ARCHITECTURE STUDENT CONTEST

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KNOT

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TEAM 10 - ROMANIA

"...quality doesn't justify the price..." "...there is money, but we have a government of thieves." "...the street matrix of Belgrade on the water and its entire urban and traffic solution is a major failure." "Said as a new linden tree." "...why isn't the rest of the city being maintained?" "The design is relatively cheap and impersonal, those horrible fences along the coast, those square lighting poles, generic benches and furniture, only the greenery is better." "They should have made a pedestrian path to the river at least 5 meters wide, a two-meter green belt, then a bicycle path, and then another two meters of green belt with a tree line, and so on along the entire length" "We all live in a system where rules either don't exist or don't apply, where deception is an everyday thing. A regulated system would protect the buyer from this, at least enough to require the investor to point this out and reduce the price of the apartment accordingly." "There's no joy in that, we should fight for a fairer society! Capitalism certainly, but based on strict rules in which there is no deception!" "adopted without public debate" "Simply so many resources, and so much focus, and such things are turned a blind eye, we all know why." "They killed the street with narrow sidewalks." "Hunger for money..."

for people.
about people.
with people

CONTENTS

ANALYSIS

ANALYSIS

URBAN SCALE POSITION OF THE SITE

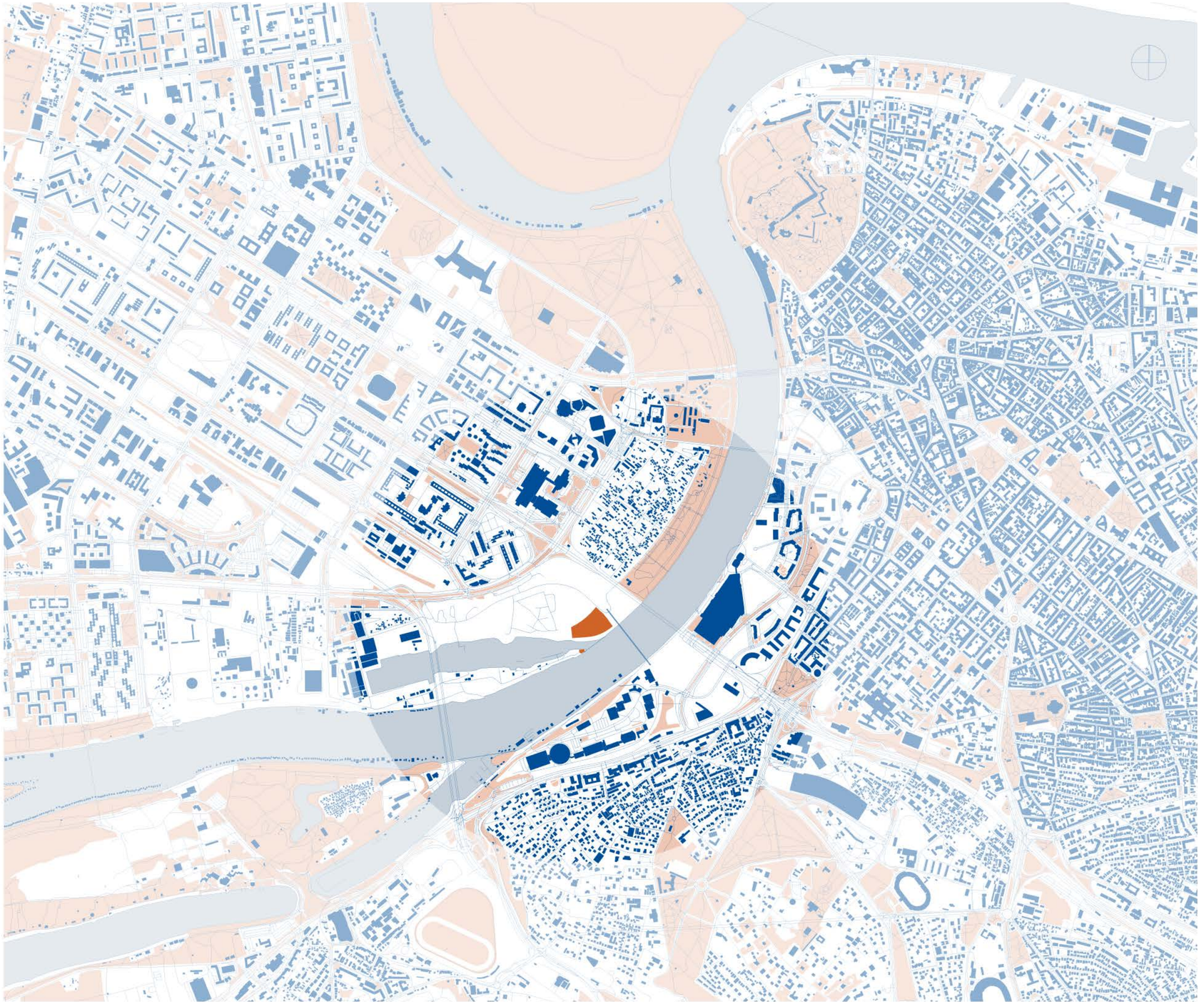
Belgrade is a city of **diverse architectural layers.** The most significant contrast is between the dense, organic texture of the **old city** and the large-scale modernist blocks of **New Belgrade.** This urban mix is further defined by socialist brutalism and the newer glass towers along the riverfront. The **project site** sits at the **meeting point** of these different styles, acting as a bridge between the city's history and its modern development.

The site serves as a **transition zone** between the **rigid grid of New Belgrade** and the **natural flow of the Sava River.** Rather than acting as a barrier, it connects the dense urban environment with the riverbank landscape. It is also a key part of the city's **green corridor**, supporting pedestrian movement and ecological continuity along the waterfront.

Due to its **open location**, the site is **highly visible** from both riverbanks, the water, and the nearby bridges. This makes the project a **prominent landmark** within the city's skyline, easily recognized from multiple viewpoints across the river.

Despite the **river's potential** as a natural asset, the current waterfront suffers from a lack of high-quality public space and social infrastructure. The area is presently **underutilized**, offering **few opportunities** for communal gathering or meaningful interaction with the water.

Located at the tip of the peninsula, the **yachting club building** is the main visual focus of the project. Its position gives it a **boat-like appearance**, making the building look as if it is floating on the water. This close relationship with the river anchors the project to the site and creates a clear **visual end-point for the waterfront.**



ANALYSIS

URBAN MOBILITY AND SITE ACCESSIBILITY

A3 Highway

Vladimira Popovića Street

Brodarska Street

Train Railway

Sava Promenade

The proximity to the A3 Highway and Vladimira Popovića Street establishes the project as a **highly accessible urban destination**, seamlessly linked to both the regional transit network and the central business districts. This infrastructural framework ensures that the site remains a **high-visibility node**, capable of absorbing significant urban flows while maintaining a direct connection to the city's macro-scale circulation.

A key feature of the site's accessibility is the **deliberate layering of different movement speeds.** While the northern and eastern boundaries are defined by "hard" vehicular infrastructure, the southern edge opens directly onto the Sava Promenade. This proximity to the riverbank creates a vital interface for "soft" mobility, integrating the project into the city's pedestrian and cycling networks.

The **transition** from the high-speed transit of the highway to the leisurely pace of the waterfront promenade positions the site as a **critical threshold** that reconciles industrial-scale infrastructure with a human-centric public realm.

