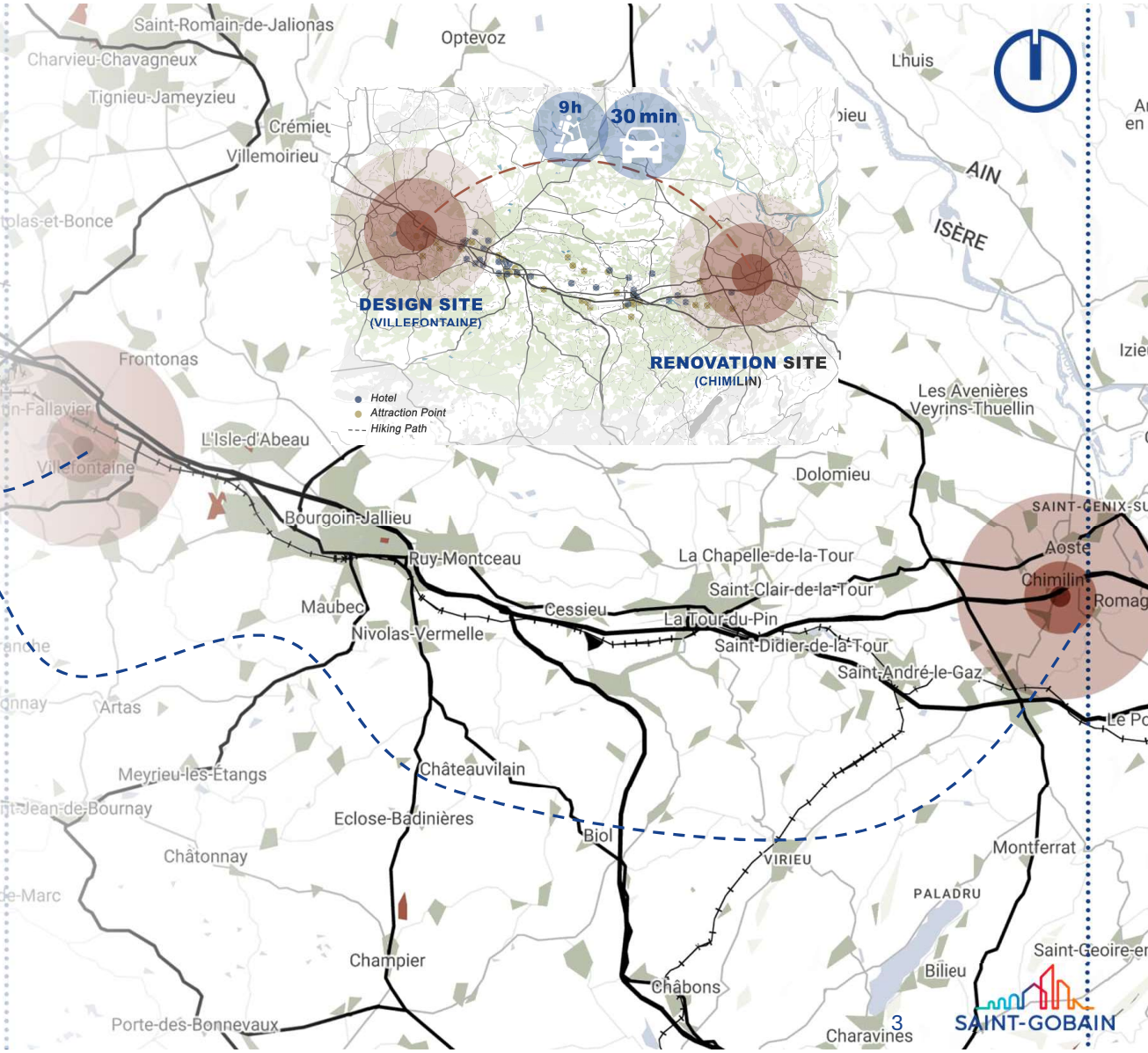
MACRO SCALE ANALYSIS

Nord Isere , Isere, France

VILLEFONTAINE
Les Grands Ateliers

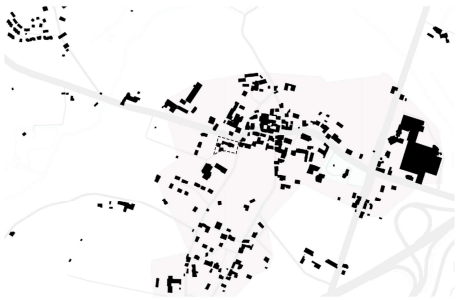
CHIMILIN

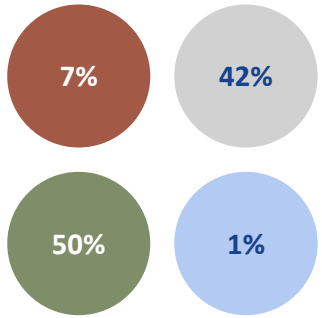
The Nord-Isère site enjoys excellent connectivity via the A43 motorway, SNCF rail, and bus networks, with easy access to Lyon, Grenoble, and Chambéry. It lies in a semi-rural, flat area surrounded by light industry, research zones, and open agricultural land—ideal for modular design. Nearby landmarks include educational institutions, green spaces, and historic towns, while Lyon-Saint Exupéry Airport ensures international reach.



MICRO SCALE ANALYSIS

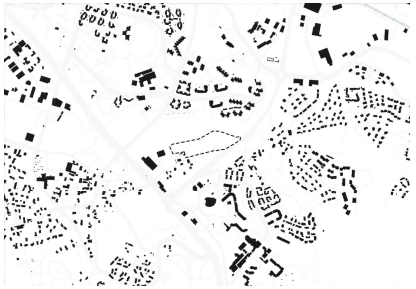
Chimilin, Renovation Site

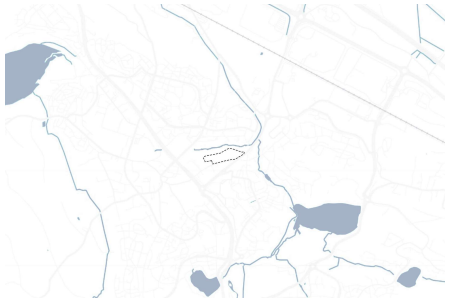


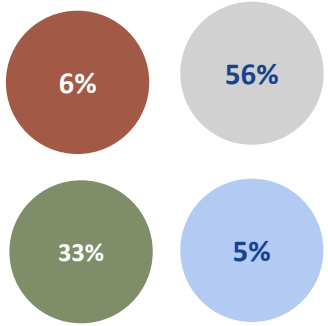


Roads & Urban Fabric Mass ***Greens & Landscape*** ***Water Networks***

Villefontaine, Design Site



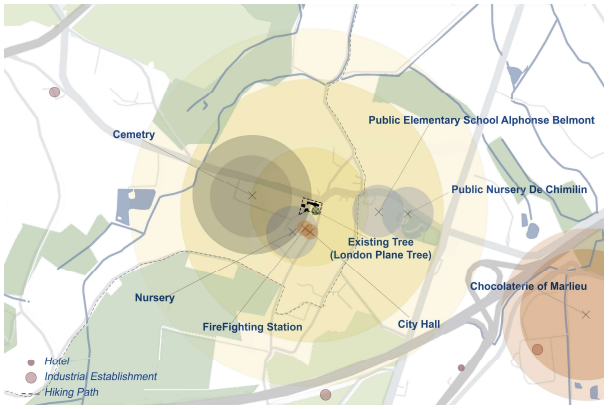


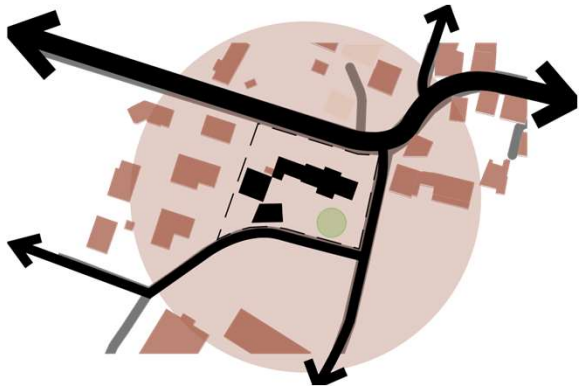


Roads & Urban Fabric Mass ***Greens & Landscape*** ***Water Networks***

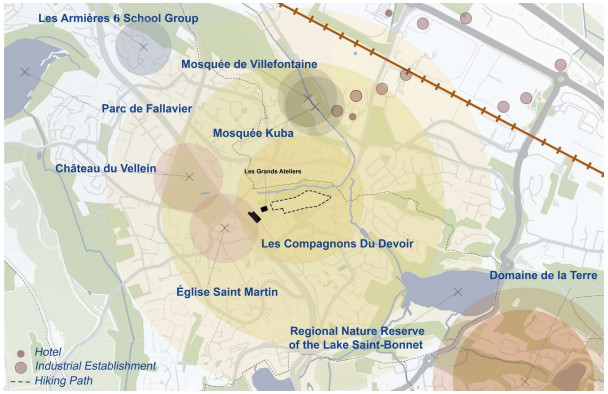
MICRO SCALE ANALYSIS

Chimilin, Renovation Site



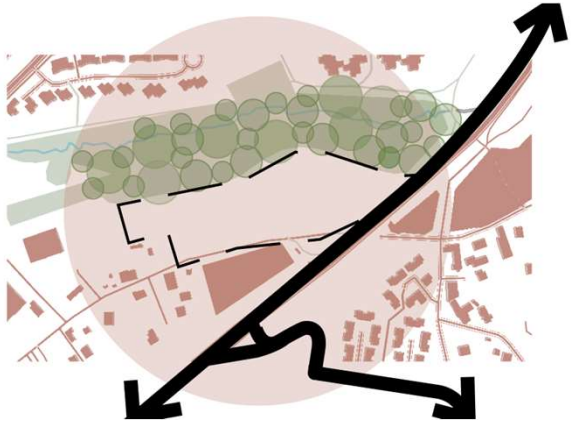


Les Grands Ateliers, Villefontaine, Design Site



Landmarks

Accessibility & Transportation

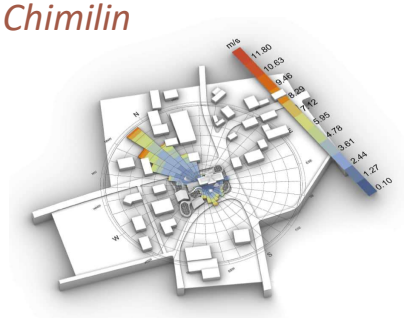


Road Networks

CLIMATIC PERFORMANCE ANALYSIS & SIMULATION

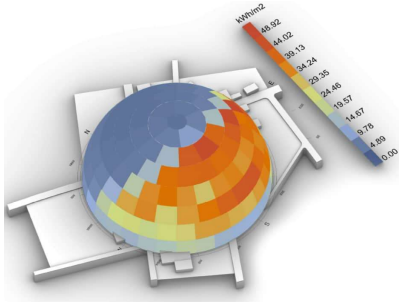
Grasshopper Environmental Simulations - **LYON**

Chimilin



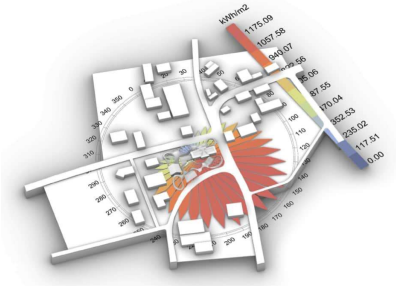
Windrose

Country: France
Time: 0:00 to 23:59
Calm for 9.07% of
Duration = 356 Hrs.



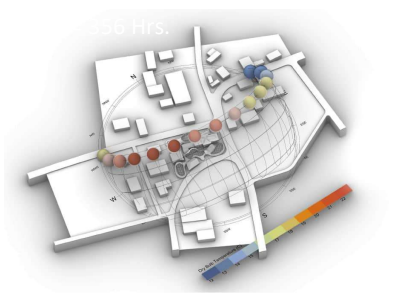
Radiation Dome

Country: France
Period: 1 Jan - 31 Dec
Time: 0:00 to 23:59



Radiation Rose

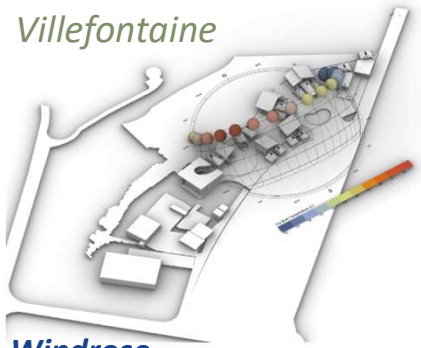
Country: France
Period: 1 Jan - 31 Dec
Time: 0:00 to 23:59



Dry Bulb Temperature & Sun Path

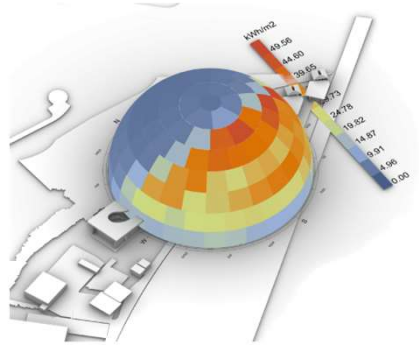
Country: France

Villefontaine



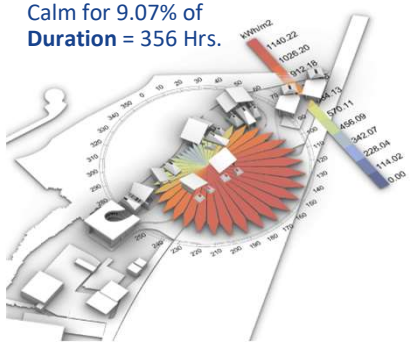
Windrose

Country: France
Time: 0:00 to 23:59
Calm for 9.07% of
Duration = 356 Hrs.



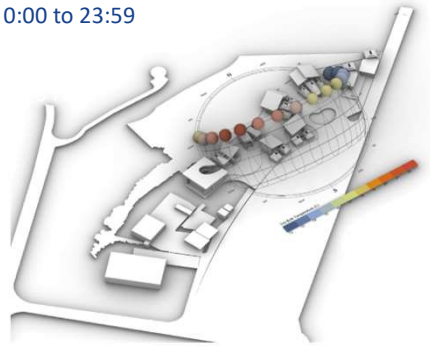
Radiation Dome

Country: France
Period: 1 Jan - 31 Dec
Time: 0:00 to 23:59



Radiation Rose

Country: France
Period: 1 Jan - 31 Dec
Time: 0:00 to 23:59



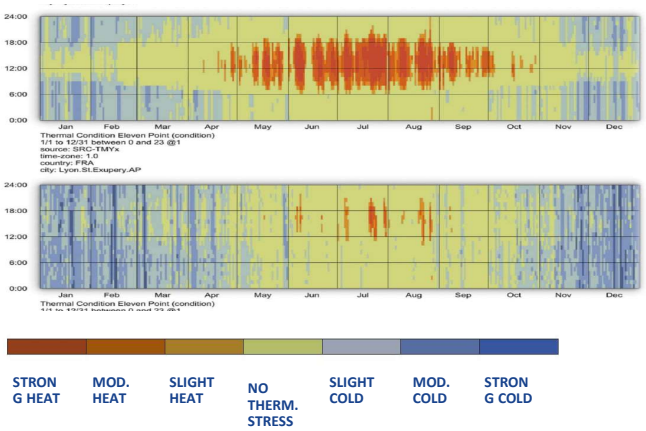
Dry Bulb Temperature & Sun Path

Country: France

CLIMATIC PERFORMANCE ANALYSIS & SIMULATION

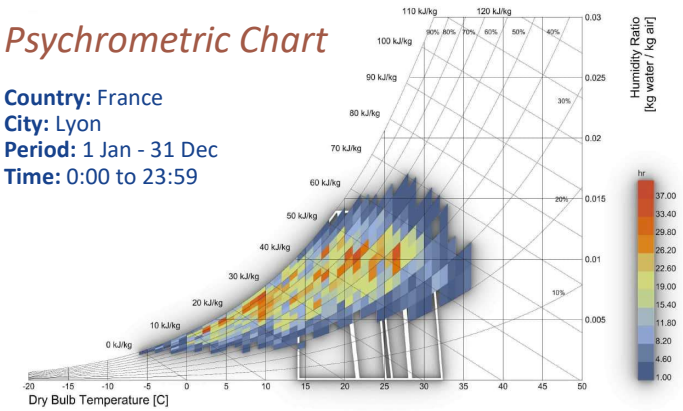
Grasshopper Environmental Simulations - **LYON**

Outdoor Thermal Comfort

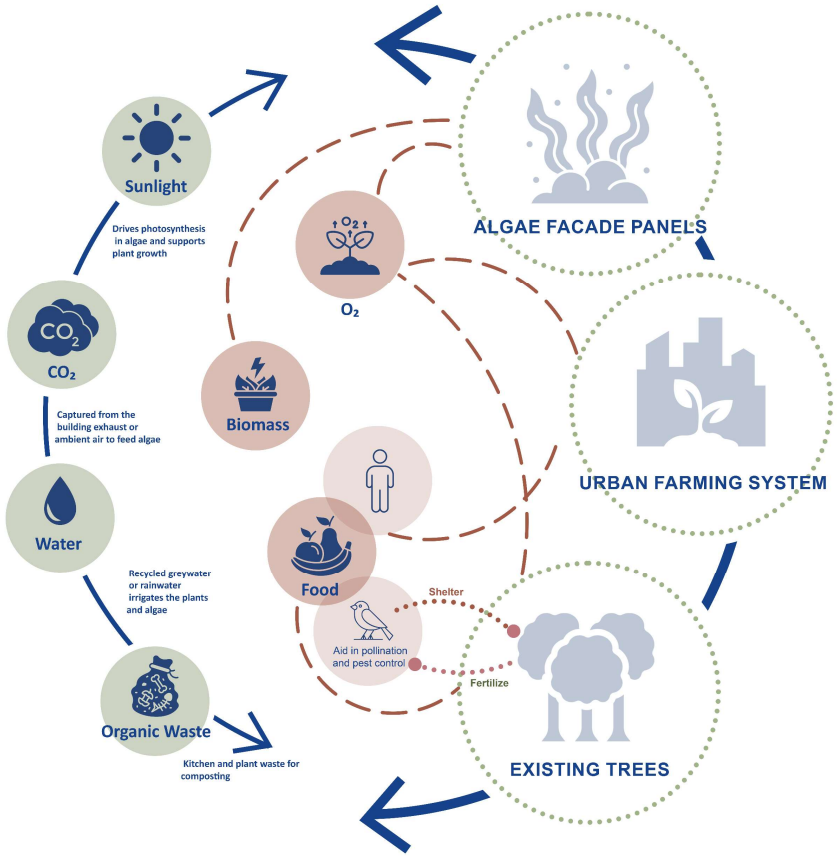


Psychrometric Chart

Country: France
City: Lyon
Period: 1 Jan - 31 Dec
Time: 0:00 to 23:59



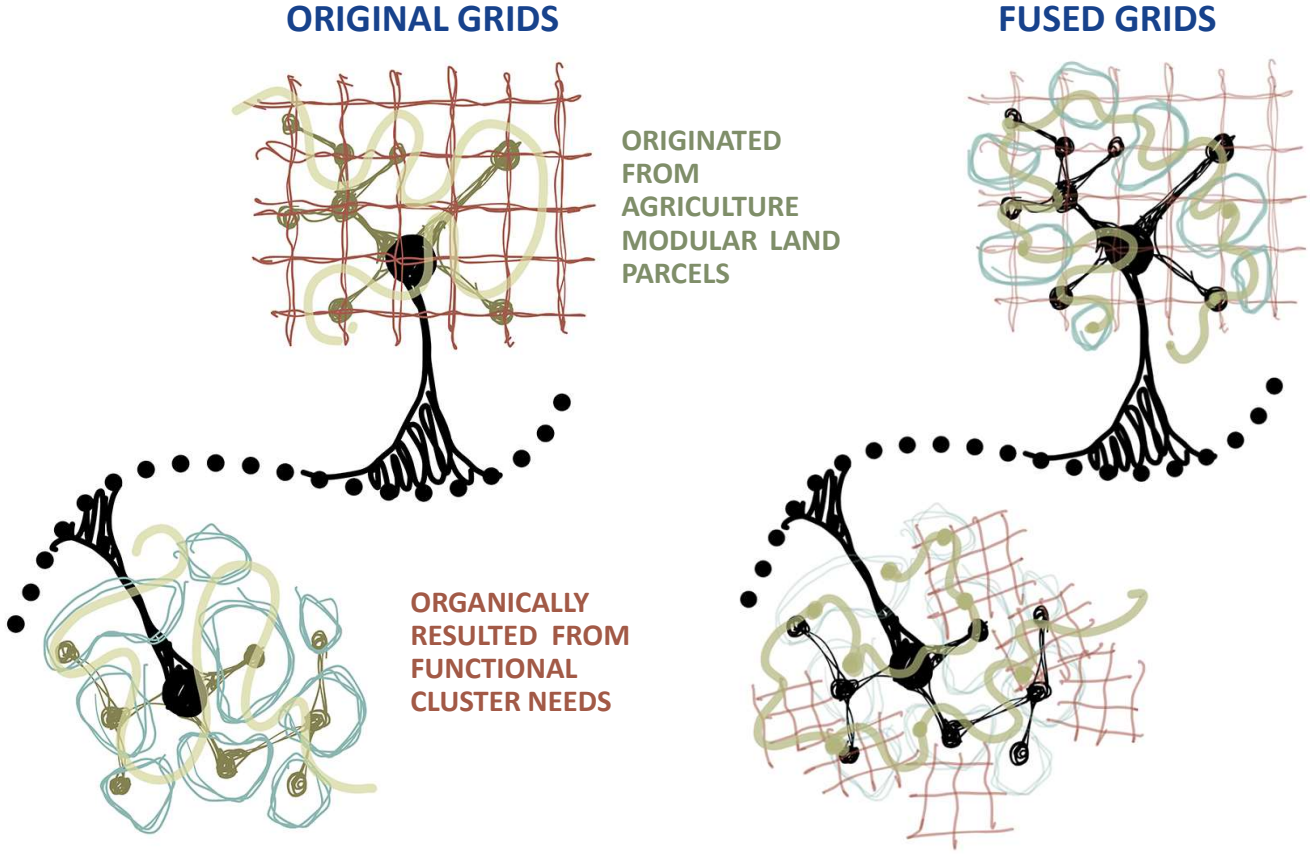
Circular Economy



SITE CONNECTION

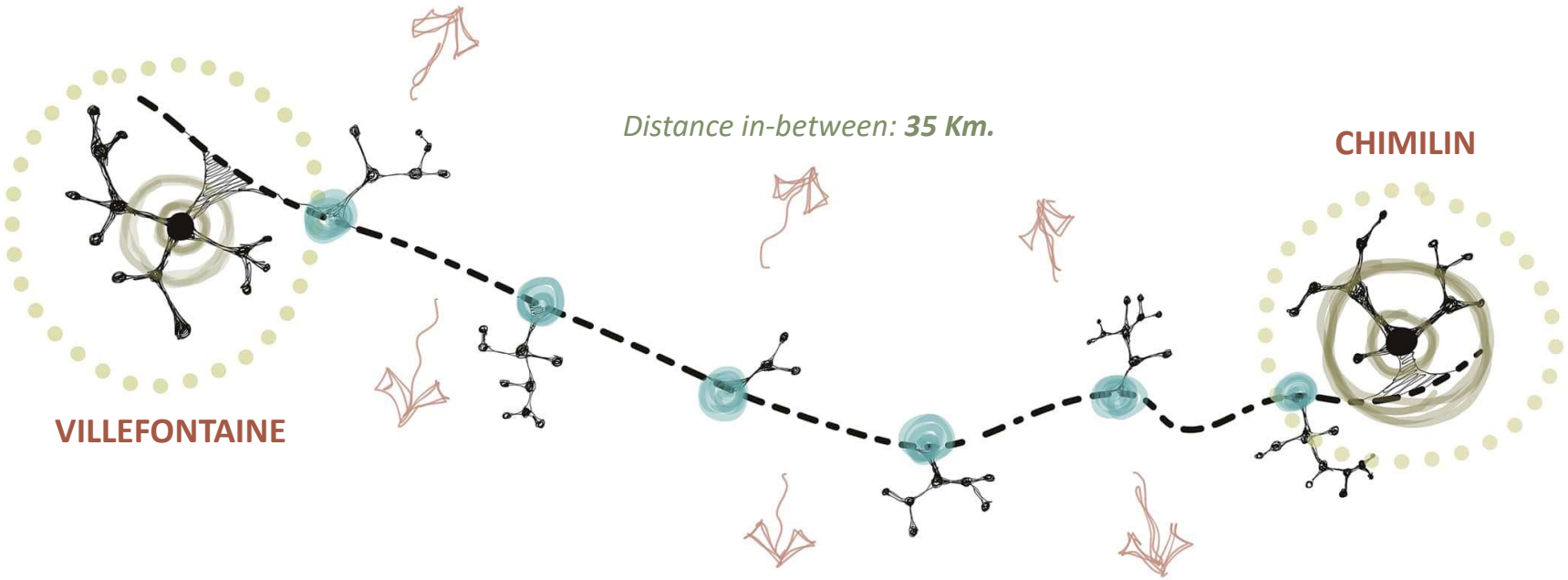
*Mutual synergies between **Site to Design** & **Site to Renovate***

We fused two spatial logics — the modular, heritage agricultural grid of Chimilin, and the organic innovation of Villefontaine into one regenerative system. A connective green spine bridges them across 35 km, forming a living network of people, places, and ideas — like the neural pathways of the human brain model.



MUTUAL ACTIVE SYNERGIES

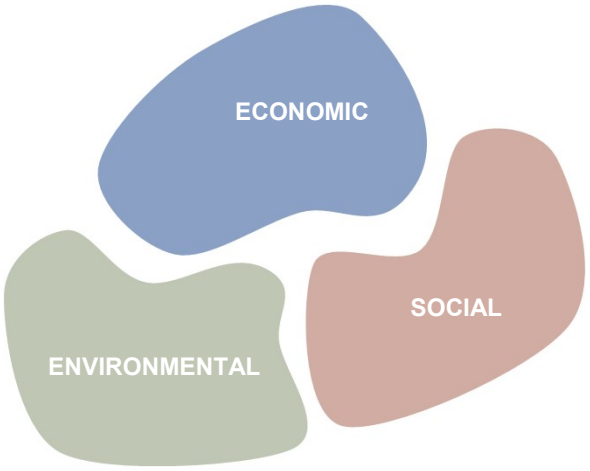
*Mutual synergies between **Site to Design** & **Site to Renovate***

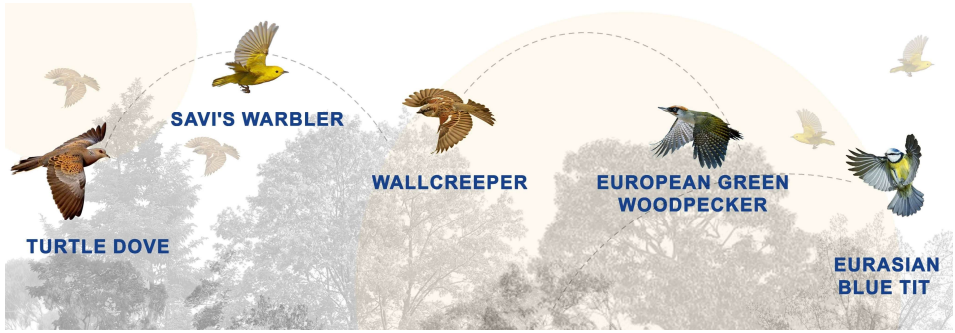


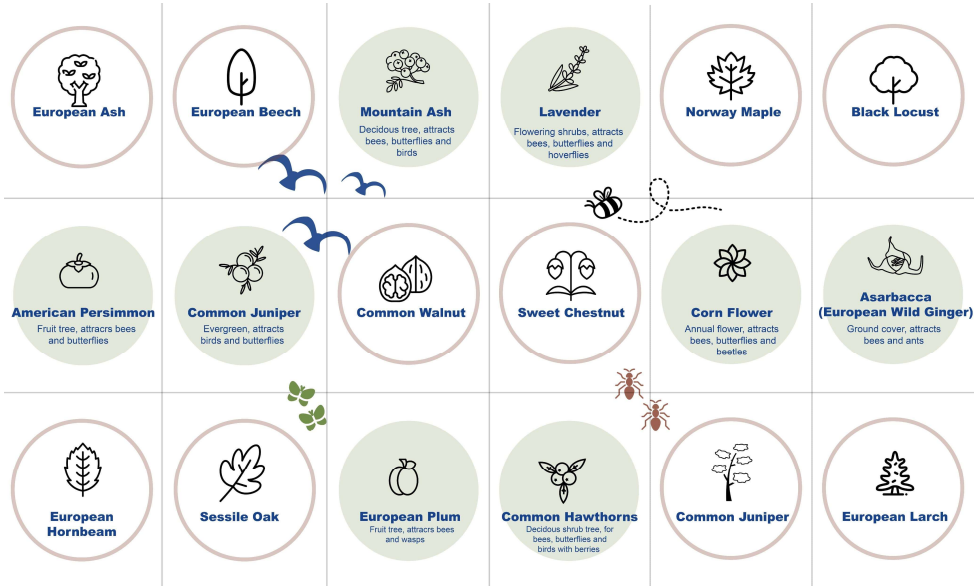
Along a connective spine of vibrant community nodes, our proposal weaves social, economic, and environmental synergies — nurturing surrounding zones and building both physical and philosophical bonds within the metropolitan influence of Lyon

BIODIVERSITY RESTORATION

*Targeting Original **Fauna** through Creating Certain **Flora***



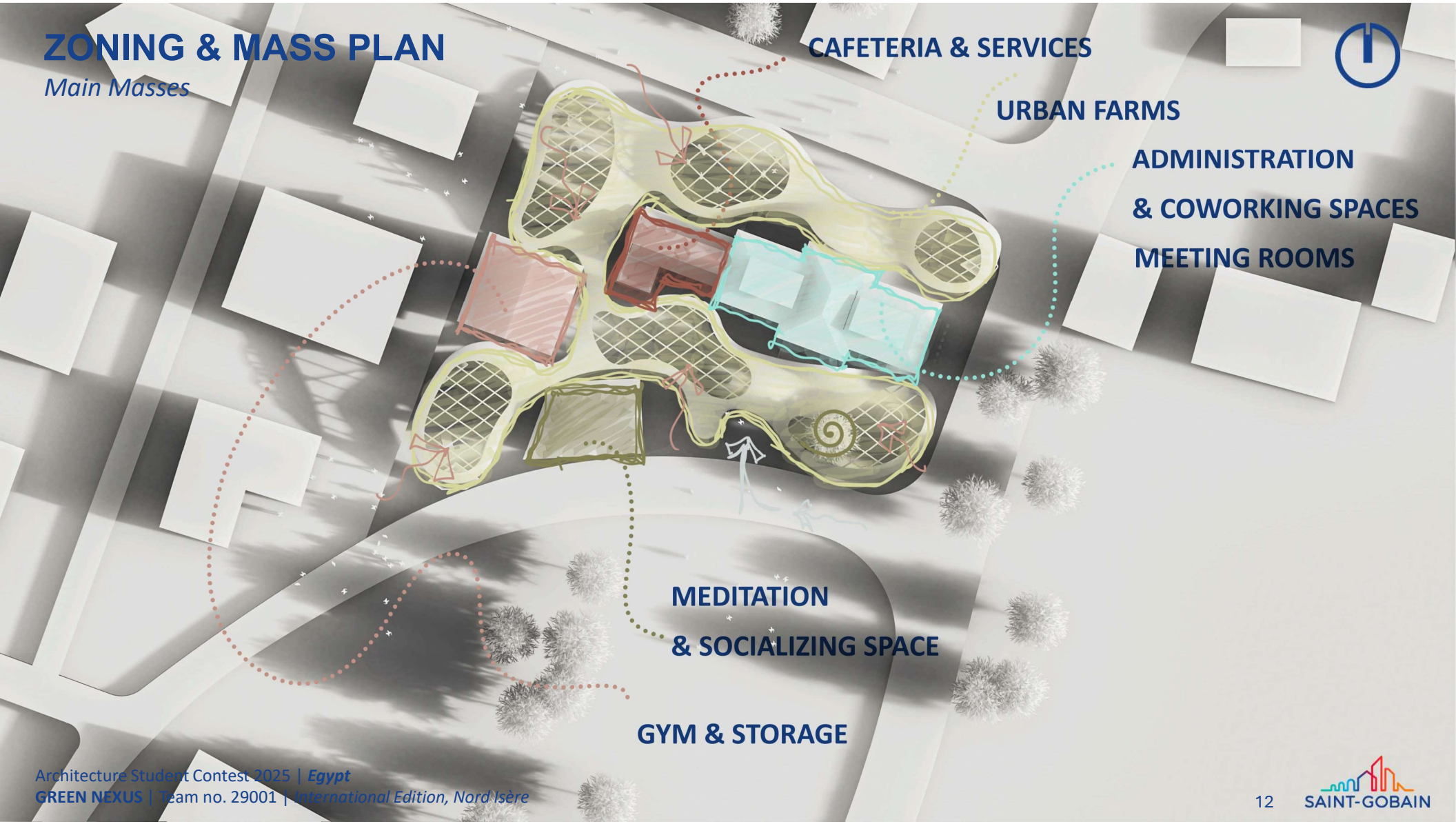





1 CHIMILIN
SITE TO RENOVATE

ZONING & MASS PLAN

Main Masses

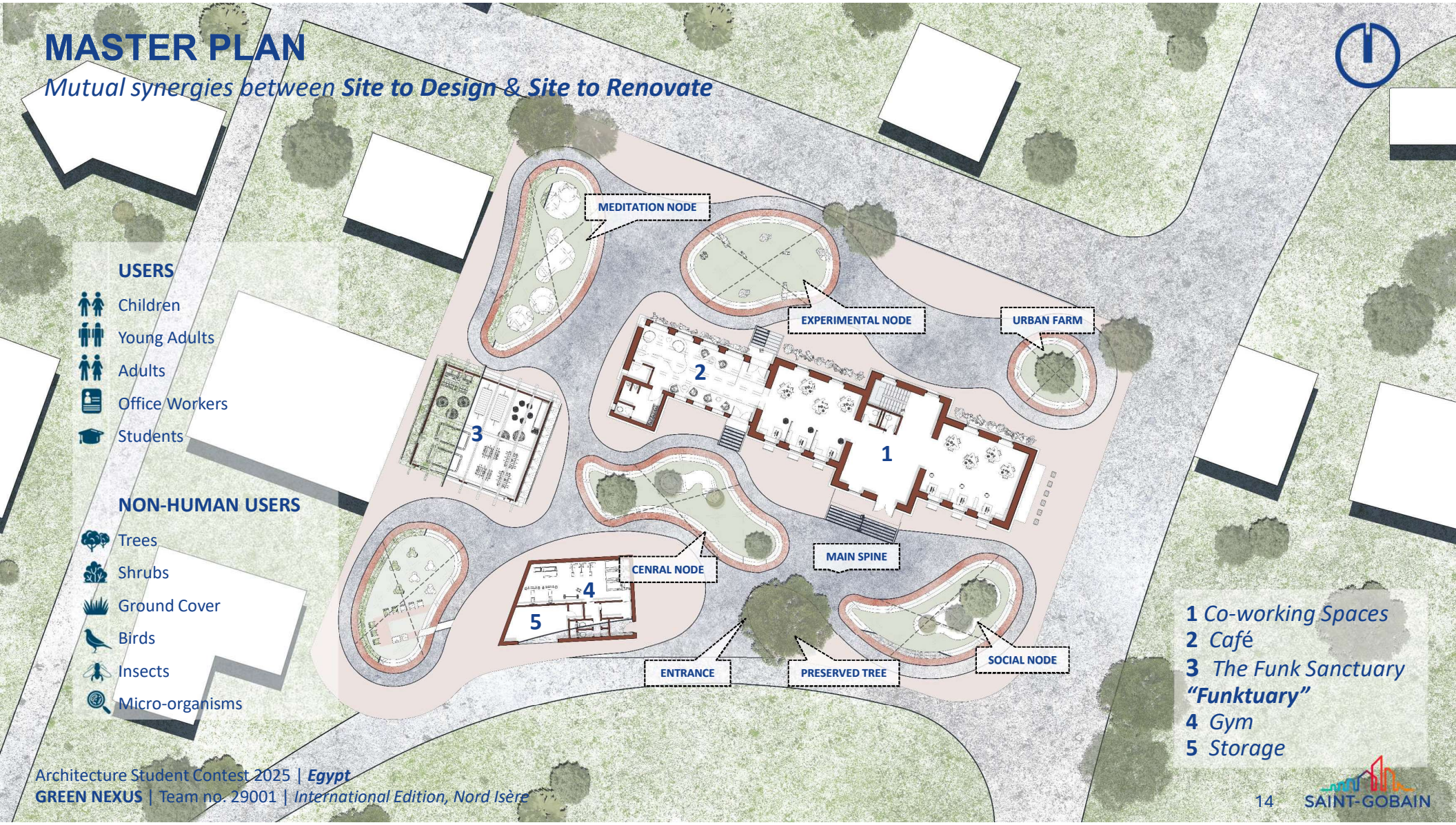


3D GENERIC MODEL

Original Functions Restored

MASTER PLAN

*Mutual synergies between **Site to Design** & **Site to Renovate***



USERS

- Children
- Young Adults
- Adults
- Office Workers
- Students

NON-HUMAN USERS

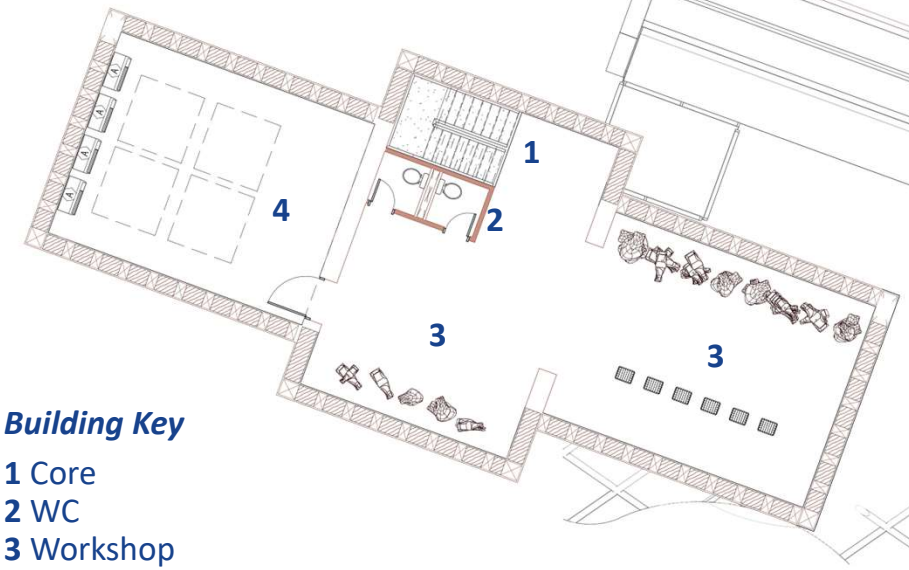
- Trees
- Shrubs
- Ground Cover
- Birds
- Insects
- Micro-organisms

1 *Co-working Spaces*
2 *Café*
3 *The Funk Sanctuary* ***"Funktuary"***
4 *Gym*
5 *Storage*