CORE DESIGN VALUES

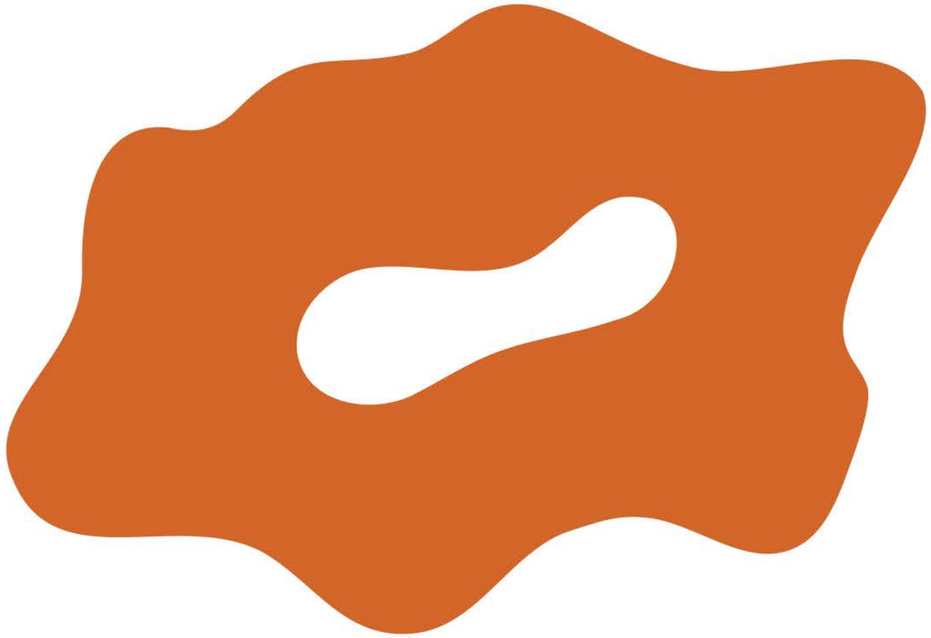
CORE DESIGN VALUES

Fluidity

The ability of a space or form to flow naturally, without rigid boundaries. It suggests smooth transitions, adaptability, and a continuous sense of movement.

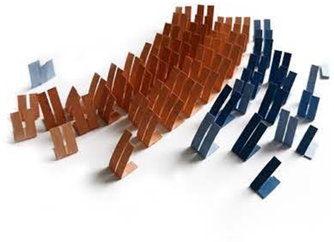
Diversity

The coexistence of multiple forms, identities, or perspectives within one system. It celebrates difference as a strength and recognizes that variety creates richness and resilience.



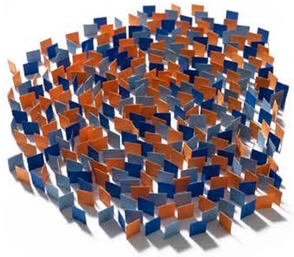
Dynamism

A quality of energy and constant motion embedded in design or composition. It expresses tension, direction, and a sense that something is always evolving or in action.



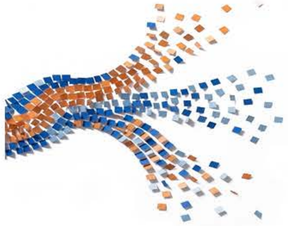
Unity

The principle of bringing different elements together into a coherent, harmonious whole. It reflects balance and the idea that every part belongs and contributes to a single vision.



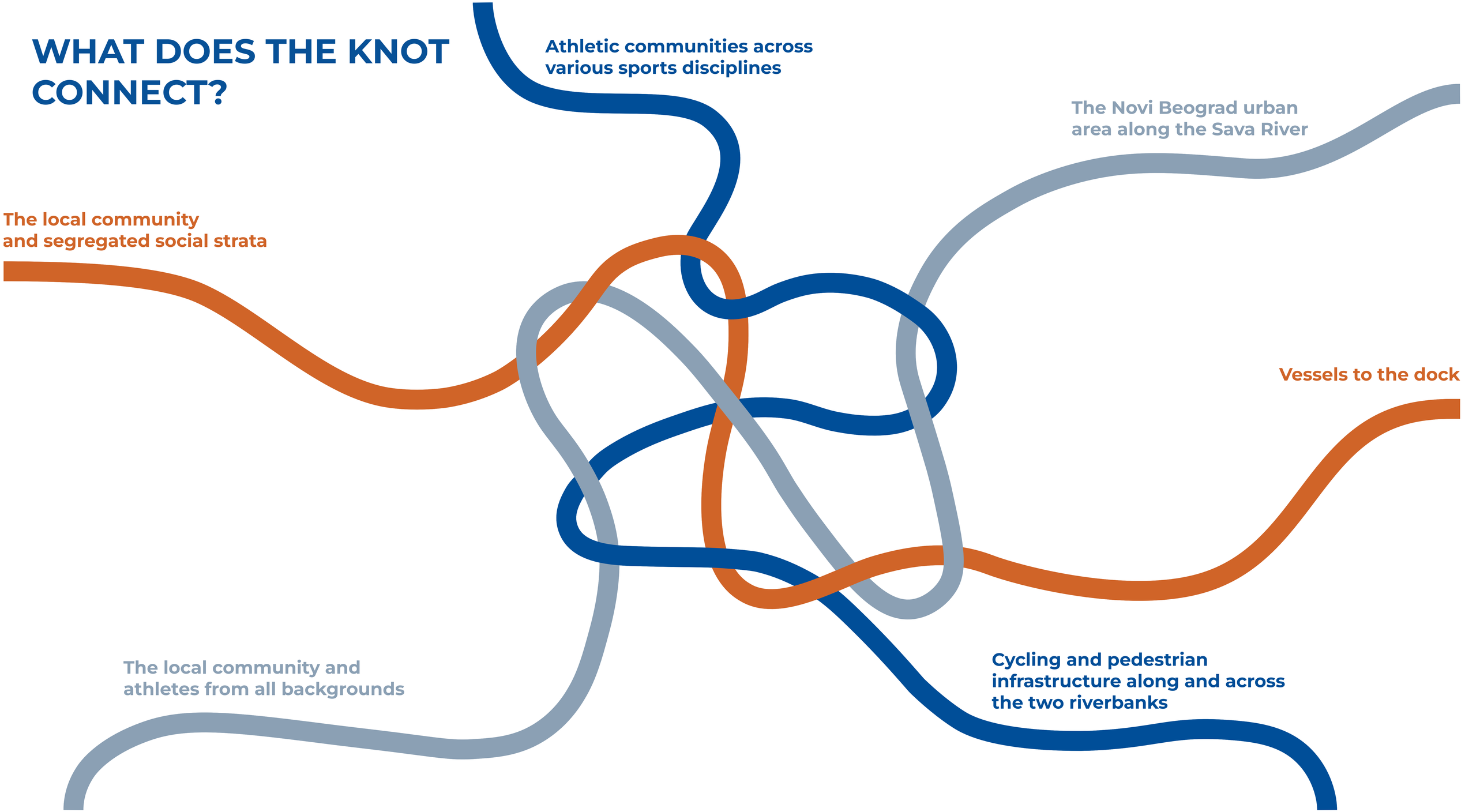
Open-Ending

A deliberate absence of a fixed conclusion, leaving room for interpretation and continuation. It invites the viewer or user to project their own meaning onto the