PLANS

Other Plans Renovation & Re-design

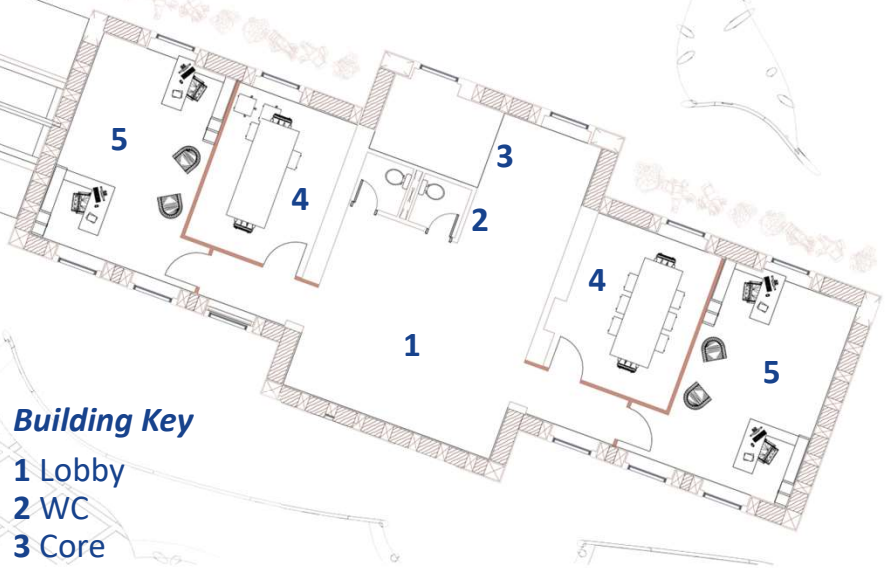
Basement Floor Plan



Building Key

1 Core
2 WC
3 Workshop
4 Machine Room

First Floor Plan

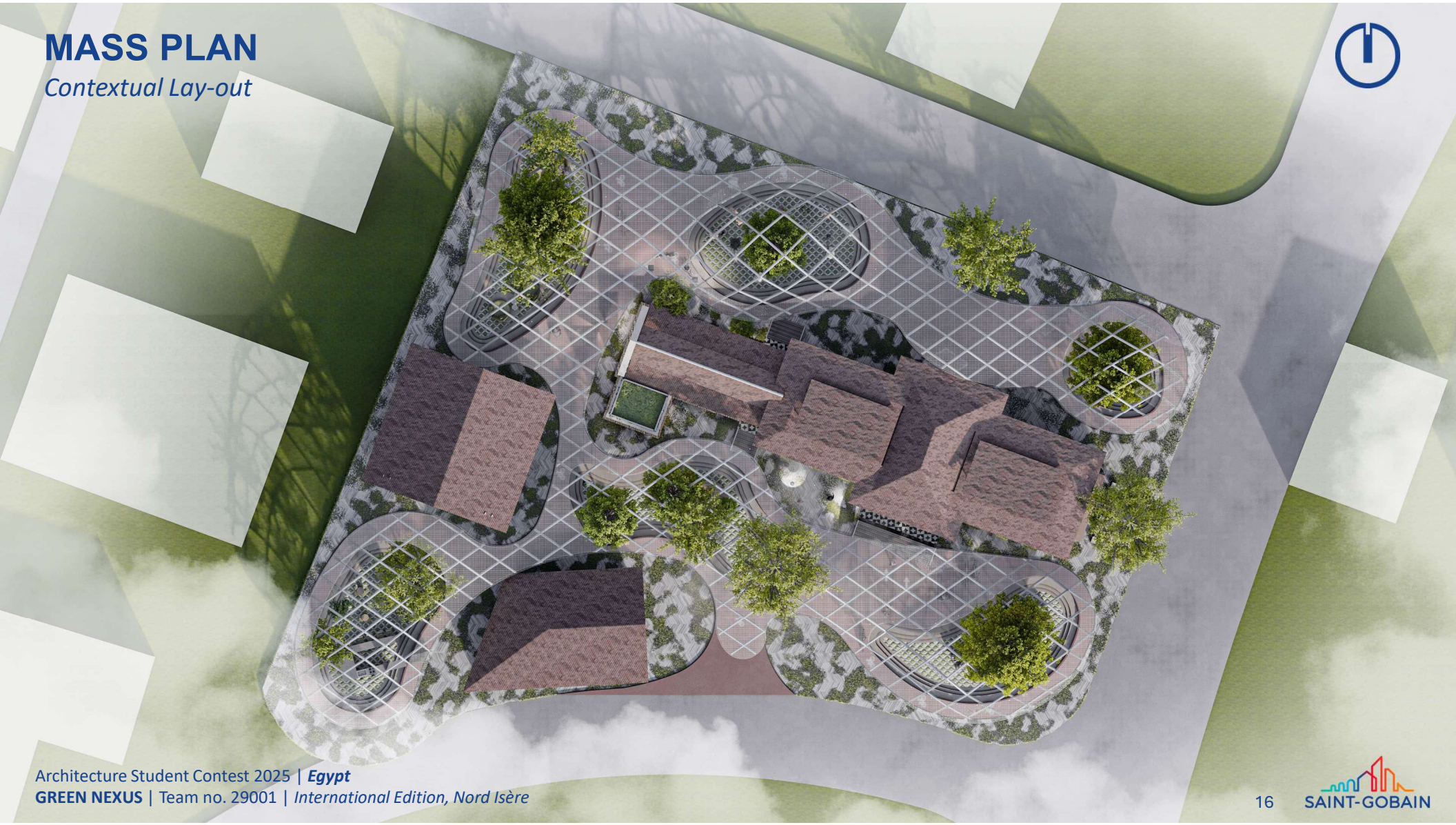


Building Key

1 Lobby
2 WC
3 Core
4 Meeting Room
5 Office

MASS PLAN

Contextual Lay-out



ACTION PLAN

Renovation Situation Strategy

Demolished

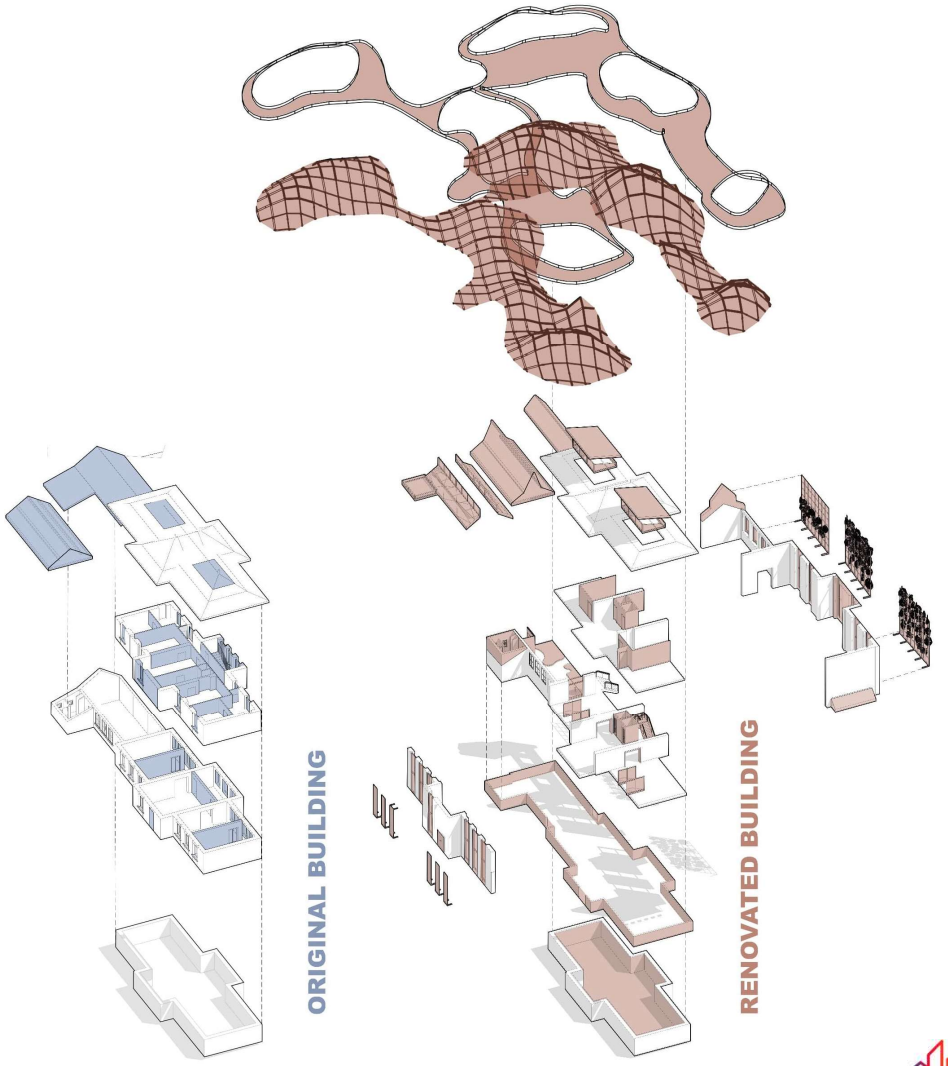
The building's transformation preserved its identity while enhancing sustainability — damaged roof parts and walls were recycled, internal walls and the staircase were removed for flexibility, and openings were upgraded with high-performance glass. Some old materials were reused on-site in a symbolic crafts project.

Existing

The existing skin and structural systems were maintained as much as possible to hold true to the building's identity and to reduce the carbon ootprint of the renovation process by reusing those elements

New

The renovation introduced clerestory windows and high-performance glazing to enhance daylight and energy efficiency, while reshaping the roof and adding a new footing for structural resilience. Recycled steel frames support smart facades: one with crafted shading panels, the other with a green wall system. A textile station revives local weaving heritage, and a flowing contemporary shed connects both sites, uniting tradition with innovation.

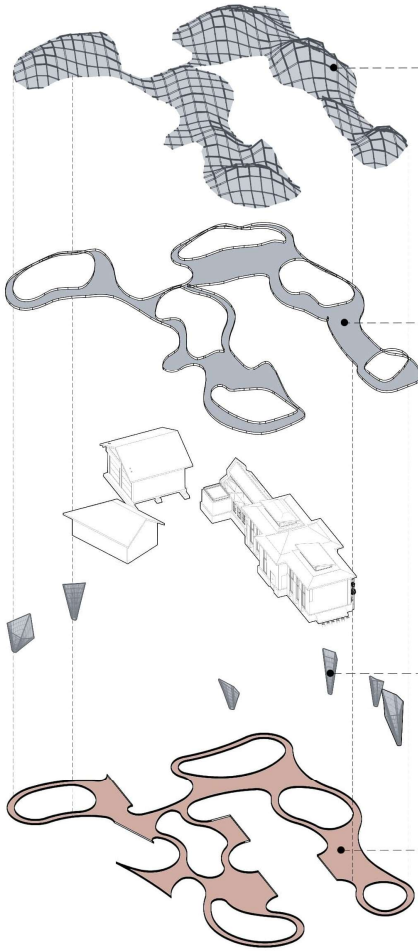


STRUCTURE ANALYSIS

With Live 3D Experience

Architecture Student Contest 2025 | ***Egypt***
GREEN NEXUS | Team no. 29001 | *International Edition, Nord Isère*

Structure Analysis



GRID SHELL SHED STRUCTURE
Distributes loads efficiently through curvature; provides structural stiffness with minimal material

SHED FORMWORK
Acts as a surface for weather protection or cladding; may also carry some dead loads to the structure below

TAPERED COLUMNS
Primary vertical load-bearing elements transferring shed loads to the ground

ORGANIC BASE
Supports the vertical loads from above may also act as a mat foundation or base slab

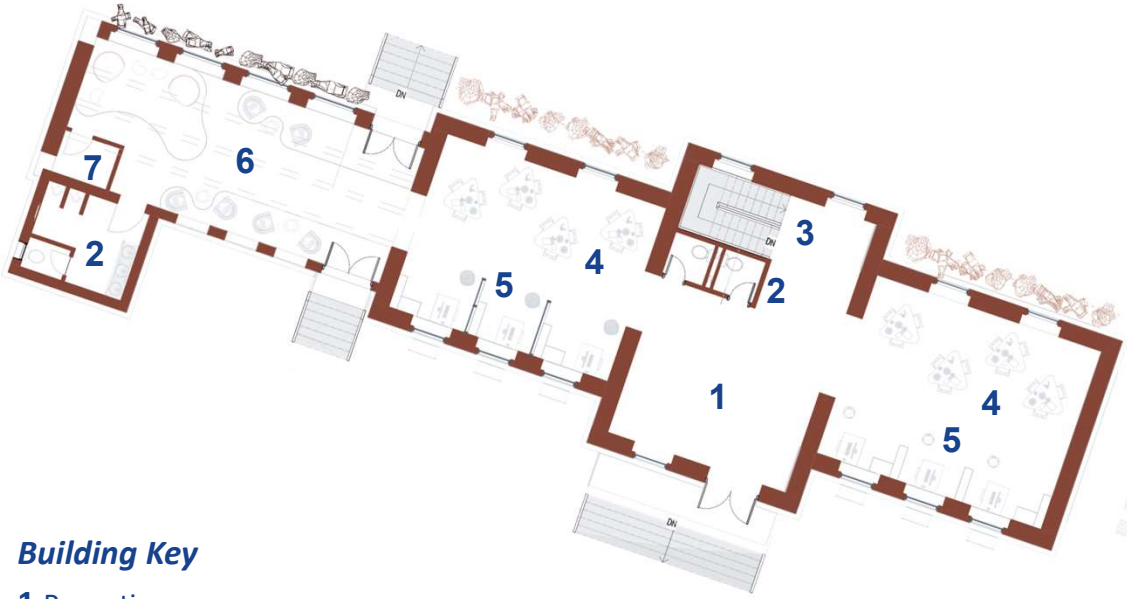
SAINT-GOBAIN


FAÇADE STRATEGIES
GREEN WALLS

BUILDING PLANS

Coworking Spaces & Cafe

Architecture Student Contest 2025 | ***Egypt***
GREEN NEXUS | Team no. 29001 | *International Edition, Nord Isère*



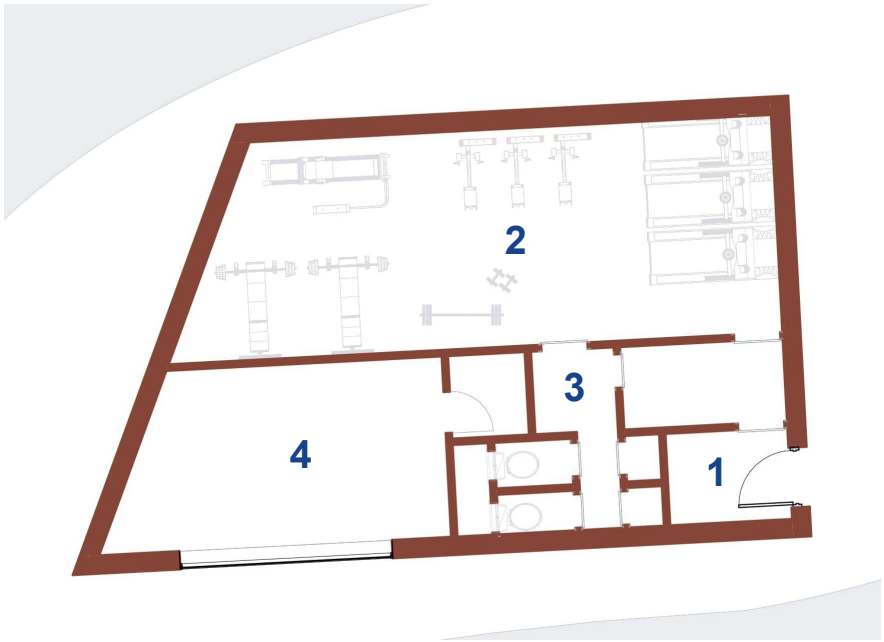
Building Key

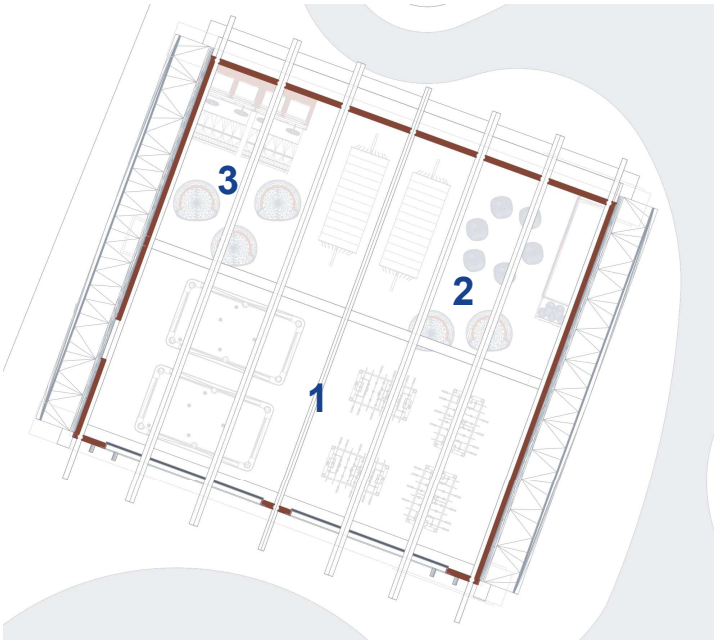
1 Reception
2 WC
3 Core
4 Group Co-working Spaces
5 Individual Co-working Spaces
6 *Café*
7 Services

SAINT-GOBAIN

GROUND FLOOR PLANS

Gym and Storage/ The Funktuary Building





Building Key

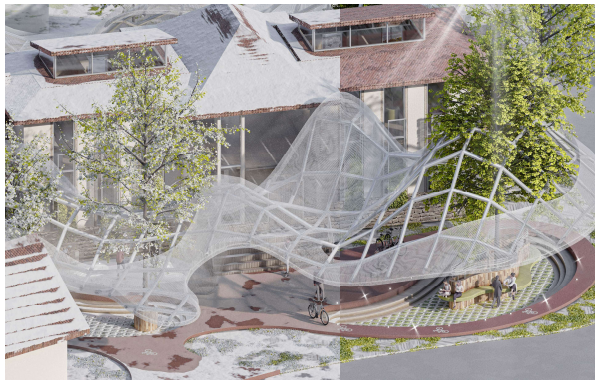
1 Changing Rooms and Lockers
2 Training Area
3 Bathrooms
4 Storage

Zones Key

1 Physical Games
2 Socializing Zone
3 Virtual Games

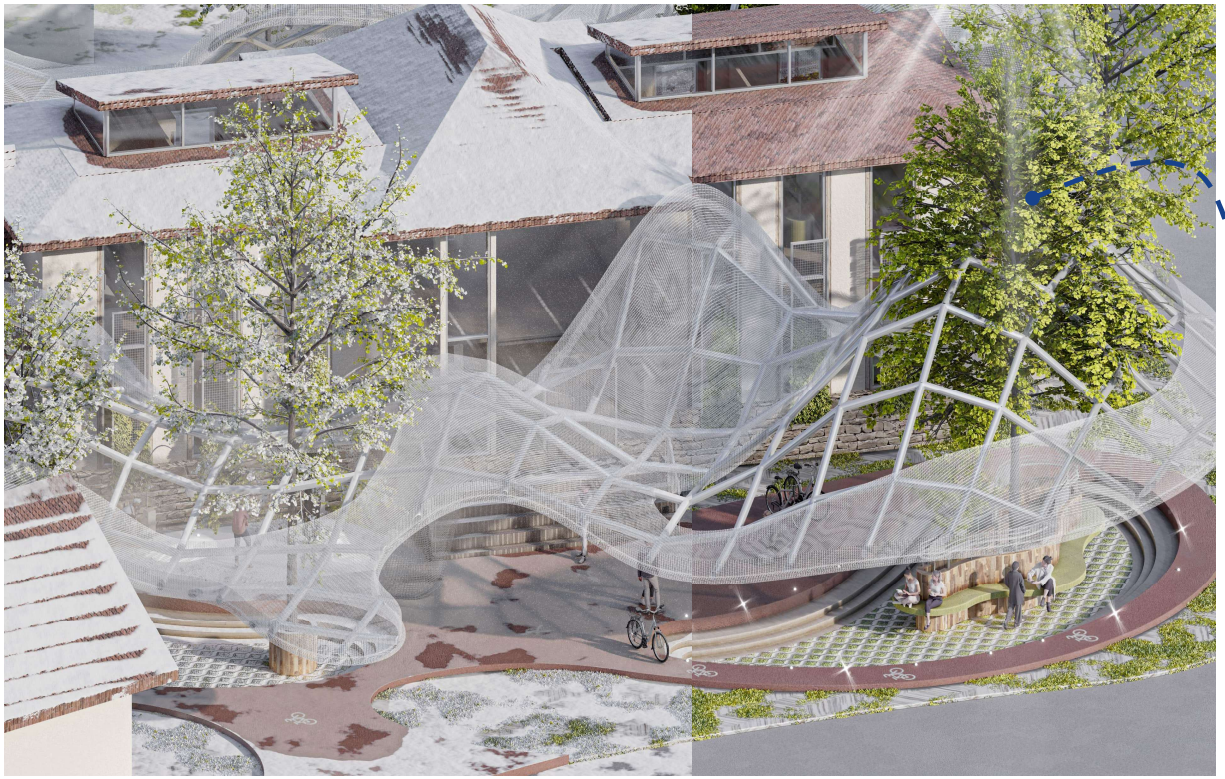
MASTER SECTION

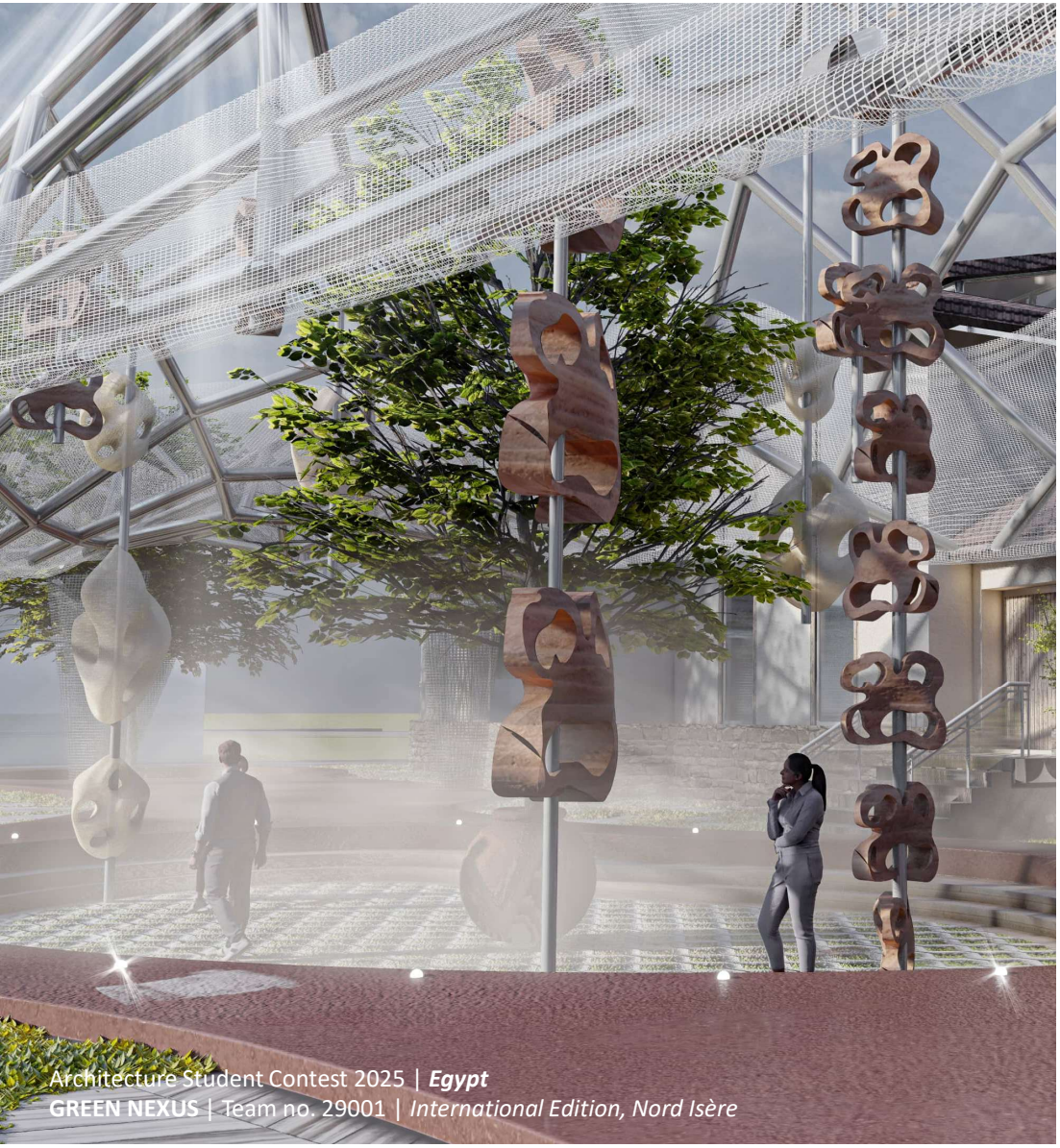
Integration between Modular, Rigid Grid in Sectional View, and Seasonal Adaptation



SUSTAINABLE FLEXIBLE STRUCTURE

Preserving the Already Existing Tree in The Site

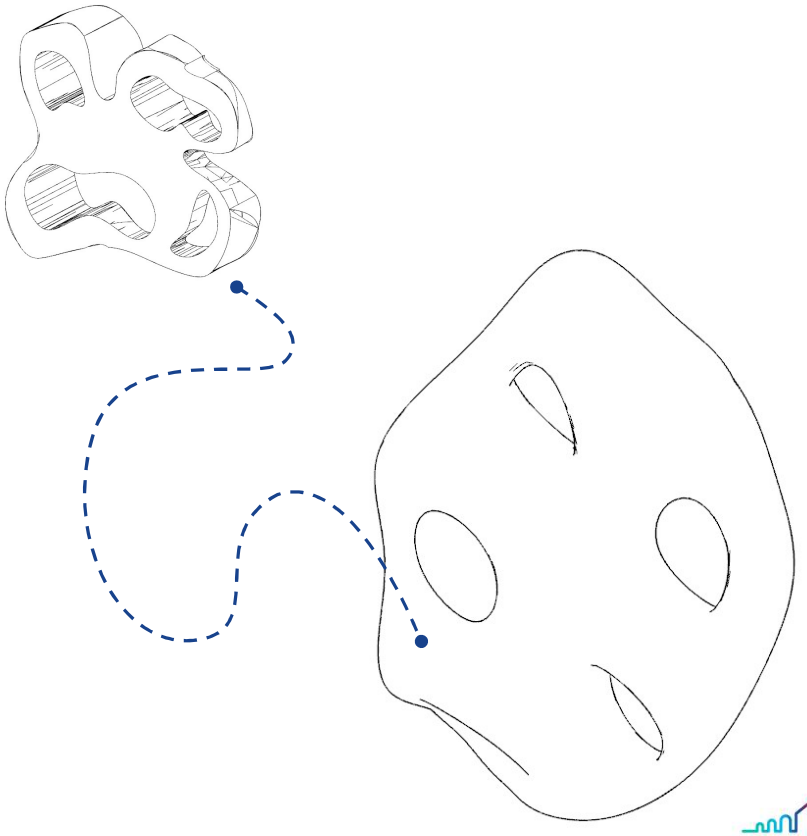




Architecture Student Contest 2025 | ***Egypt***
GREEN NEXUS | Team no. 29001 | *International Edition, Nord Isère*

HAND CRAFTED UNITS

3D Units Villefontaine Simulation



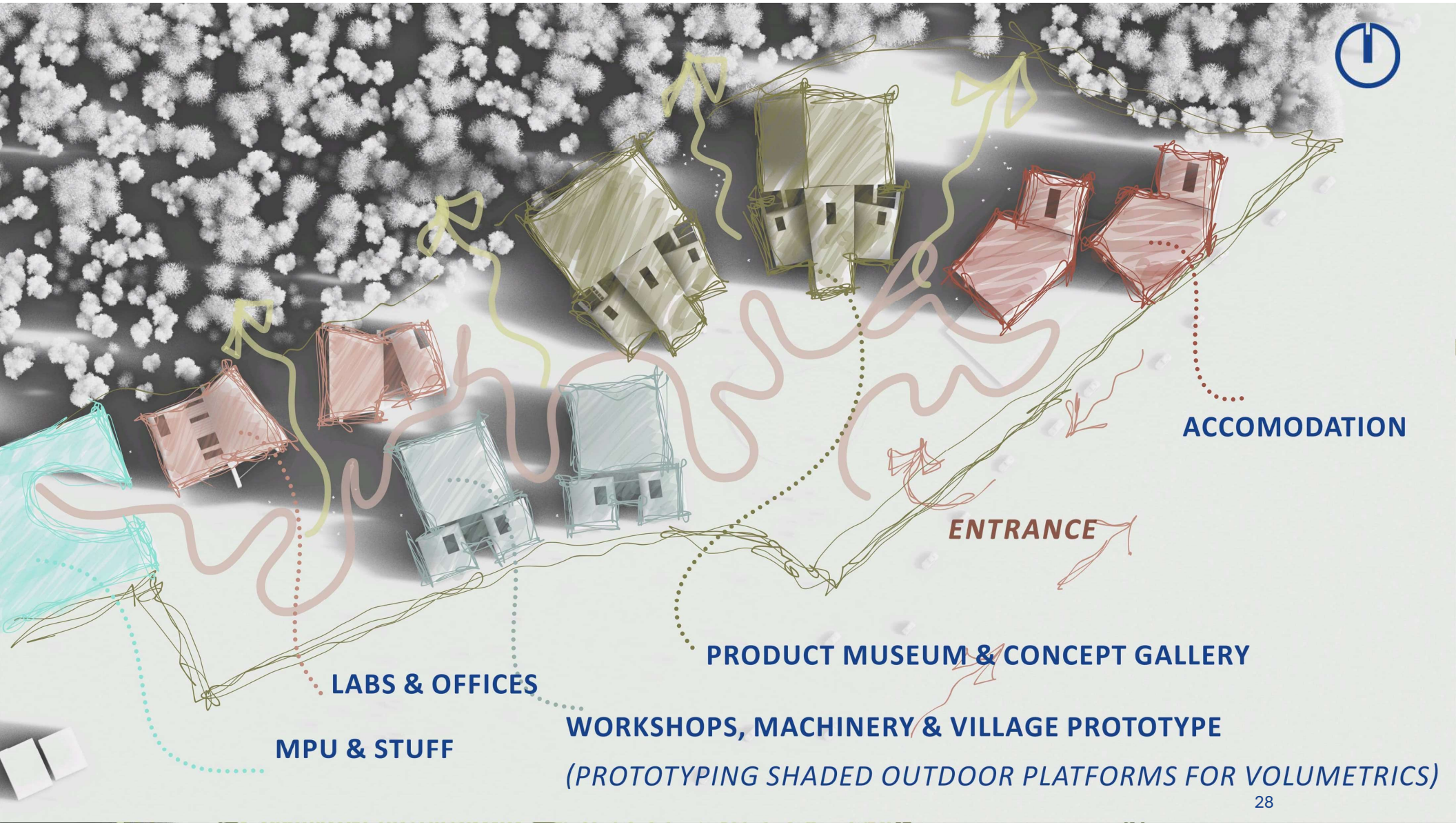
SAINT-GOBAIN


INTERIOR VIEW
VIEWING THE EXPERIMENTAL NODE TO SEE WHILE BEING DONE

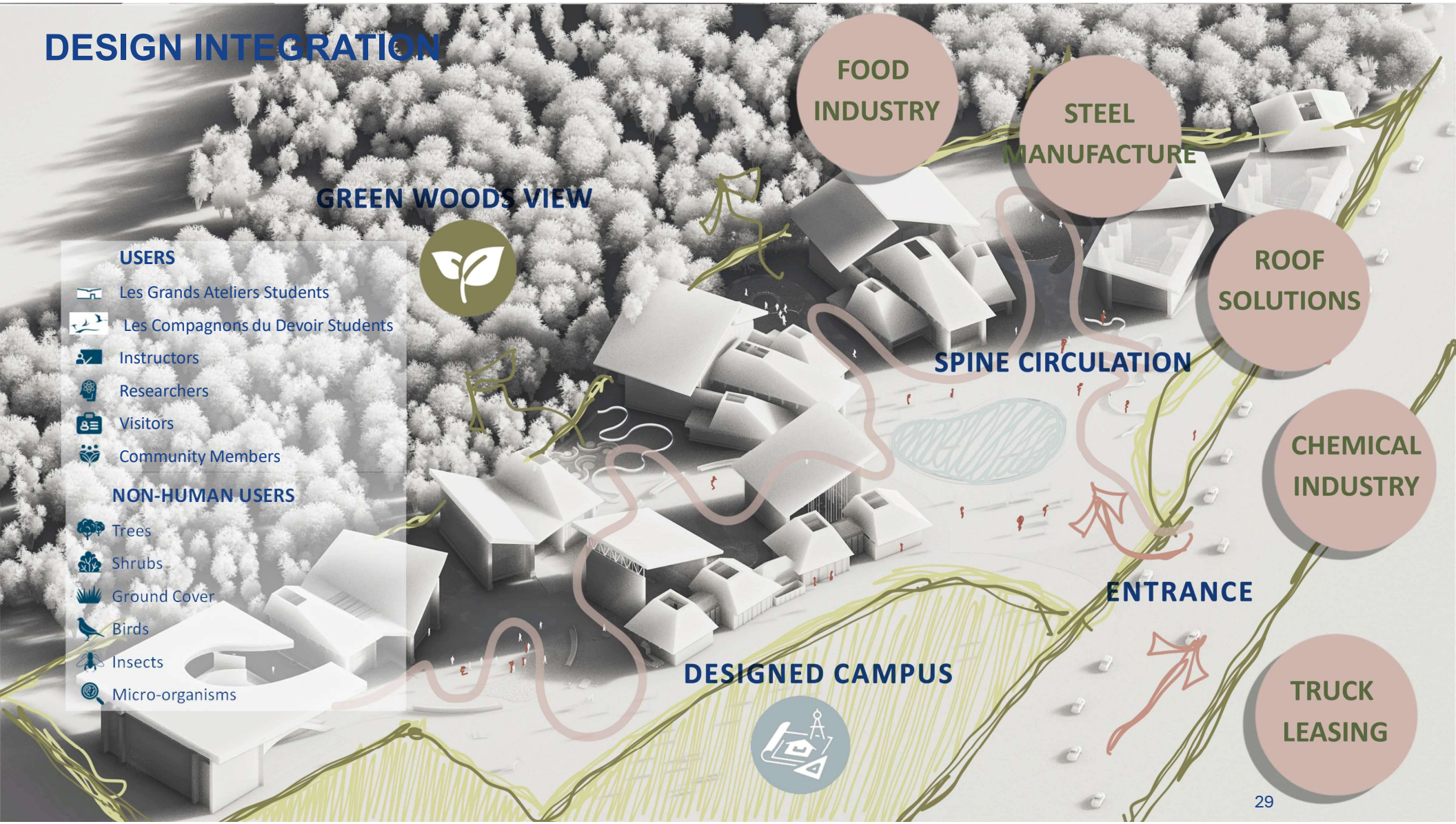
2 VILLEFONTAINE

SITE TO DESIGN – LES GRANDS ATELIERS


SITE INTEGRATION
SUITABILITY OF DESIGN AND INTEGRATION WITH
ECONOMY AND COMMUNITY


ACCOMODATION
ENTRANCE
PRODUCT MUSEUM & CONCEPT GALLERY
LABS & OFFICES
WORKSHOPS, MACHINERY & VILLAGE PROTOTYPE
MPU & STUFF
(PROTOTYPING SHADED OUTDOOR PLATFORMS FOR VOLUMETRICS)

DESIGN INTEGRATION



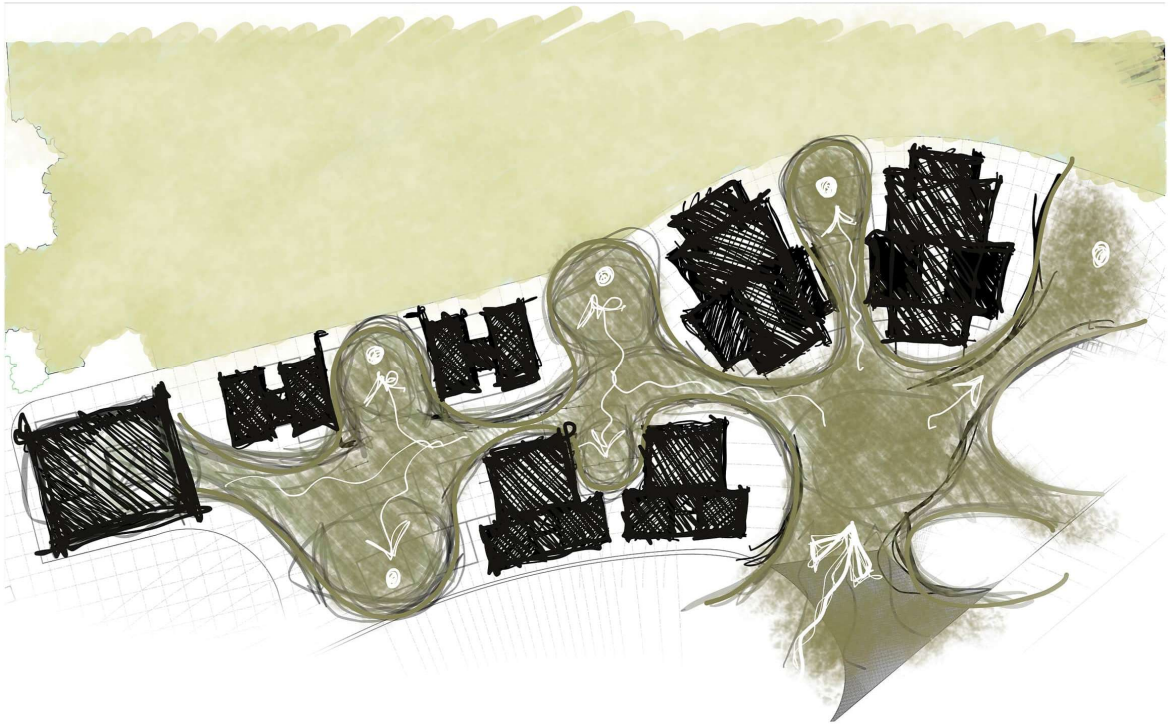
MASTER PLAN


MAIN VIEW CONCERN
URBAN NODES
MAIN SPINE
CENTRAL LAKE
MEDITATION ZONE
RESIDENTIAL ECONOMY
VOLUMETRICS
MAIN ENTRANCE
1 Accommodation Rooms
2 Residential Functions
3 Showcasing Hall
4 Museum
5 Prototype Village
A Showcasing Area
B Wood Boiler Room
C Informal Space
6 Labs & Offices Prototype
7 MPU Hall Building