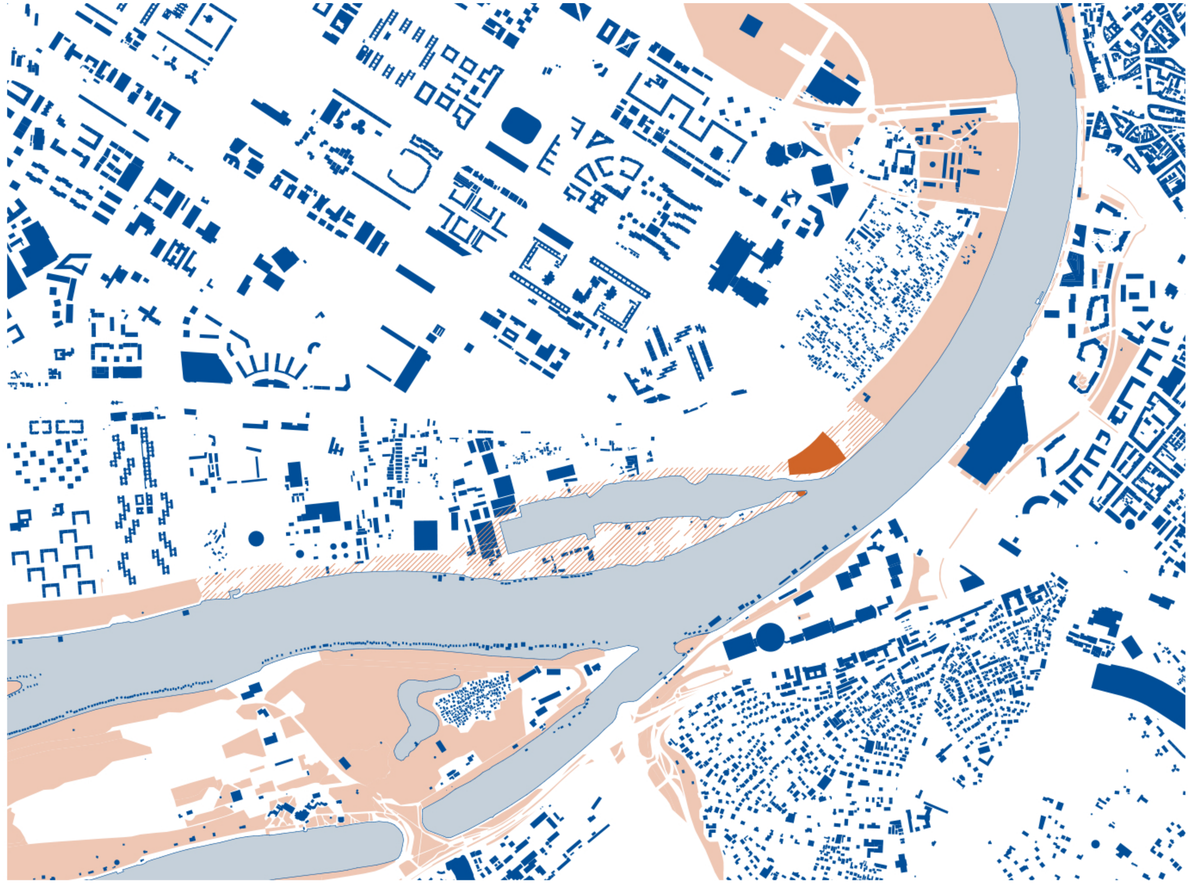
CONCEPT

WHAT DOES THE KNOT CONNECT?



CONCEPT - MACRO

The green corridor on the northern bank of the Sava is **interrupted** in the vicinity of the site; extending it would provide **urban coherence** while also enhancing **local biodiversity**. Furthermore, a lack of consideration for the natural landscape is evident in the contemporary developments on the opposite bank.



The pedestrian promenade becomes continuous along the entire northern bank of the Sava. Furthermore, **running** and **cycling tracks** for sports competitions can follow their natural course along the waterfront, instead of being diverted around the industrial area as is currently the case.

CONCEPT - MEZZO

The **placement** of the volumes follows a responsible approach to the surrounding area. It **avoids creating a barrier** between the city and the water.

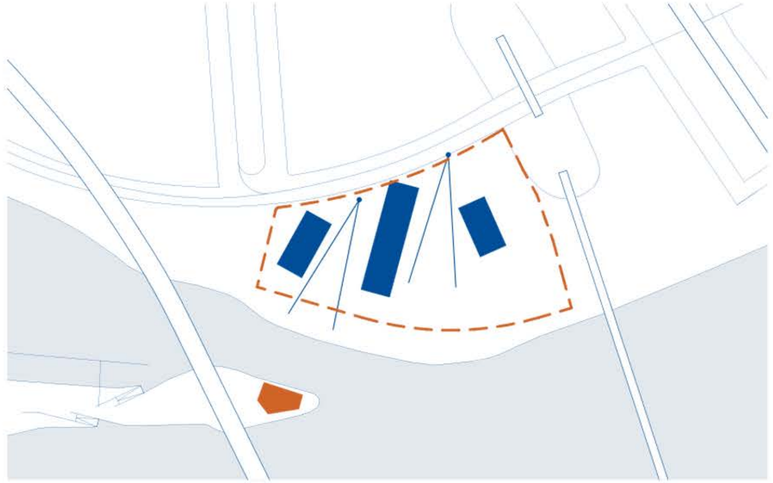
Instead, the layout opens **visual corridors** and **pedestrian pathways** toward the promenade and the yachting club.

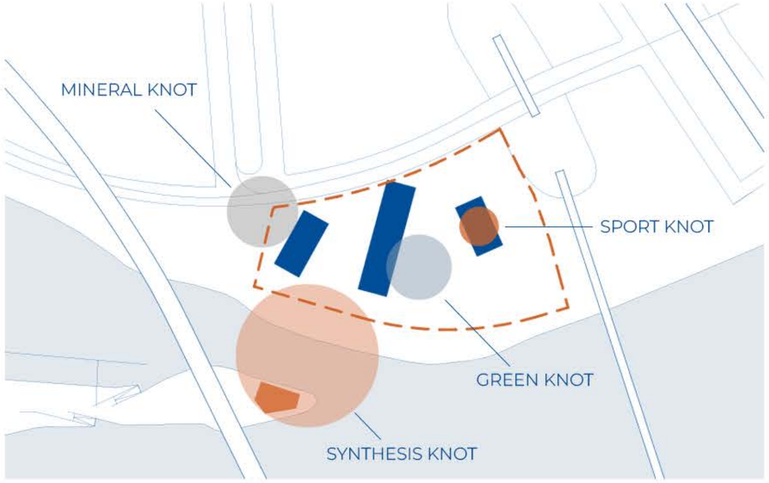
The KNOT concept is realized on-site through four distinct yet **interconnected hubs**. Together, they form a larger urban knot at the city scale. **The MINERAL KNOT** is the primary public node, designed as a plaza linked to the cafeteria building. **The SPORT KNOT** consists of athletic functions and draws users toward the gym.

The GREEN KNOT features dense vegetation, acting as a natural filter for the accommodation building. Finally, **the SYNTHESIS KNOT** captures the essence of the waterfront: the river's surface, local flora and fauna, and the iconic yacht club.