PRELIMINARY CONCEPT SKETCH

Generating our Proposal Architecture Analogy

Brainstorming Sketch

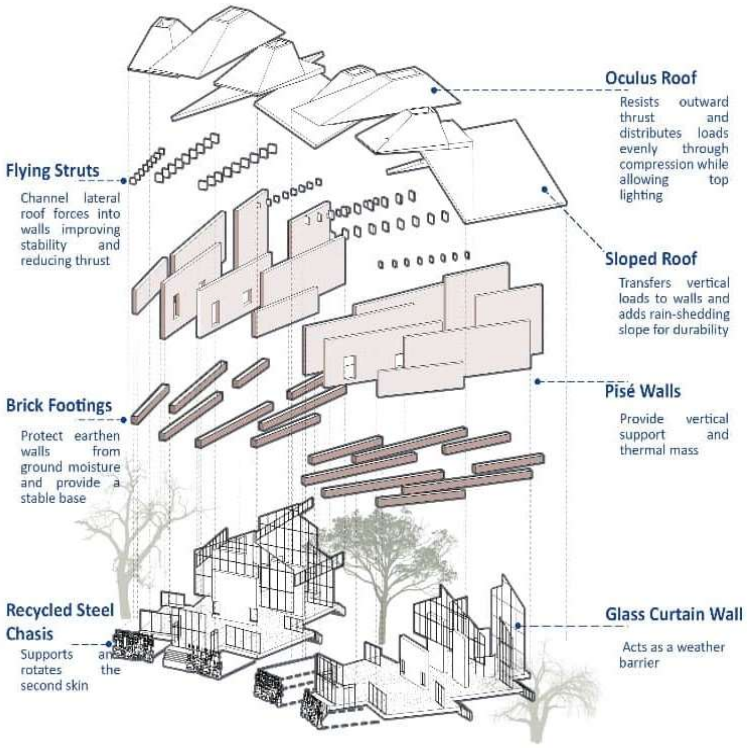


Future Expansion Theory


SUSTAINABLE CONSTRUCTION
CREATIVE GREEN SOLUTIONS

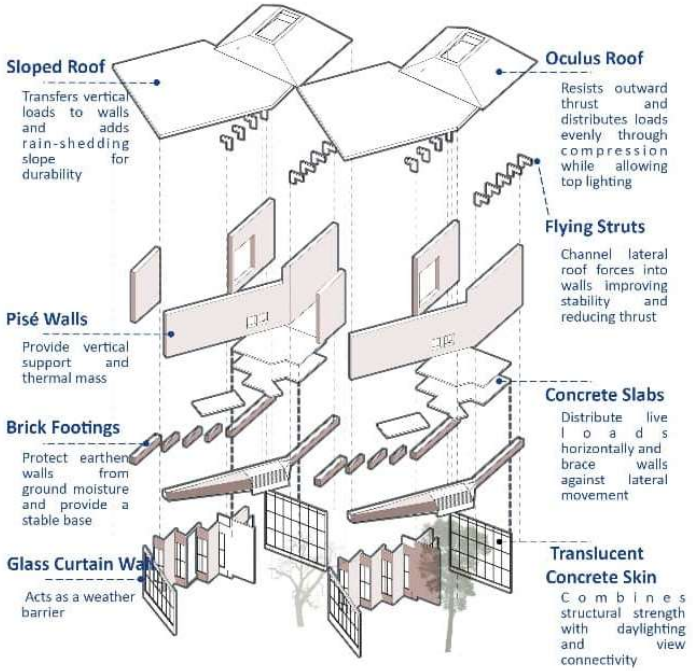
STRUCTURE ANALYSIS

Museum Prototype



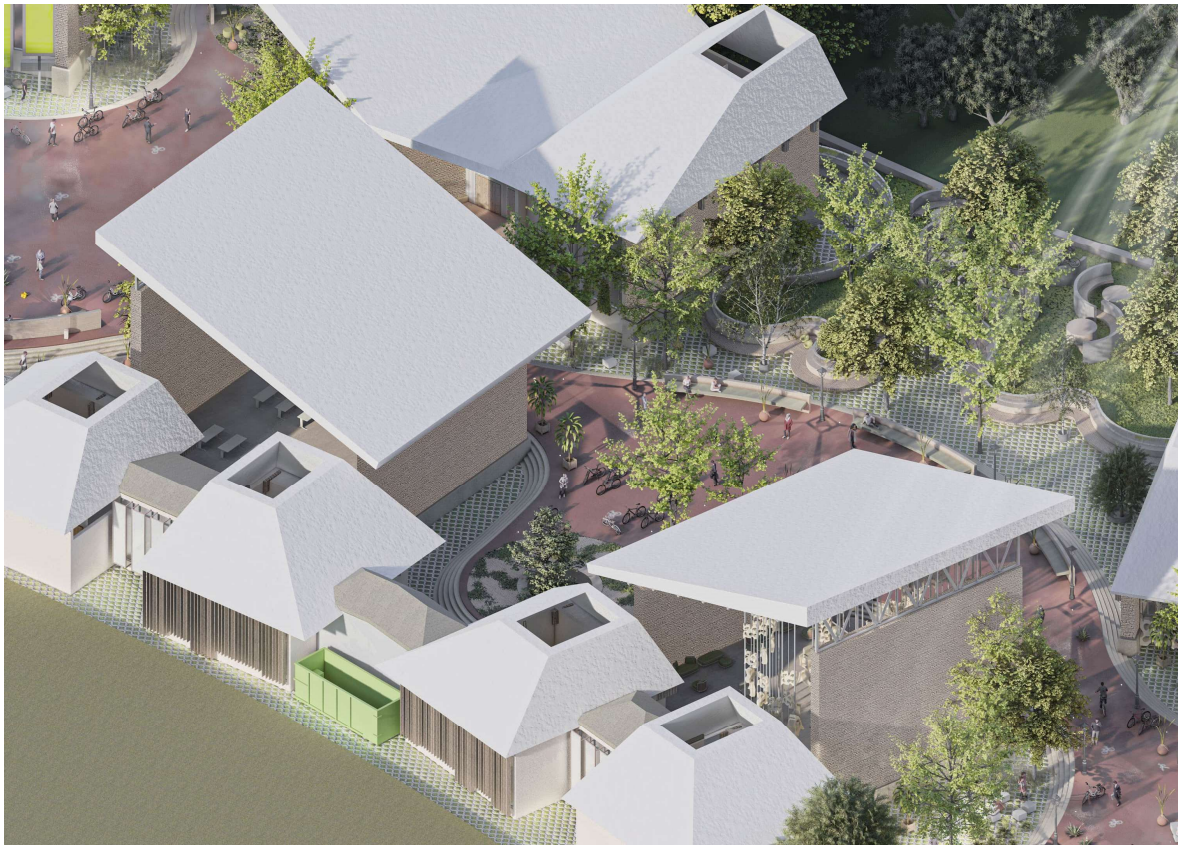
STRUCTURE ANALYSIS

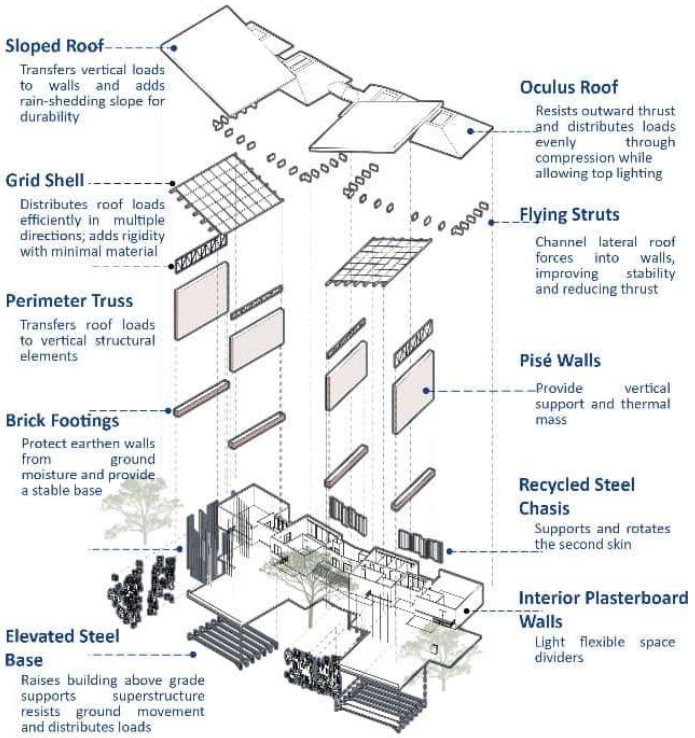
Accommodation Prototype



STRUCTURE ANALYSIS

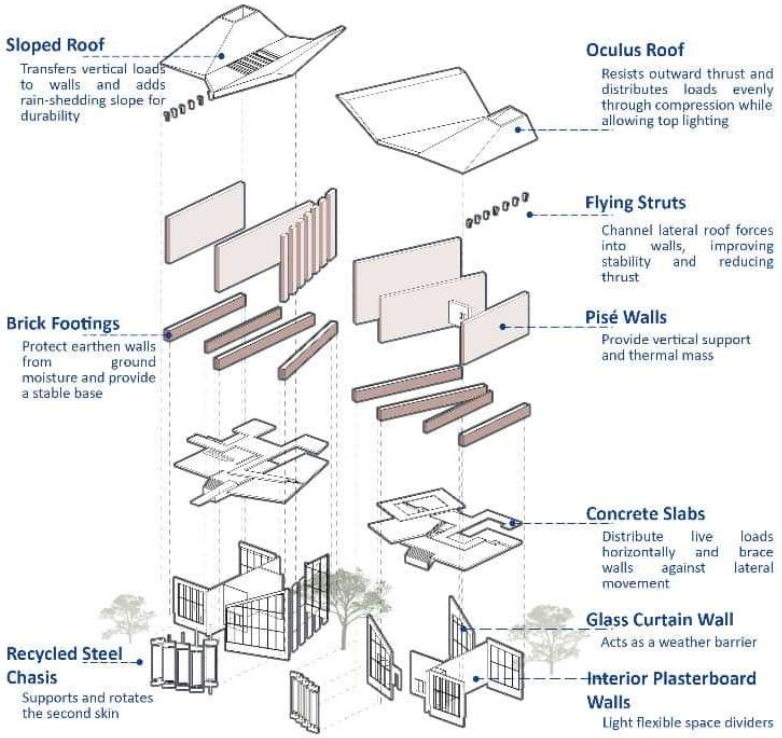
Village Prototype





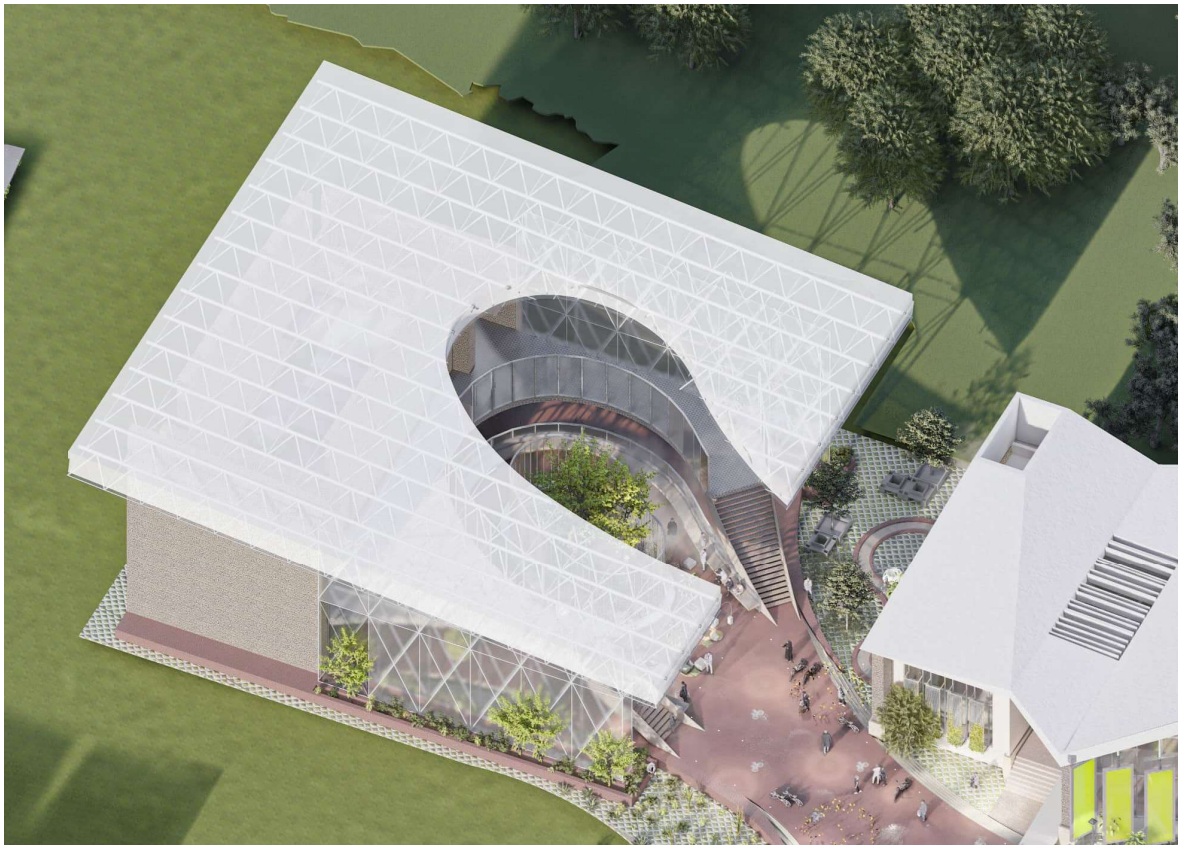
STRUCTURE ANALYSIS

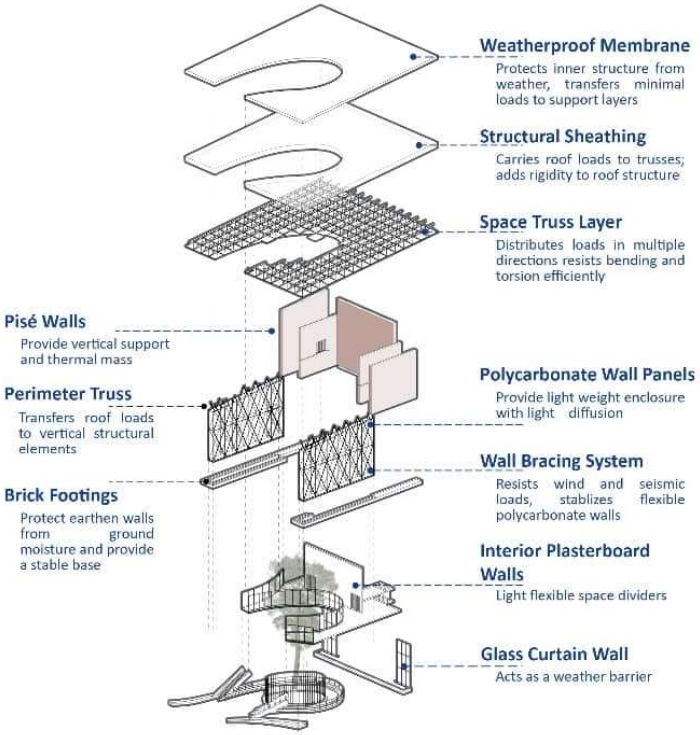
Labs Prototype



STRUCTURE ANALYSIS

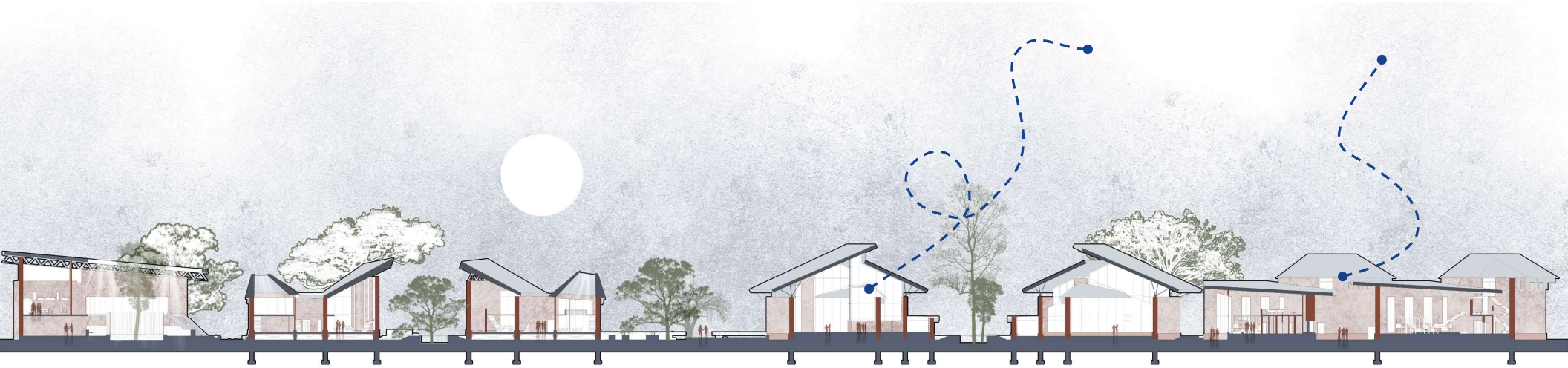
MPU Hall Building

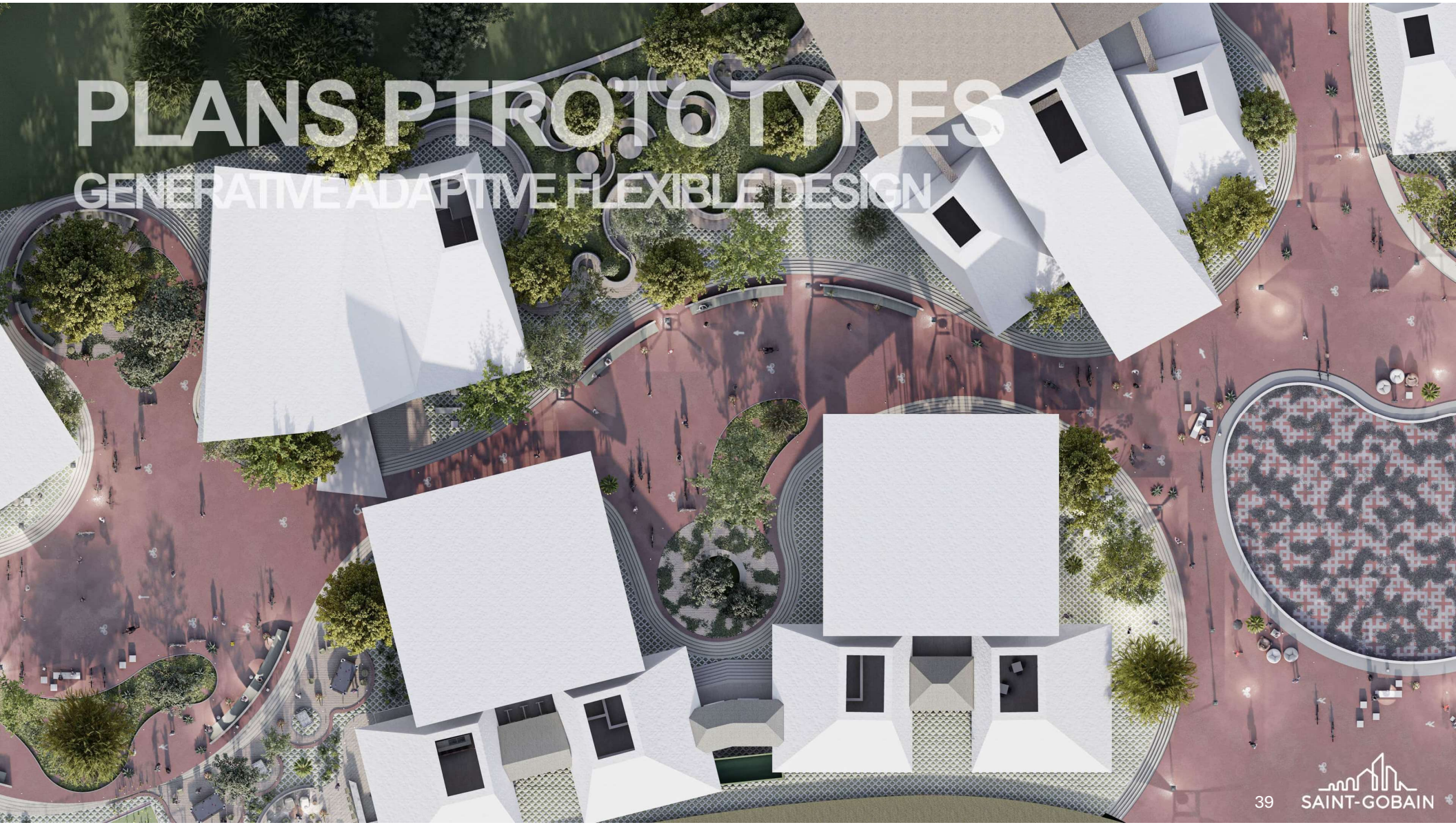




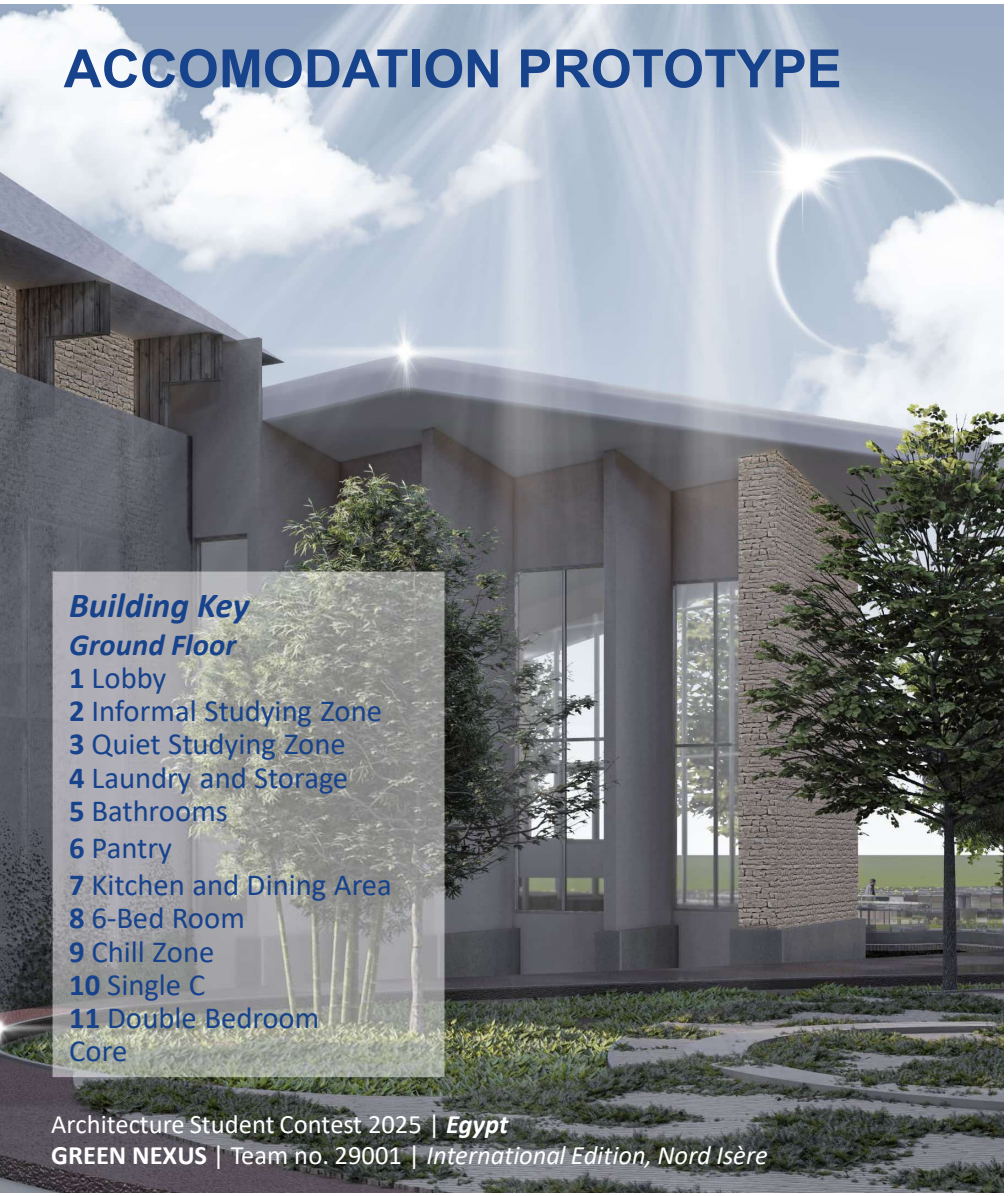
MASTER LONGITUDINAL SECTION

Masses Integration with The Site




PLANS PTROTOTYPES
GENERATIVE ADAPTIVE FLEXIBLE DESIGN

ACCOMODATION PROTOTYPE



Building Key

Ground Floor

1 Lobby
2 Informal Studying Zone
3 Quiet Studying Zone
4 Laundry and Storage
5 Bathrooms
6 Pantry
7 Kitchen and Dining Area
8 6-Bed Room
9 Chill Zone
10 Single C
11 Double Bedroom
Core