The buildings' **curved footprints** stem from the link between the architecture and the **site's organic setting**. They also reflect the primary sports function of the complex. This language is defined by **dynamism** and **fluidity.**

Visually, the project does not block the eye. Instead, it redirects the gaze toward the **area's true focal points:** the **natural landscape** and the **prestigious yachting club.**





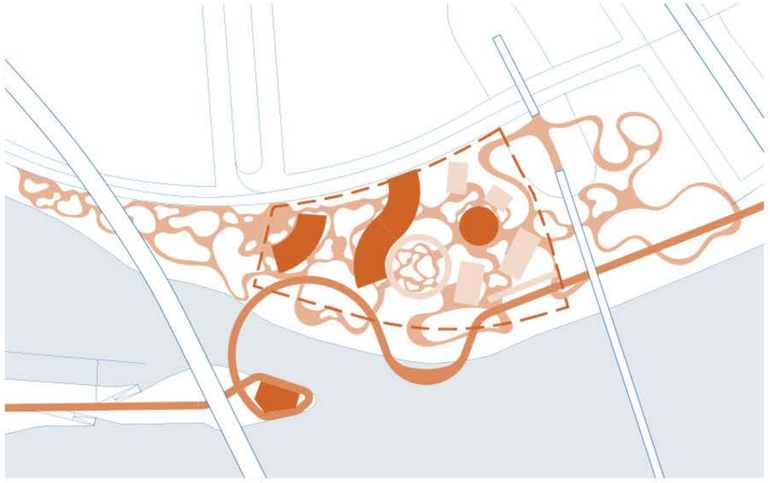
CONCEPT - MEZZO

The **Sava promenade** continues through a **dominant circulation path** on the site, designed for both **pedestrians and cyclists.** This route embodies the concept of an **architectural promenade.** It interacts dynamically with the new buildings in Zone 46, moving closer and further away. It also encircles the yachting club, creating different ways to approach the buildings.

The path includes a **movable bridge** and a **pontoon** with an **integrated amphitheater.** Ultimately, it serves as a platform for users to interact with the **riverbank** and the water's surface.

The **circulation layout** does more than facilitate movement; it **unifies** the entire site. Conceptually, it functions as a **knot** that integrates buildings, green spaces, sports fields, and outdoor amenities.

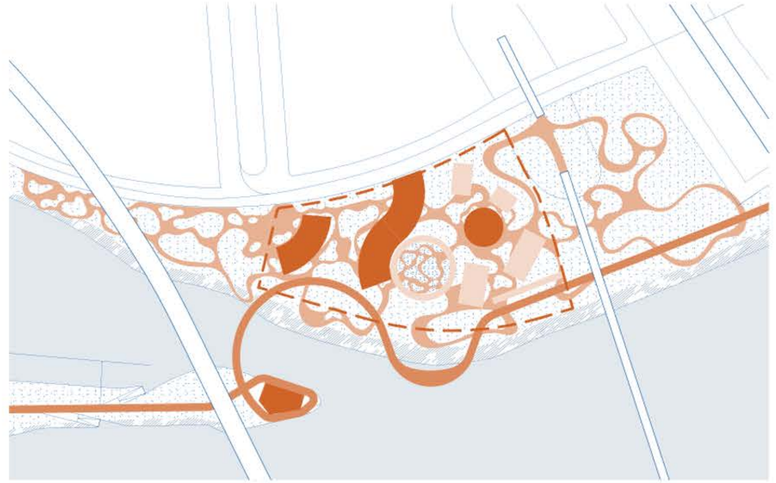
The **landscape design** is defined by **fluidity and cohesion.** This approach allows for continuous growth and future expansion.



The landscape concept distinguishes **three distinct types of vegetation zones.** Primarily, the greenery follows local riparian patterns, forming a uniform collage of low, medium, and tall species.

Near the water's edge, specialized riverbed vegetation supports the local fauna, including protected species, such as the **Pygmy cormorant.**

The third type is located within the **Green Knot.** It features denser, taller vegetation with a **higher concentration** than the rest of the riverbank.

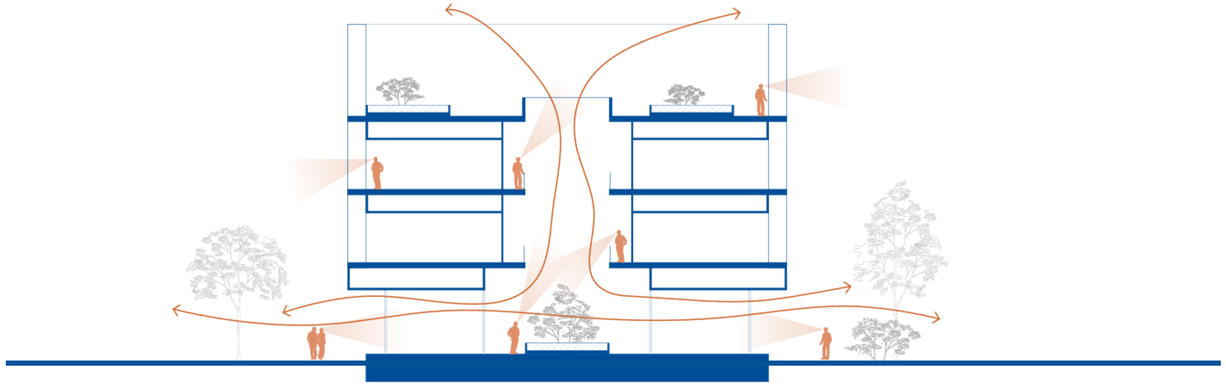


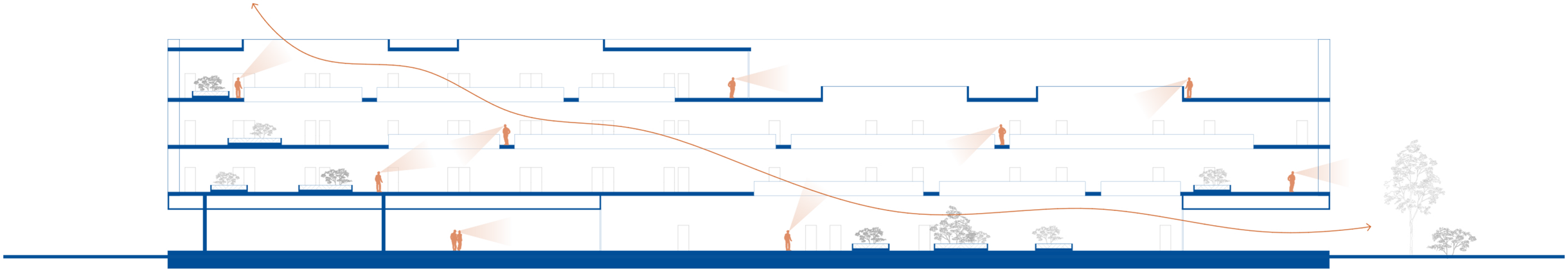
CONCEPT - MICRO

The concept for the **accommodation building** stems from its relationship with the **natural setting.** Every interior space maintains a connection to the **park.** At the ground level, **floor-to-ceiling glazing** facilitates visual links with the outdoor greenery, letting the **outside park come inside** the building.

The guest rooms follow a double-loaded layout. A full-height **atrium** separates them, rising from ground-floor planters to rooftop skylights. Open galleries flank this atrium on both sides. These provide room access and foster **dynamic visual connections** across different levels.

The roof is designed as an **accessible terrace** with **integrated planters.** This space invites user interaction while respecting the project's natural context.

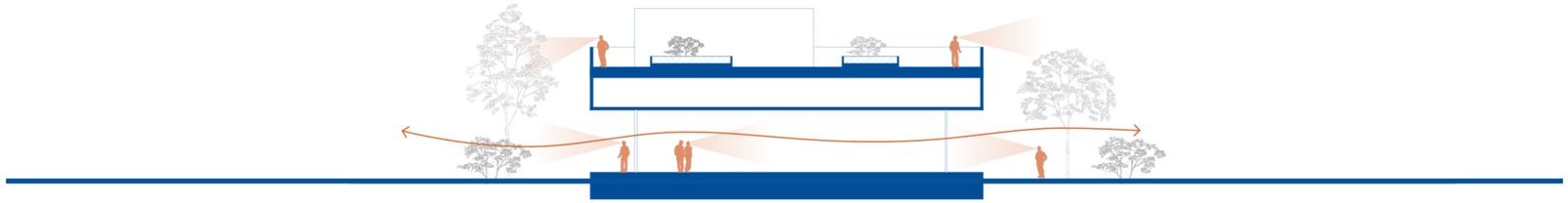




CONCEPT - MICRO

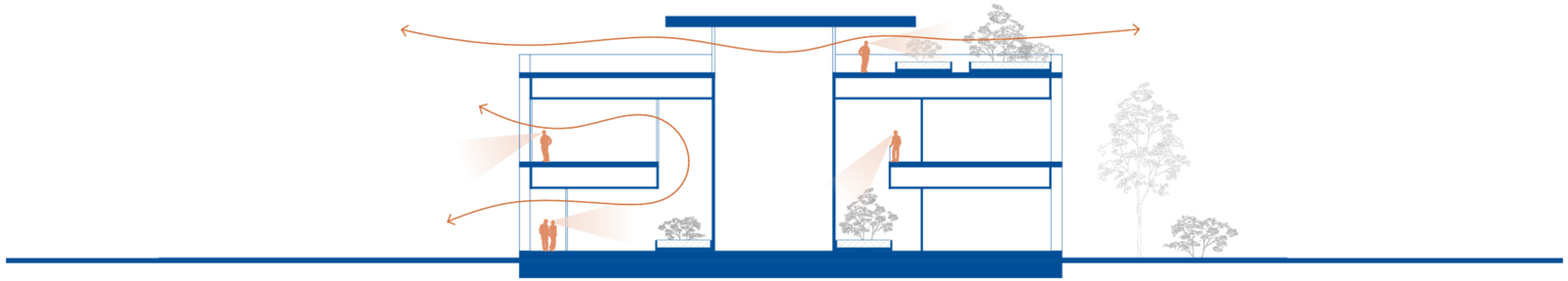
The dining area of the **cafeteria building** is glazed on three sides, maximizing its **connection to the natural context.** Nature permeates the interior spaces and extends onto the roof terrace, **blurring the boundary** between the building and its surroundings.

The open nature of the **free plan** ensures **spatial versatility.** This allows for easy repartitioning to suit various uses and events.



The **gym building**, following a circular shape in plan, acts as a key point in site, attracting people and organizing the **sport fields** around. Voids in the floor plates create **spatial links between levels**, allowing greenery to extend from the ground floor to the upper level. The training areas are located on the first floor. Combined with the large windows, they offer users **elevated perspectives** at the **treetop level.**

A **central core** manages vertical circulation and provides access to the **accessible roof terrace.** This space extends the training area outdoors. Consistent with the other buildings in the complex, the terrace features **integrated green zones.**



SITE OVERVIEW

MASTERPLAN

SC. 1:500

LEGEND

DEVELOPMENT INDICATORS :

Built area / Footprint : 4055 m²
(Site Coverage = 16.68%)

GROSS FLOOR AREA (GFA) :
- Cafeteria : 2152 m²
- Accommodation : 10226 m²
- Gym : 2120 m²

GREEN AREAS : 9816 m² (40.37%)

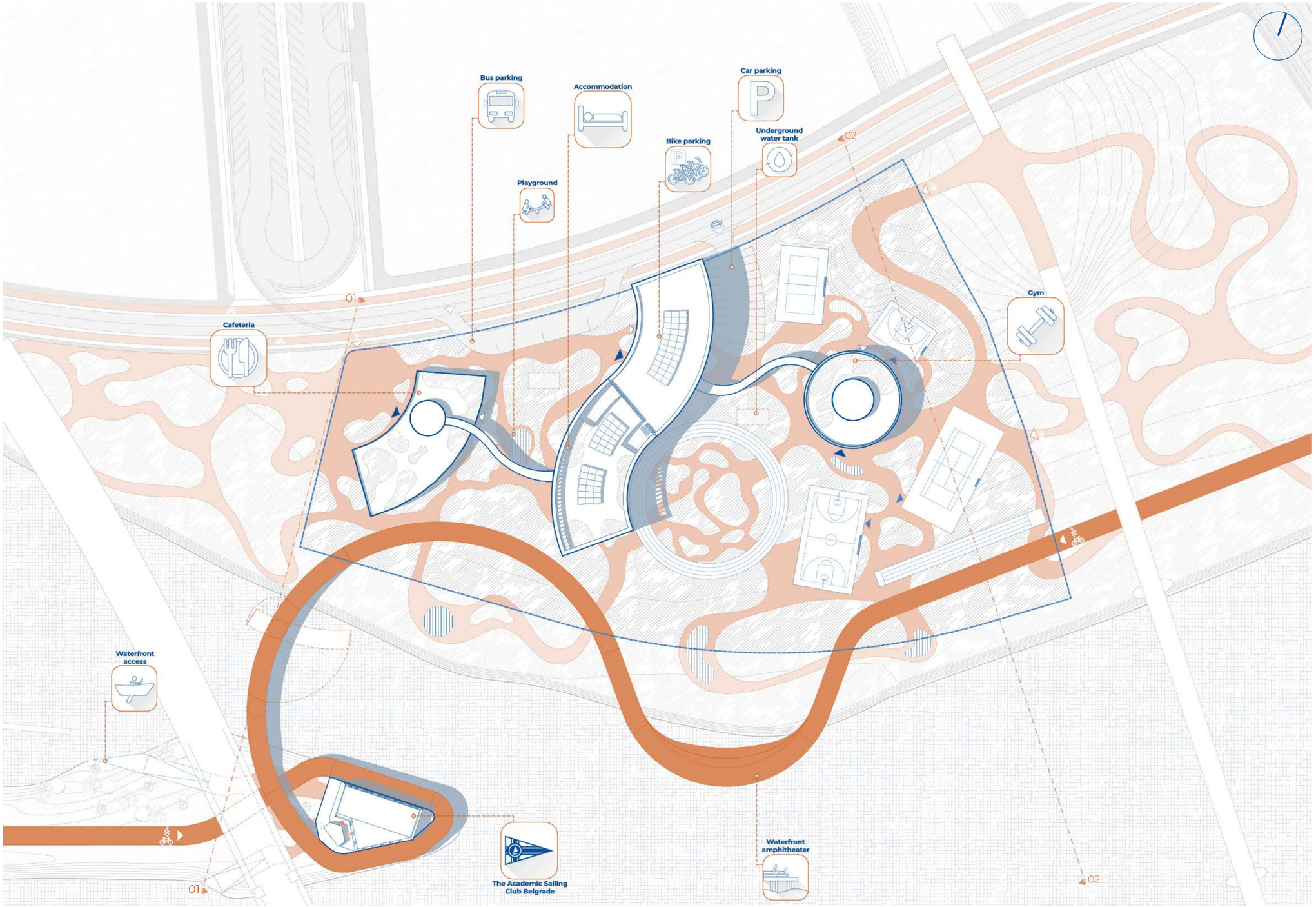
PARKING AREAS:
- Car parking : 437 m² (21 spots)
- Bus parking : 378 m² (2 spots)
- Indoor bike parking : 43 m²