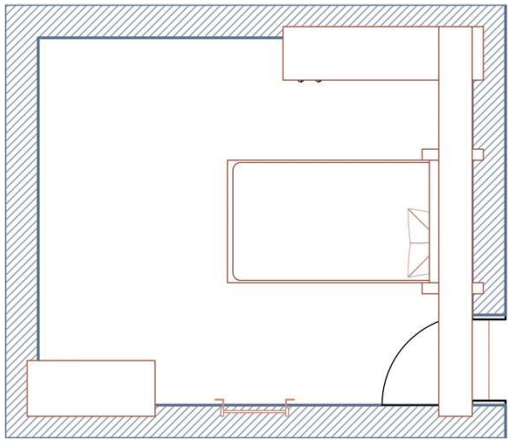
Mezzanine 1
1 6-Bed Room
2 8-Bed Room
3 Coffee Chill Zone
4 Games & Snacks Zone

Mezzanine 2
1 6-Bed Room
2 8-Bed Room
3 Chill Zone

FLEXIBLE ROOMS SCENARIOS

Functional Adaptation

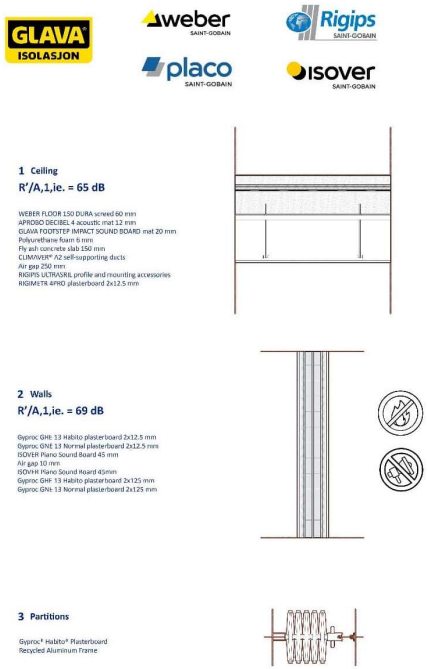
SCENARIO 1 *Bed Space & Dressing*
SCENARIO 2 *Bed Space & More Space*
SCENARIO 3 *All Furniture Closed*
SCENARIO 4 *Focus & Office*
SCENARIO 5 *Dining & Stuff*

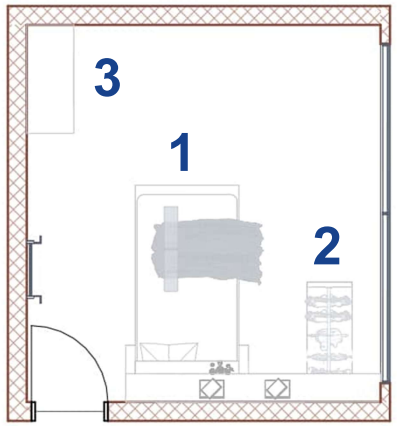



CREATIVE SOLUTIONS
IN TIGHT ACCOMMODATION REQUIRED AREAS

SINGLE AND DOUBLE BEDROOMS 11 m², 13 m²

Creative Flexible Solutions in Tight Areas





ROOM KEY

1 Sleeping Zone
2 Closet Space
3 Lockable Storage Unit

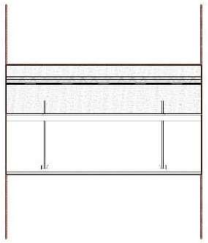
DOUBLE BEDROOM 13 m²

Creative Flexible Solutions in Tight Areas

1 Ceiling

R'A,1,ie. = 65 dB

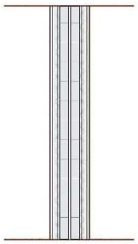
WEBER FLOOR 150 DURA screed 60 mm
APROBO DECIBEL 4 acoustic mat 12 mm
GLAVA FOOTSTEP IMPACT SOUND BOARD mat 20 mm
Polyurethane foam 6 mm
Fly ash concrete slab 150 mm
CLIMAVER® A2 self-supporting ducts
Air gap 250 mm
RIGIPS ULTRASRIL profile and mounting accessories
RIGIMETR 4PRO plasterboard 2x12.5 mm



2 Walls

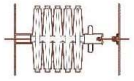
R'A,1,ie. = 69 dB

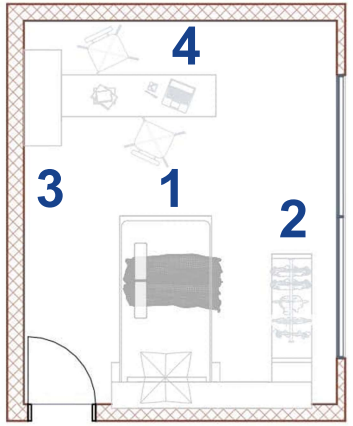
Gyproc GHE 13 Habito plasterboard 2x12.5 mm
Gyproc GNE 13 Normal plasterboard 2x12.5 mm
ISOVER Plano Sound Board 45 mm
Air gap 10 mm
ISOVHK Plano Sound Board 45mm
Gyproc GHF 13 Habito plasterboard 2x125 mm
Gyproc GNE 13 Normal plasterboard 2x125 mm



3 Partitions

Gyproc⁴ Habito³ Plasterboard
Recycled Aluminum Frame





ROOM KEY

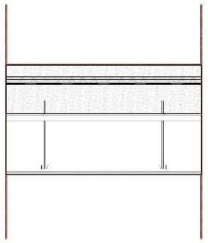
1 Sleeping Zone
2 Closet Space
3 Lockable Storage Unit
4 Studying Zone

6-PERSON BEDROOM 27 m²

Creative Flexible Solutions in Tight Areas

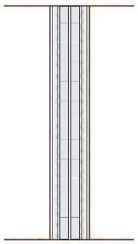
1 Ceiling
R'A,1,ie. = 65 dB

WEBER FLOOR 150 DURA screed 60 mm
APROBO DECIBEL 4 acoustic mat 12 mm
GLAVA FOOTSTEP IMPACT SOUND BOARD mat 20 mm
Polyurethane foam 6 mm
Fly ash concrete slab 150 mm
CLIMAVER® A2 self-supporting ducts
Air gap 250 mm
RIGIPS ULTRASRIL profile and mounting accessories
RIGIMETR 4PRO plasterboard 2x12.5 mm



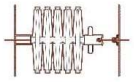
2 Walls
R'A,1,ie. = 69 dB

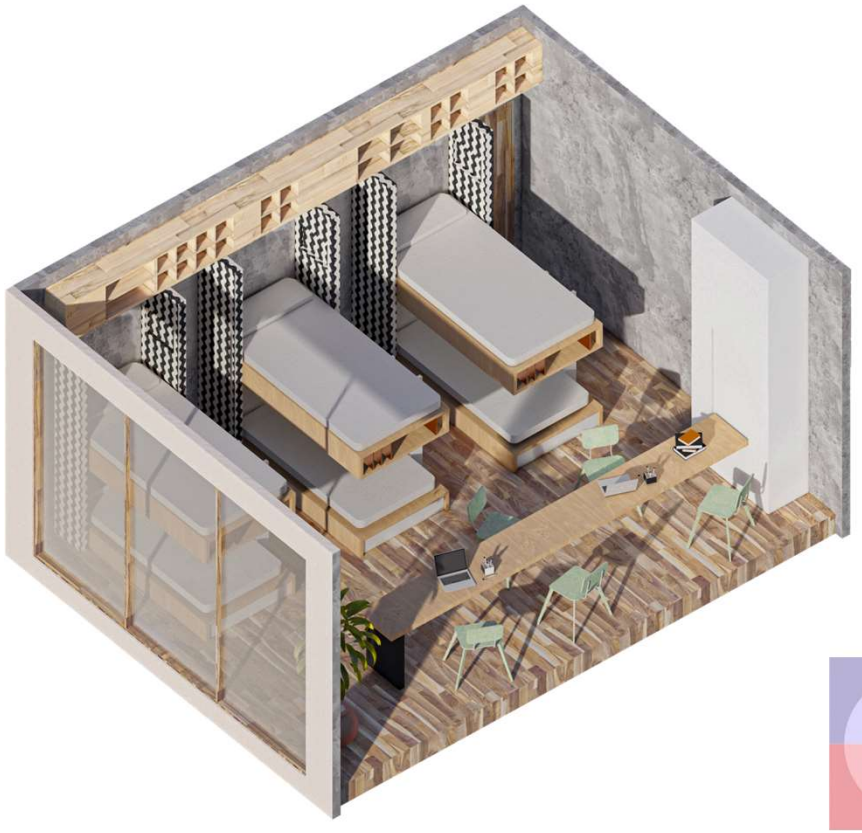
Gyproc GHE 13 Habito plasterboard 2x12.5 mm
Gyproc GNE 13 Normal plasterboard 2x12.5 mm
ISOVER Plano Sound Board 45 mm
Air gap 10 mm
ISOVHI Plano Sound Board 45mm
Gyproc GHF 13 Habito plasterboard 2x125 mm
Gyproc GNE 13 Normal plasterboard 2x125 mm

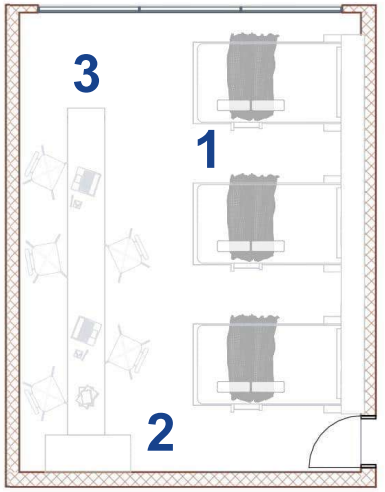


3 Partitions

Gyproc⁴ Habito³ Plasterboard
Recycled Aluminum Frame







ROOM KEY

1 Sleeping Zone
2 Lockable Storage Unit
3 Studying Zone

8-PERSON BEDROOM 32 m²

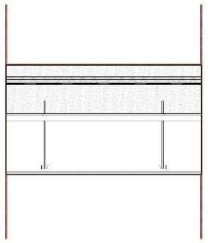
Creative Flexible Solutions in Tight Areas

GLAVA ISOLASJON · weber SAINT-GOBAIN · Rigips SAINT-GOBAIN · placo SAINT-GOBAIN · isover SAINT-GOBAIN

1 Ceiling

R'A,1,ie. = 65 dB

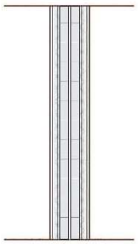
WEBER FLOOR 150 DURA screed 60 mm
APROBO DECIBEL 4 acoustic mat 12 mm
GLAVA FOOTSTEP IMPACT SOUND BOARD mat 20 mm
Polyurethane foam 6 mm
Fly ash concrete slab 150 mm
CLIMAVER® A2 self-supporting ducts
Air gap 250 mm
RIGIPS ULTRASRIL profile and mounting accessories
RIGIMETR 4PRO plasterboard 2x12.5 mm



2 Walls

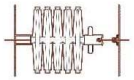
R'A,1,ie. = 69 dB

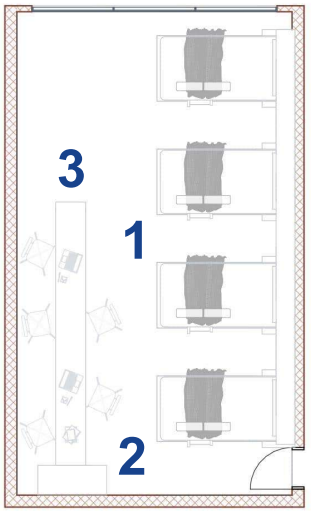
Gyproc GHE 13 Habito plasterboard 2x12.5 mm
Gyproc GNE 13 Normal plasterboard 2x12.5 mm
ISOVER Plano Sound Board 45 mm
Air gap 10 mm
ISOVHI Plano Sound Board 45mm
Gyproc GHF 13 Habito plasterboard 2x125 mm
Gyproc GNE 13 Normal plasterboard 2x125 mm



3 Partitions

Gyproc⁴ Habito³ Plasterboard
Recycled Aluminum Frame





ROOM KEY

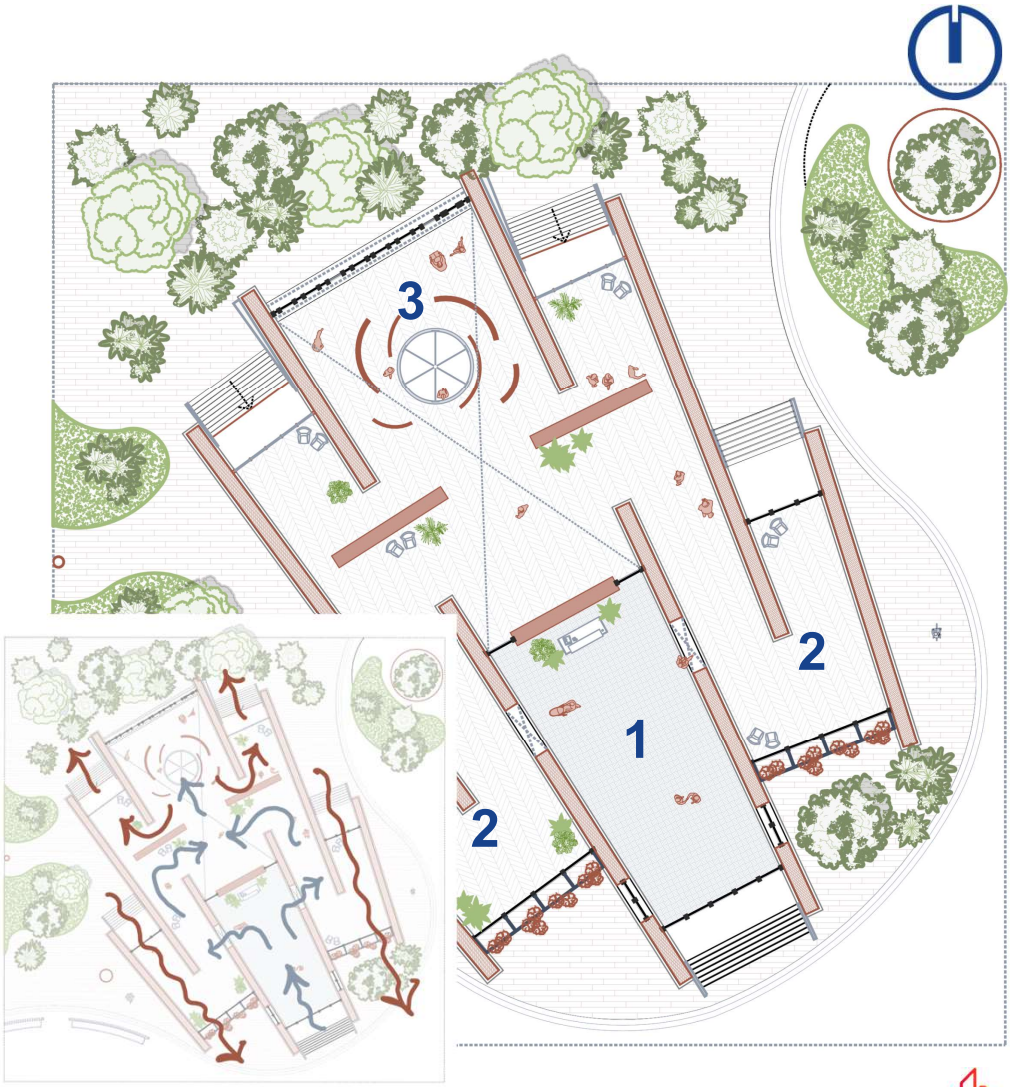
1 Sleeping Zone
2 Lockable Storage Unit
3 Studying Zone

MUSEUM PROTOTYPE

Building Key

1 Reception
2 Showcasing Hall
3 Museum

Architecture Student Contest 2025 | ***Egypt***
GREEN NEXUS | Team no. 29001 | *International Edition, Nord Isère*



SAINT-GOBAIN

MUSEUM FINAL NODE

Museum *show casing the forest trees, as the evergreen live background for the mega museum space, to embrace the value of nature and site biodiversity, through a full glazed walls with large size minimal mullioned panels for view continuous experience*