SPORTS COURTS / RUNNING TRACKS AREAS :
- Volleyball court : 365 m²
- Tennis court : 668 m²
- Basketball court : 608 m²
- 3x3 Basketball court : 252 m²
- Sprint running track : 278 m²
- Track & field track : 705 m²

PEDESTRIAN / CYCLING AREAS : 6756 m²

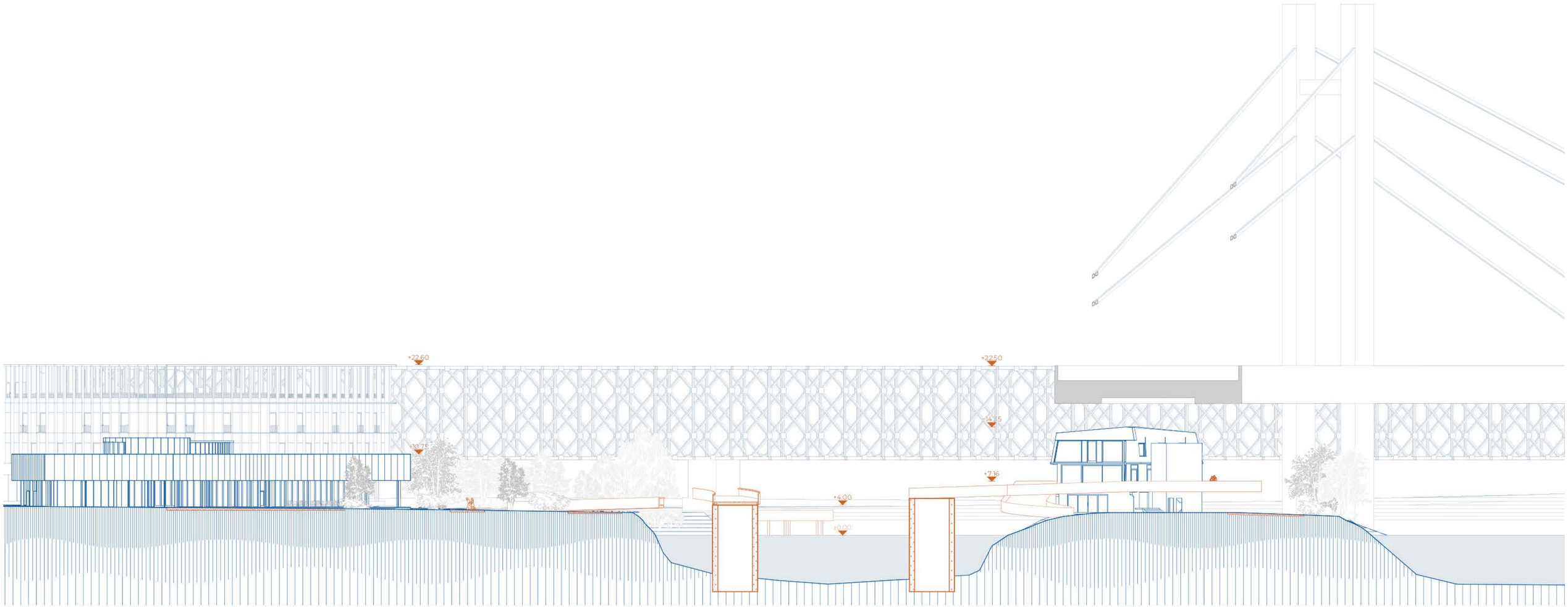
NO. OF ROOMS :
- 60 single rooms
- 32 twin rooms
- 8 accessible rooms