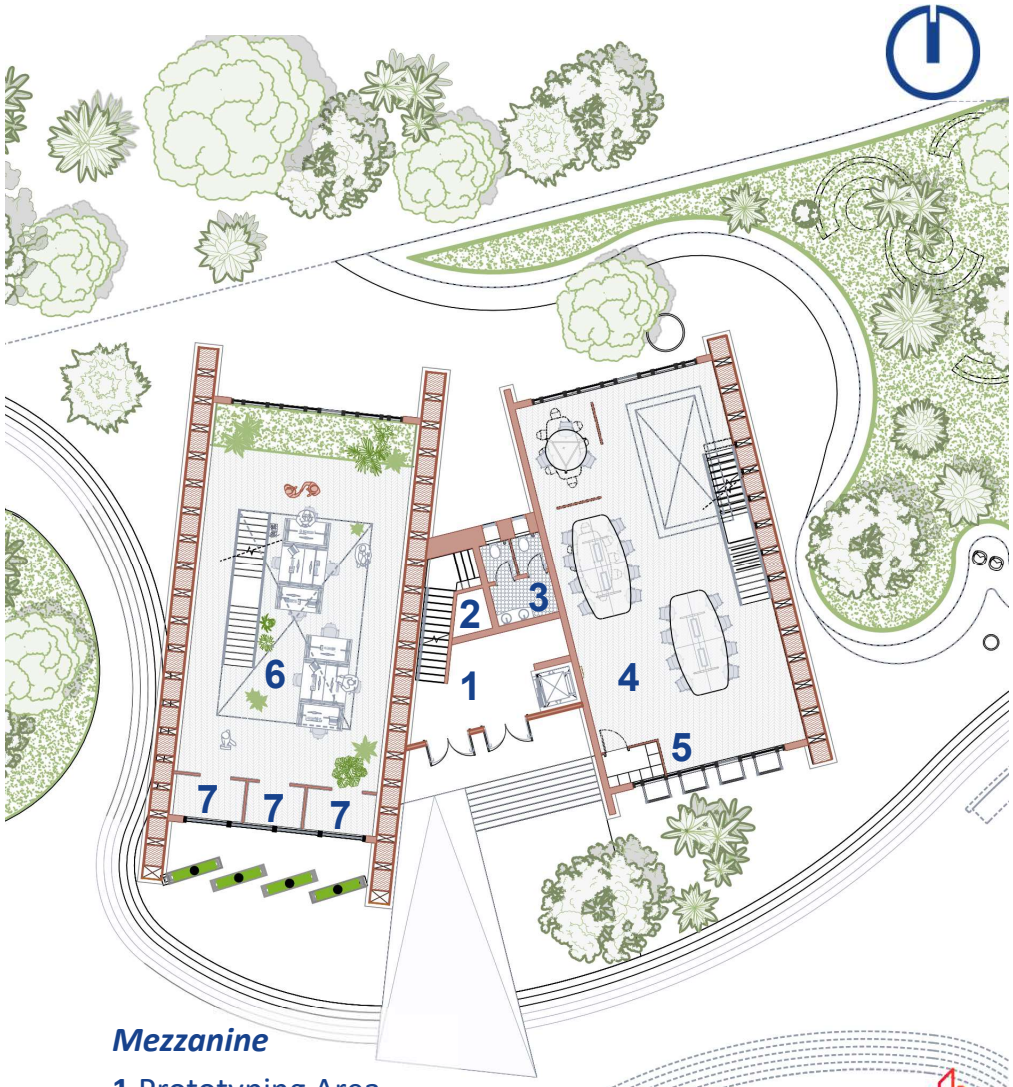
Logic behind Museum Buildings Circulation

Guided circulation to experience the full tour with specific order, and then get out with a designed interior shortcut

LABS PROTOTYPE

Building Key

1 Reception
2 Core
3 WC
4 Office Space (MPU Room in Twin Building)
5 Cloak Room
6 Lab
7 Meeting Room



Mezzanine

1 Prototyping Area

LABS PROTOTYPE

Building Key

1 Showcasing Area
2 Lobby
3 Kitchen
4 WC
5 Wood Boiler Room
6 Silo
7 Shredder Space
8 Machine Room

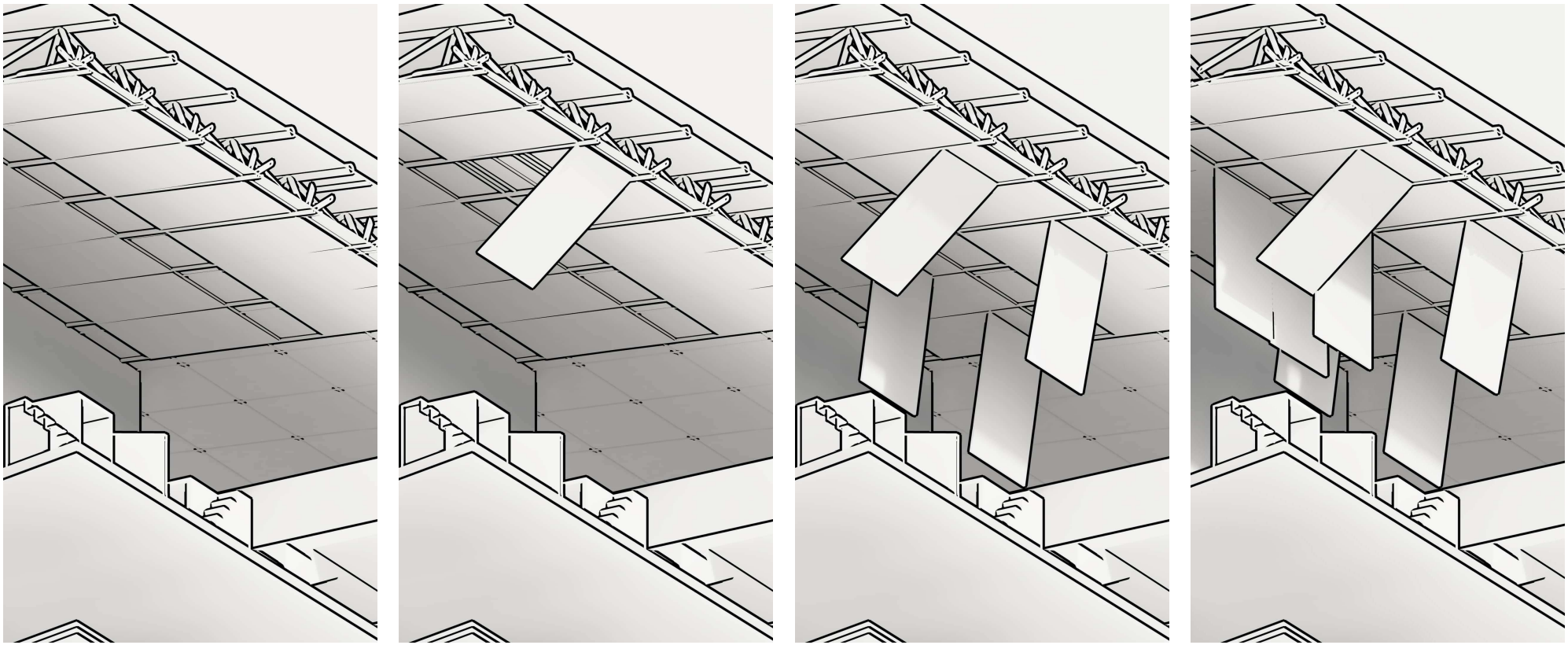
Architecture Student Contest 2025 | ***Egypt***
GREEN NEXUS | Team no. 29001 | *International Edition, Nord Isère*

SAINT-GOBAIN


MPU FLEXIBLE SOLUTIONS
MODULAR SPACE DYNAMIC DESIGN

FLEXIBLE SPACE

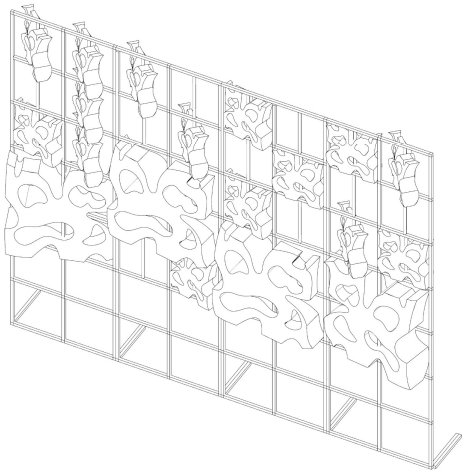
Moving Panels on Ceiling Rods as Space Devisors for Different Functions Scenarios



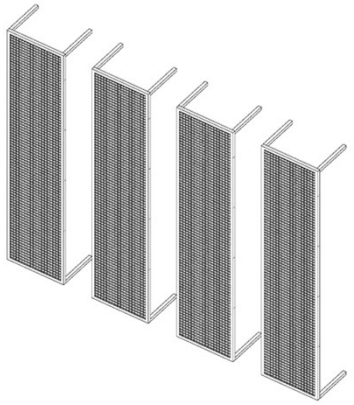

CREATIVE FAÇADES
ADAPTIVE GREEN SUSTAINABLE SOLUTIONS

FAÇADE AS A LIVE SKIN

Moving Panels on Ceiling Rods as Space Devisors for Different Functions Scenarios



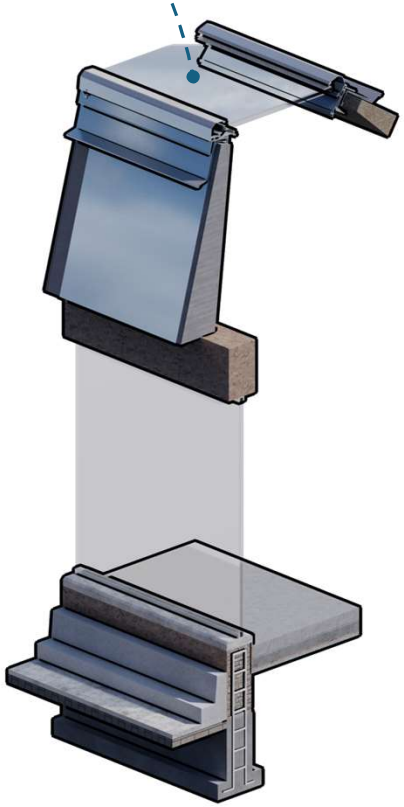
3D PRINTED UNITS DYNAMIC WALL *is a modular wall of 3D-printed units hung on recycled steel rods creates a sustainable, customizable showcase with a modern design aesthetic.*



Green Mesh Walls *are metal grid structures that support vertical plant growth, allowing climbing plants to create natural green façades. They enhance building aesthetics, improve insulation, and contribute to environmental sustainability by reducing heat and filtering air*

WALL SECTIONS DETAILS

Prismatic Roofs with Oculus Skylights



1 Oculus Roof

U = 0,10 (opaque) W/m2K

Skylight
ECLAZ® ZEN II 6 mm
Argon-filled cavity 16 mm
Clear float glass 6 mm
Opaque Part
Cement Plaster 20 mm
EPDM 5 mm
OSB panel 18 mm
Isonat Multisol 140 (rigid) ~200 mm
Isonat Flex 55 ~150 mm
Air gap 30 mm
Isover membrane
Placo® ActivAir plasterboard 12.5 mm

2 External Wall

U = 0,10 (opaque) W/m2K

Pise wall 550 mm
Steel stirrups (90% recyclable materials) for reinforcement
Isover Timber Frame Batt 12 mm

3 Glazing

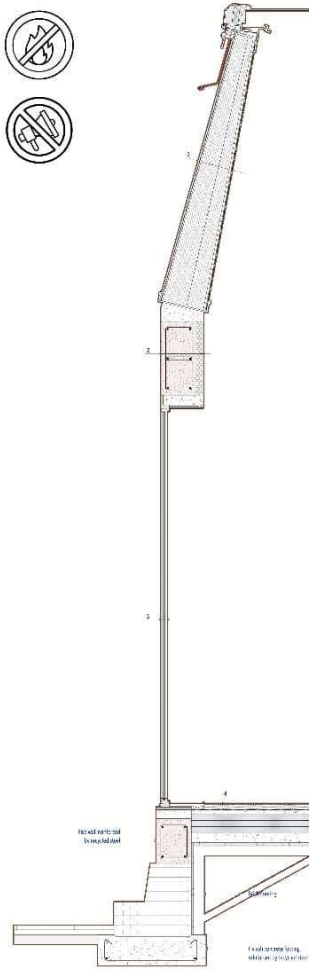
U=1.10 W/m2K, R' /C, Ctr,3,ie. = 35 dB

ORAÉ® + ECLAZ® coating 6 mm
Argon filled cavity 16 mm
Clear float glass 6 mm

4 Ground Floor

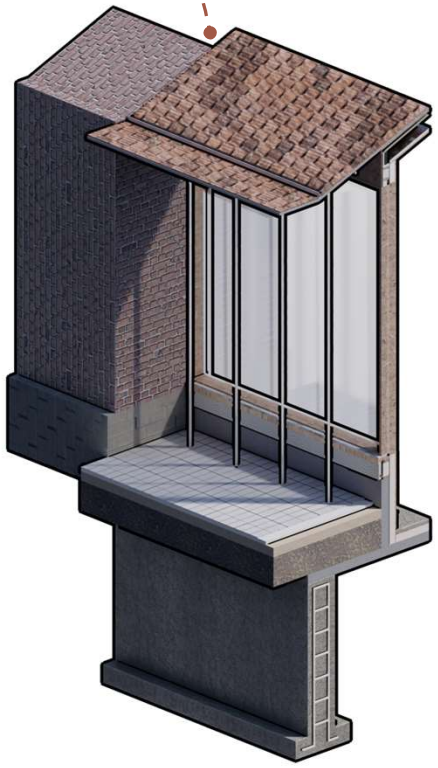
U = 0,10 (opaque) W/m2K

Wooden flooring 14 mm
VARIO® membrane
WFRFR FLOOR 150 DURA screed 60 mm
Polyurethane foam 3x100 mm
Fly ash concrete slab 150 mm



WALL SECTIONS DETAILS

Pitched Roofs



1 Tiled Roof Renovation

U = 0,10 (opaque) W/m2K

Existing tiled finishing 15 mm
Air gap 300 mm
Isover Vario® KM Duplex
Isonat Multisol 140 160 mm
Isonat Flex 55 160 mm
Isover membrane
Placo® Activ'Air plasterboard 12.5 mm

2 External Wall Renovation

U = 0,10 (opaque) W/m2K

Existing Wall 550 mm
Steel stirrups (90% recyclable materials) for reinforcement
Isover Timber Frame Batt 12 mm

3 Glazing

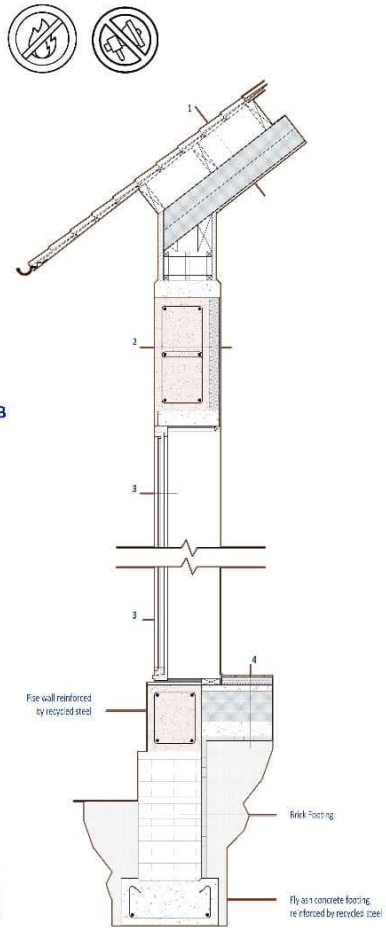
U=1.10 W/m2K, R' /C, Ctr,3,ie. = 35 dB

ORAÉ® + I-CLAZ® coating 6 mm
Argon-filled cavity 16 mm
Clear float glass 6 mm

4 Ground Floor

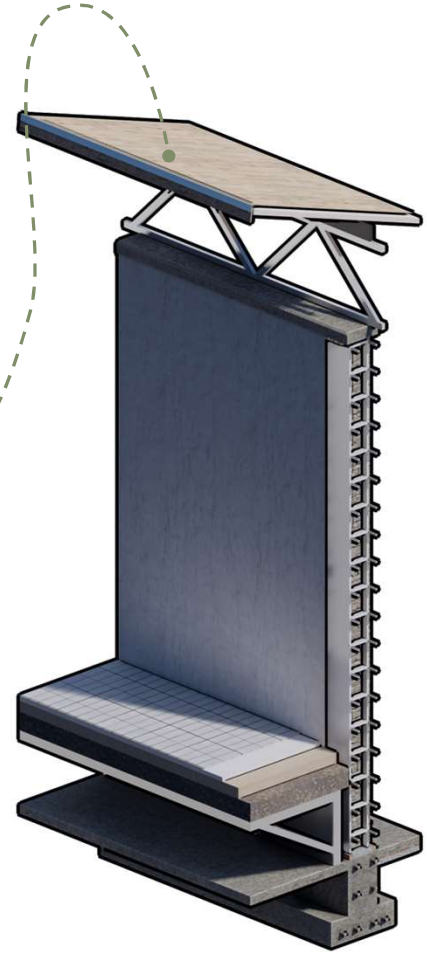
U = 0,10 (opaque) W/m2K

Wooden flooring 14 mm
VARIO® membrane
WEBER FLOOR 150 DURA screed 60 mm
Polyurethane foam 3x100 mm
Fly ash concrete slab 150 mm



WALL SECTIONS DETAILS

Pisé Mounted Trusses



Close up for wall and floor steel chassis connections

1 Inclined Roof

U = 0,10 (opaque) W/m2K

Cement Plaster 20 mm
EPDM 5 mm
OSB panel 18 mm
Air gap 30 mm
Isonat Multisol 140 (rigid) 200 mm
Isonat Flex 55 or similar 150 mm
Isover membrane
Placo® Activ'Air plasterboard 12.5 mm

2 External Wall

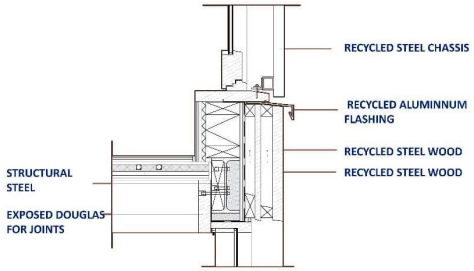
U = 0,10 (opaque) W/m2K

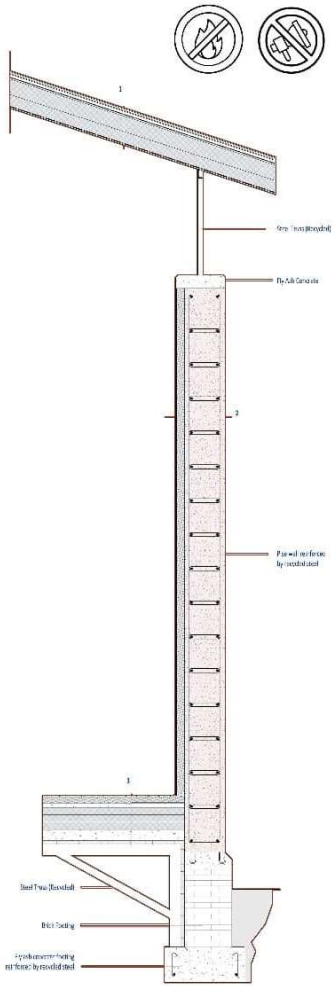
Pise wall 550 mm
Steel stirrups (90% recyclable materials) for reinforcement
Isover Timber Frame Batt 12 mm

3 Ground Floor

U = 0,10 (opaque) W/m2K

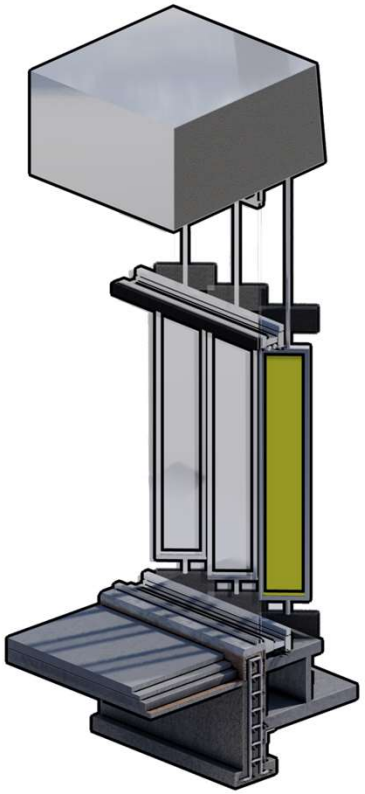
Wooden flooring 14 mm
VARIO® membrane
WEBER FLOOR 150 DURA screed 60 mm
Polyurethane foam 3x100 mm
Fly ash concrete slab 150 mm