NO. OF ACCOMMODATED ATHLETES : 140



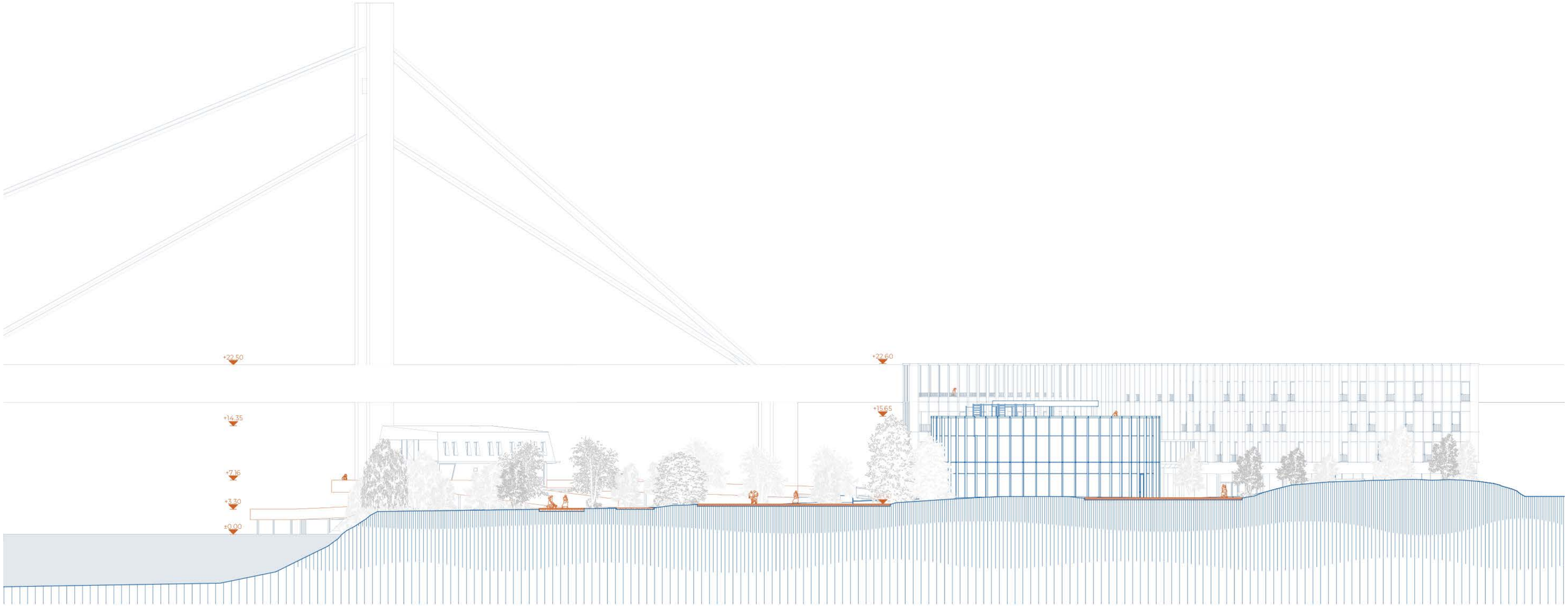
SITE SECTION 01

SC. 1:200



SITE SECTION 02

SC. 1:200



Landscape details

BLOODTWIG DOGWOOD

PURPLE WILLOW

ALDER BUCKTHORN

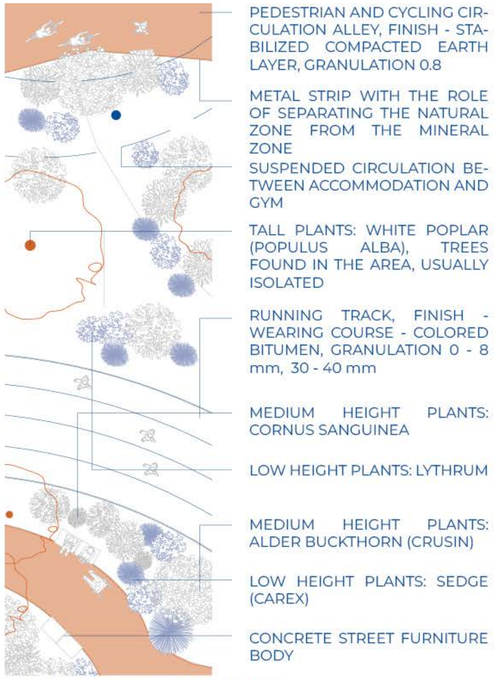
PURPLE LOOSESTRIFE

COMMON REED

SEDGE

WHITE POPLAR

WILLOW



PEDESTRIAN AND CYCLING CIRCULATION ALLEY, FINISH - STABILIZED COMPACTED EARTH LAYER, GRANULATION 0.8

METAL STRIP WITH THE ROLE OF SEPARATING THE NATURAL ZONE FROM THE MINERAL ZONE

SUSPENDED CIRCULATION BETWEEN ACCOMMODATION AND GYM

TALL PLANTS: WHITE POPLAR (POPULUS ALBA), TREES FOUND IN THE AREA, USUALLY ISOLATED

RUNNING TRACK, FINISH - WEARING COURSE - COLORED BITUMEN, GRANULATION 0 - 8 mm, 30 - 40 mm

MEDIUM HEIGHT PLANTS: CORNUS SANGUINEA

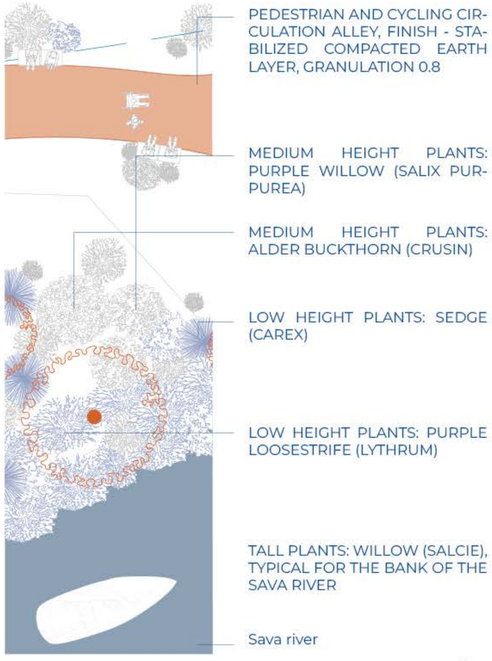
LOW HEIGHT PLANTS: LYTHRUM

MEDIUM HEIGHT PLANTS: ALDER BUCKTHORN (CRUSIN)

LOW HEIGHT PLANTS: SEDGE (CAREX)

CONCRETE STREET FURNITURE BODY

DETAIL PLAN - ZONE 1. SCALE 1 : 100



PEDESTRIAN AND CYCLING CIRCULATION ALLEY, FINISH - STABILIZED COMPACTED EARTH LAYER, GRANULATION 0.8

MEDIUM HEIGHT PLANTS: PURPLE WILLOW (SALIX PURPUREA)

MEDIUM HEIGHT PLANTS: ALDER BUCKTHORN (CRUSIN)

LOW HEIGHT PLANTS: SEDGE (CAREX)

LOW HEIGHT PLANTS: PURPLE LOOSESTRIFE (LYTHRUM)