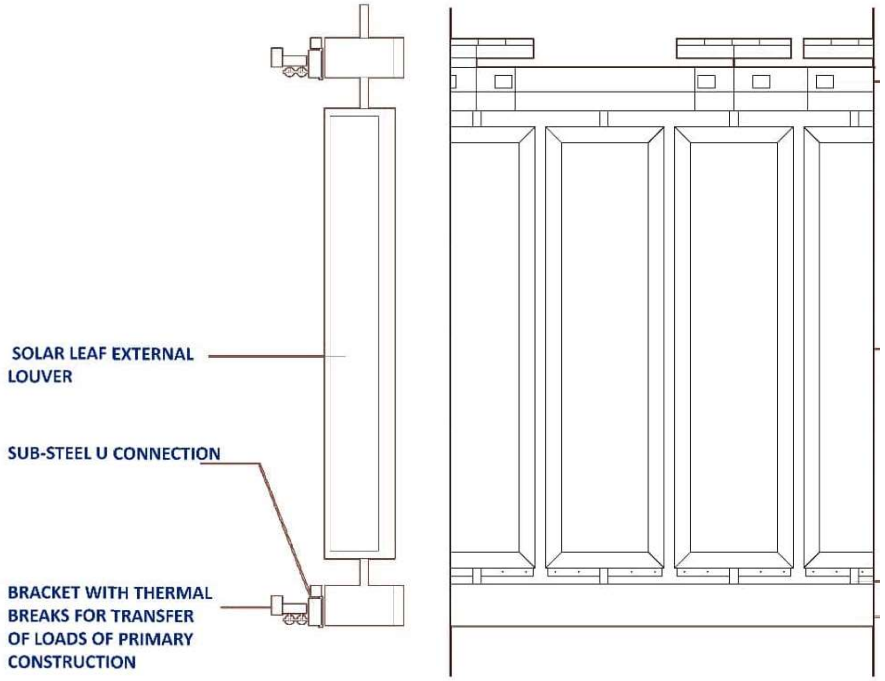


WALL SECTIONS DETAILS

Algae Panels



Side View *Front View*



placo SAINT-GOBAIN
ecophon SAINT-GOBAIN
weber SAINT-GOBAIN
Leca SAINT-GOBAIN
gyproc SAINT-GOBAIN
isover SAINT-GOBAIN
vetrotech SAINT-GOBAIN
PAM SAINT-GOBAIN
glassolutions SAINT-GOBAIN

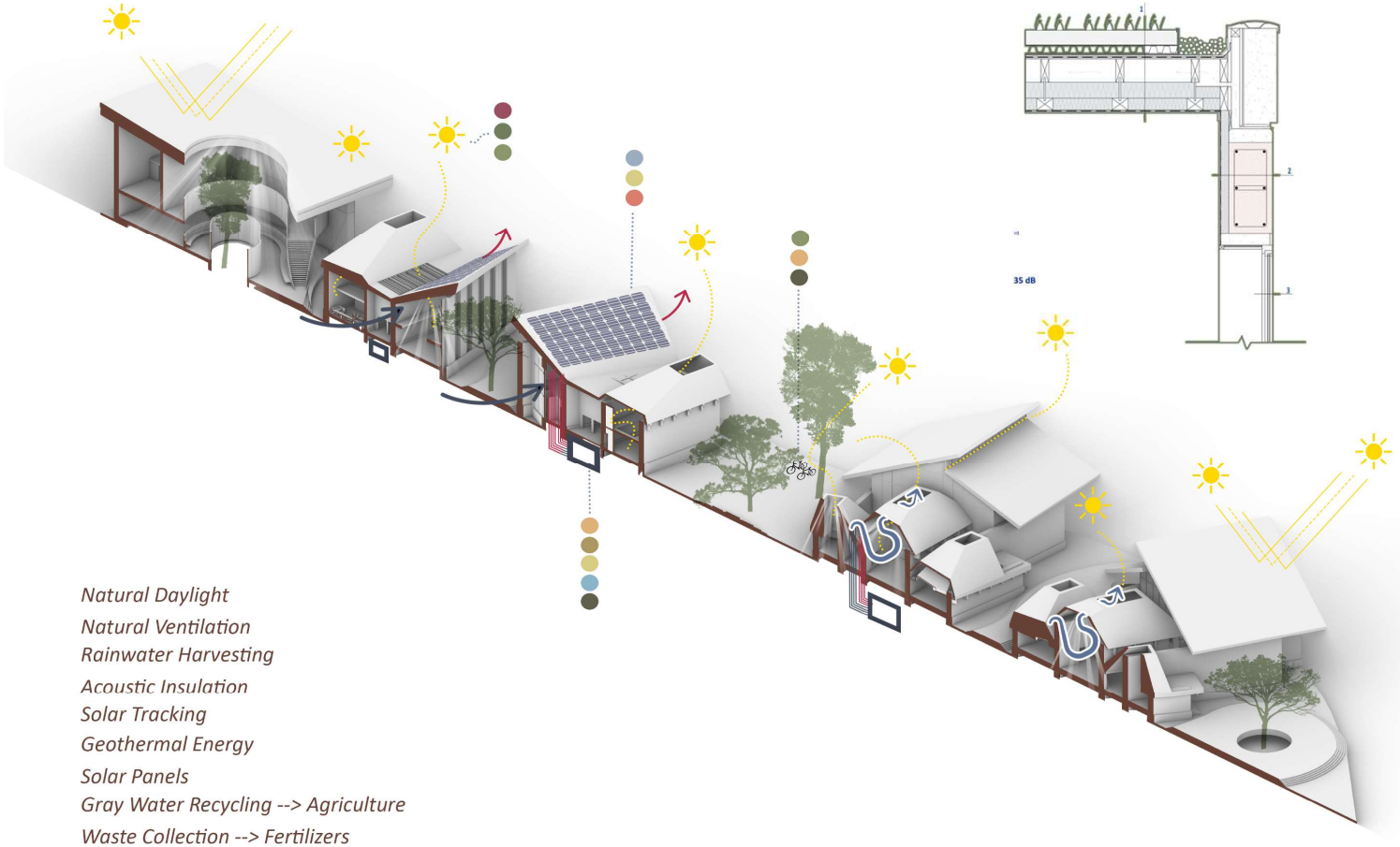
LAKE SCENARIOS

Flexible Design Response

ENVIRONMENTALLY SUSTAINABLE DESIGN

Carbon Footprint Reduction & Renewables

1 - Natural Ventilation
2 - Breezeways and Daylight Design
3 - Sustainable Systems Education & Practice
4 - 3D Printed Units Workshops
5 - Greywater recycling to Agriculture
6 - Rainwater Harvesting (Bio-Swale)
7 - Geothermal Energy
8 - Solar Tracking & PV Cells
9 - Use of Bio-based materials
10 - Renewable Energy Systems
11 - Walkable Layout
12 - Water Retention Zones
13 - Non-Motorized Transportation (Cycling)
14 - Re-use of Local Materials (Recycled Steel)
15 - Re-use of Water
16 - Less Fuel Emissions
17 - Biodiversity & Soil Health
18 - Ecosystems Integration
19 - Prototype Village & 1:1 Construction Model
20 - Cross-Disciplinary Collaboration



Natural Daylight
Natural Ventilation
Rainwater Harvesting
Acoustic Insulation
Solar Tracking
Geothermal Energy
Solar Panels
Gray Water Recycling --> Agriculture
Waste Collection --> Fertilizers

Green Roofs

ENVIRONMENTALLY SUSTAINABLE DESIGN

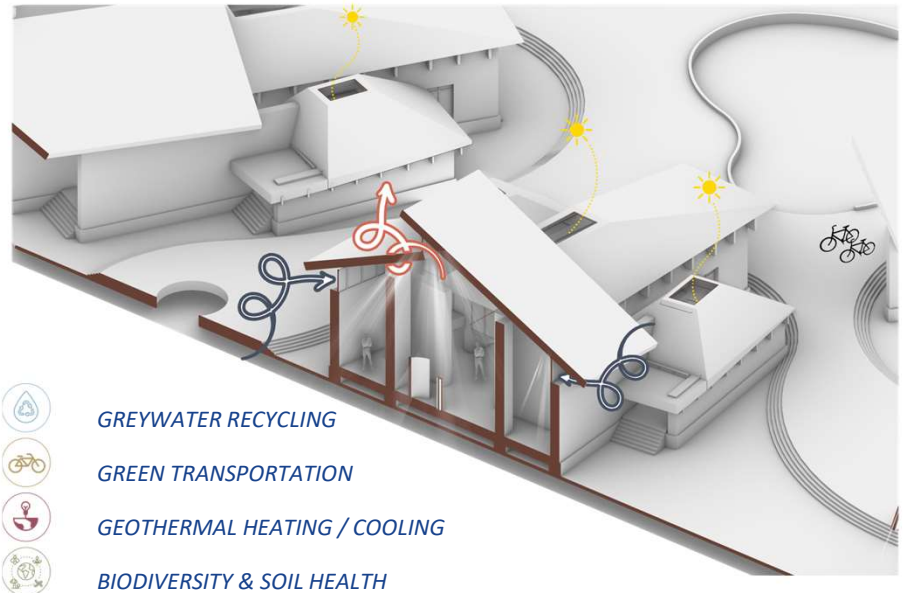
Carbon Footprint Reduction & Renewables

- *1 - Natural Ventilation*
- *2 - Breezeways and Daylight Design*
- *3 - Sustainable Systems Education & Practice*
- *4 - 3D Printed Units Workshops*
- *5 - Greywater recycling to Agriculture*
- *6 - Rainwater Harvesting (Bio-Swale)*
- *7 - Geothermal Energy*
- *8 - Solar Tracking & PV Cells*
- *9 - Use of Bio-based materials*
- *10 - Renewable Energy Systems*
- *11 - Walkable Layout*
- *12 - Water Retention Zones*
- *13 - Non-Motorized Transportation (Cycling)*
- *14 - Re-use of Local Materials (Recycled Steel)*
- *15 - Re-use of Water*
- *16 - Less Fuel Emissions*
- *17 - Biodiversity & Soil Health*
- *18 - Ecosystems Integration*
- *19 - Prototype Village & 1:1 Construction Model*
- *20 - Cross-Disciplinary Collaboration*

Natural Daylight
Natural Ventilation
Rainwater Harvesting
Acoustic Insulation
Solar Tracking
Geothermal Energy
Solar Panels
Gray Water Recycling --> Agriculture
Waste Collection --> Fertilizers

DAYLIGHT AND VENTILATION

Comfort Assets and Our Featuring 3D Printed Units Wall



- *GREYWATER RECYCLING*
- *GREEN TRANSPORTATION*
- *GEOTHERMAL HEATING / COOLING*
- *BIODIVERSITY & SOIL HEALTH*
- *SOLAR PANELS & PV CELLS*
- *BIO-BASED ENERGY RESOURCES*
- *NATURAL VENTILATION*
- *RAINWATER HARVESTING*
- *BIO-SWALES*

THERMAL COMFORT

The two lower clerestory windows and one higher exhaust window enable natural cross and stack ventilation, helping to expel warm air and bring cooler air passively—maintaining a stable indoor temperature.

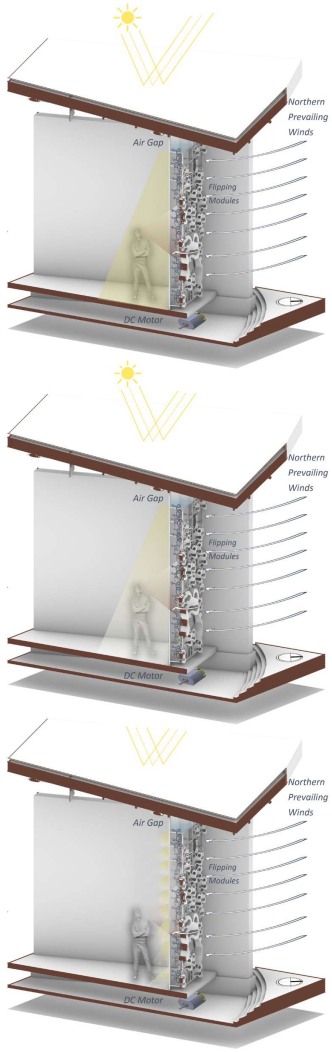
VISUAL COMFORT

Clerestories introduce diffused natural daylight from above, Reducing glare and shadows while ensuring even interior illumination.

ACOUSTIC COMFORT

Elevated window placement minimizes direct noise entry from outside, supporting a quieter indoor for the showcasing museum environment while still allowing fresh air in.

FEATURE	EFFECT	RESULT
Closing Module Orientation	*Bernoulli Effect*	*Wind Slowdown and Redirecti*
North-facing openings	*Minimized Solar Heat Gain*	*Passive Cooling & Daylight*
3D Printed mass with voids	*Structural Porosity*	*Heat Storage & Airflow Bufferi*
Roof Slope & Gap	*Stack Effect Ventilation*	*Air Flushing in Warm Months*



COMMITMENT TO SUSTAINABILITY

Energy Efficiency Patterns, Waste Management and Urban Farming

Green Houses Crops:	Produce /year (kg)	Waste/ year (kg)	Produce: Waste
Lettuce	105	60	
Spinach	180	90	
Kale	120	50	
Basil	25	15	
Parsley	38	18	
Peppers	145	36	
Cucumber	360	108	
Zucchini	250	108	
Strawberry	80	40	
Lavender	2	7	
Peas	120	120	
Green Node Crops:			
	Produce /year (kg)	Waste/ year (kg)	Produce: Waste
Mountain Ash	30	24	
Sweet Chestnut	50	20	
Common Walnut	45	15	
Common Juniper	5	15	
American Persimmon	20	10	
European Plum	80	35	
Common Hawthorn	18	18	
Asarabacca	minimal	80	
Cornflower	12	120	
Lavender	16	160	
Herbs:			
	Produce /year (kg)	Waste/ year (kg)	Produce: Waste
Asarabacca	minimal	240	
Cornflower	24	240	
Lavender	24	240	

PRODUCE

Produces edibables that provide fresh food, sustenance in case of emergencies and a possible source of income

WASTE

Offers wood for the wood boiler and organic waste for the algae panels

Greywater Reuse
Smart Fixtures
Rainwater Harvesting

-65%

Recycled Materials
Prismatic Roofs
Smart Systems
Passive Heating and Cooling
Renewable Energy
Urban Farming
Cycling

-75%

Reused Materials
On Site Waste Management
Circular Design
Biogenic Materials

-85%

SPACE FUNCTION	AREA (m²)	Device	Quantity	STANDARD ANNUAL CONSUMPTION (kWh)	HIGH EFFICIENCY ANNUAL CONSUMPTION (kWh)	ANNUAL ENERGY SAVING (kWh)
Showcasing Halls (2)	*1,740*	*LED Lighting Fixtures*	174	52,200	34,800	17,400
		HVAC Units	4	69,600	55,680	13,920
		Projectors	2	1,200	800	400
Machinery Rooms (4)	*40*	*Ventilation Fans*	4	1,920	1,440	480
Lounges & Circulation (2)	*70*	*LED Lighting Fixtures*	14	4,200	2,800	1,400
		HVAC Units	1	1,800	1,440	360
Workers Restroom	*8*	*Water Heater*	1	1,200	960	240
		Hand Dryer	1	600	480	120
Cloakrooms (2)	*4*	*LED Lighting Fixtures*	2	600	400	200
Entrance Lobby	*30*	*LED Lighting Fixtures*	6	1,800	1,200	600
Kitchen	*11*	*Refrigerator*	1	1,200	900	300
		Microwave	1	300	240	60
		Electric Kettle	1	300	240	60
Pantry	*3*	*Coffee Machine*	1	600	480	120
Toilets (2)	*20*	*Water Heaters*	2	2,400	1,920	480
		Hand Dryers	2	1,200	960	240
Indoor Cafeteria & Circulation	*65*	*LED Lighting Fixtures*	13	3,900	2,600	1,300
		HVAC Units	1	1,800	1,440	360
Creativity Workspace	*80*	*Desktop Computers*	10	6,000	4,800	1,200
		LED Lighting Fixtures	16	4,800	3,200	1,600
Prototyping Platforms (2)	*460*	*CNC Machines*	2	24,000	19,200	4,800
		3D Printers	2	2,400	1,920	480
Wood Boiler Room	*30*	*Wood Boiler System*	1	12,000	9,600	2,400
Shredder Space	*10*	*Industrial Shredder*	1	3,600	2,880	720
Worker Cl…		*LED Lighting Fixtures*	1	300	200	100
Si…		*Ventilation …stem*	1	1,200	960	240
		…Equipment	10	24,000	19,200	4,800
		…ighting …es	29	6,700	5,800	2,900
		…ighting …es	10	3,000	2,000	1,000
		…Lighting …tures	10			1,000
		Desktop Computers				2,400
		LED Lighting Fixtures				3,200
		HVAC Uni…				720
…oms	*120*	*Projecto…*				00
		LED Lig… Fixture…				00
	165	*Audio-… Equipm…*				
		LED Lig… Fixtures				300
Services	*100*	*HVAC Uni…*				720
		LED Lighting Fixtures				2,000
Total	*3841*					64,000

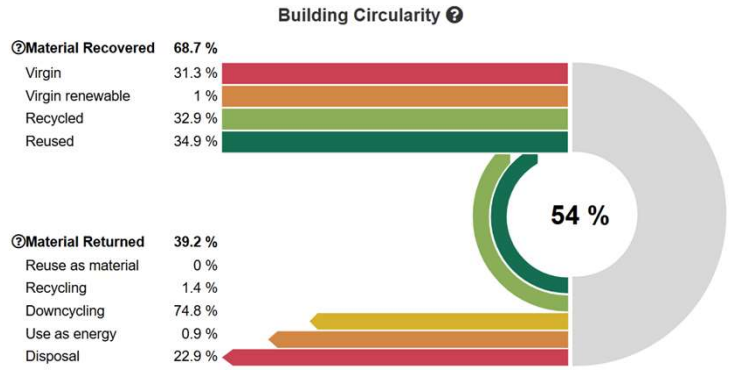
320,000 kwh

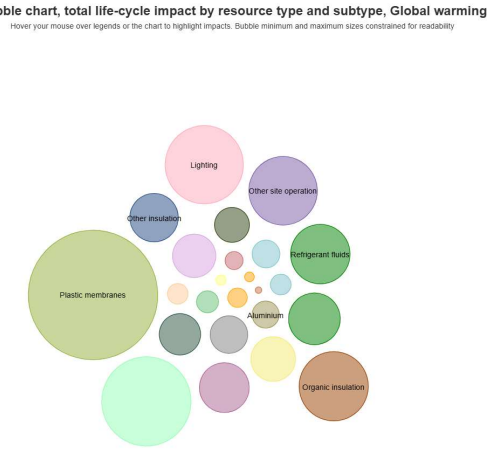
256,000 kwh

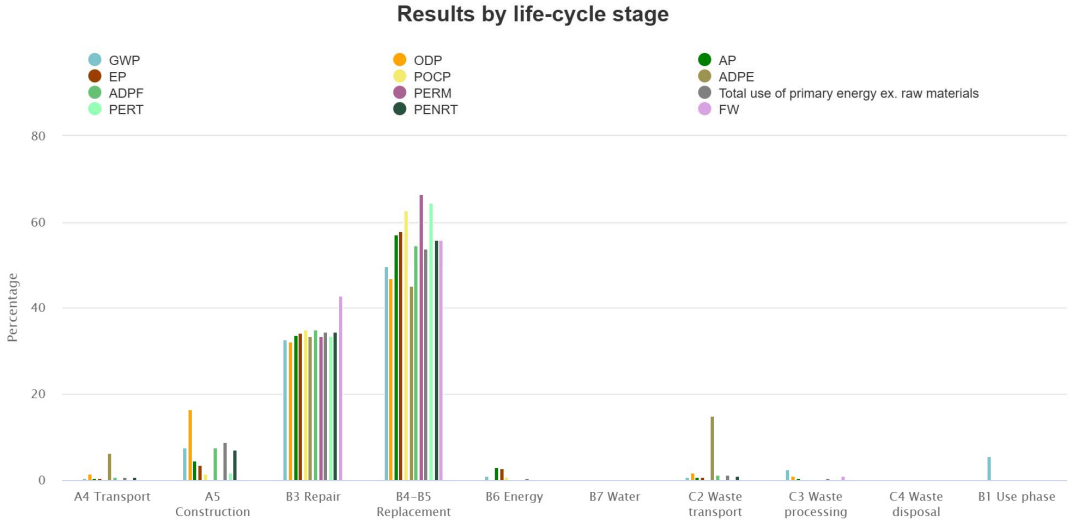
64,000 kwh *Annual Saving*

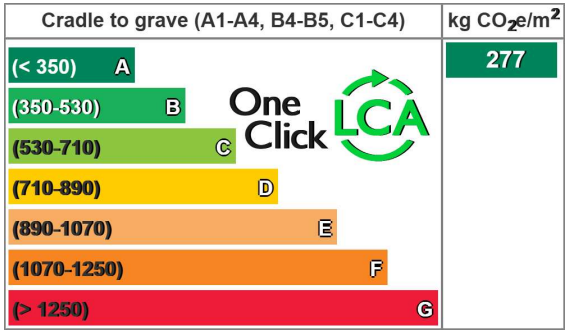
LIFE CYCLE ENERY CACLULATIONS & ANALYSIS

One Click LCA Output Calculations Based on Our Strategies









THANK YOU