TALL PLANTS: WILLOW (SALCIE), TYPICAL FOR THE BANK OF THE SAVA RIVER

Sava river

DETAIL PLAN - ZONE 2. SCALE 1 : 100

ZONE A
NEW CONSTRUCTION

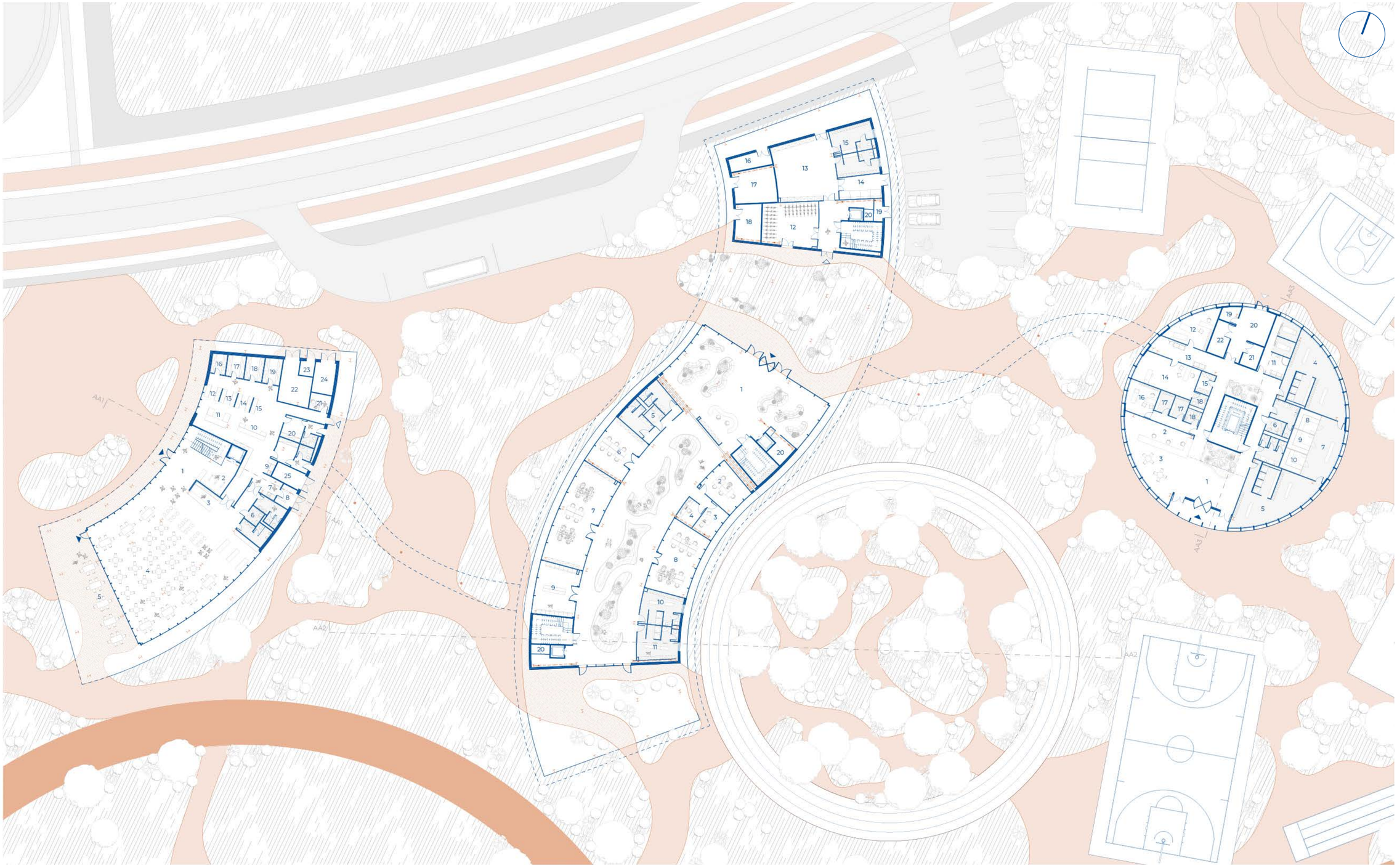
GROUND FLOOR PLAN
SC. 1:200

LEGEND

CAFETERIA
1. Entrance lobby 25 m2
2. Cloakroom 15 m2
3. Bar + Buffet 45 m2
4. Indoor seating 212 m2
5. Outdoor seating 102 m2
6. Restroom 21 m2
7. Dishwashing area 6 m2
8. Kitchenware washing area 9 m2
9. Waste room 8 m2
10. Cold kitchen 10 m2
11. Hot Kitchen 12 m2
12. Egg preparation 4 m2
13. Meat preparation 4 m2
14. Fish preparation 4 m2
15. Vegetable preparation 4 m2
16. Vegetable storage 6 m2
17. Dry storage 7 m2
18. Cold room 8 m2
19. Freezer room 8 m2
20. Admin. office 7 m2
21. Staff locker rooms 34 m2
22. Heating plant room 21 m2
23. F.A.C.P. Room 4 m2
24. Electrical Room 12 m2
25. Fire pump room 10 m2

ACCOMODATION
1. Lobby + Reception 175 m2
2. Admin office 26 m2
3. Admin office 10 m2
4. Security room 9 m2
5. Restroom 37 m2
6. Study/Work area 39 m2
7. Study/Work area 78 m2
8. Study/Work area 50 m2
9. Laundry room 38 m2
10. Locker room (M) 23 m2
11. Locker room (F) 24 m2
12. Bike parking 43 m2
13. Storage 66 m2
14. Waste room 17 m2
15. Staff locker rooms 32 m2
16. Fire pump room 10 m2
17. Heating plant room 25 m2
18. Electrical Room 16 m2
19. F.A.C.P. Room 4 m2
20. MEP Shaft 2 m2

GYM
1. Entrance lobby 43 m2
2. Juice Bar + Reception 25 m2
3. Lounge 35 m2
4. Locker room (M) 61 m2
5. Locker room (F) 61 m2
6. Restroom 29 m2
7. Sauna lobby 30 m2
8. Wet sauna 8 m2
9. Dry sauna 8 m2
10. Infrared sauna 8 m2
11. Massage rooms 28 m2
12. Therapy room 23 m2
13. Waiting area 22 m2
14. Medical room 34 m2
15. Cleaning closet 5 m2
16. Coach office 17 m2
17. Staff locker room 6 m2
18. Restroom 4 m2
19. F.A.C.P. room 4 m2
20. Heating plant room 20 m2
21. Electrical room 8 m2



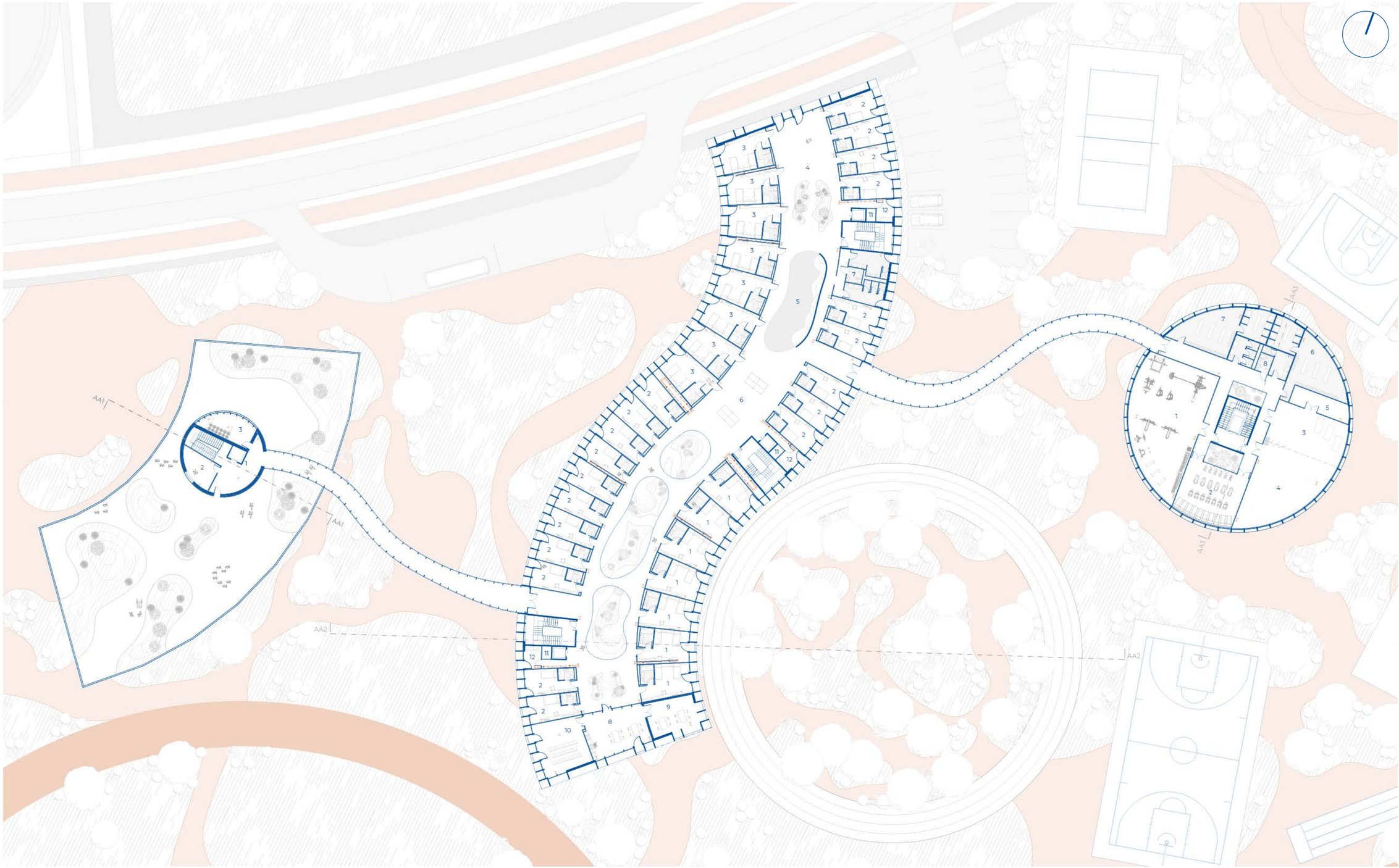
FIRST FLOOR PLAN
SC. 1:200

LEGEND

CAFETERIA
1. Lobby - 27 m²
2. Bar - 16 m²
3. A.H.U. - 22 m²

ACCOMODATION
1. Twin room - 20 m²
2. Single room - 15 m²
3. Accessibility room - 20 m²
4. Lounge - 129 m²
5. Bouldering area - 62 m²
6. Table tennis area - 85 m²
7. Restroom - 36 m²
8. Kitchenette - 48 m²
9. Exterior terrace - 34 m²
10. Multipurpose room - 46 m²
11. MEP Shaft - 2 m²
12. Cleaning closet - 7 m²

GYM
1. Weight Training Area - 150 m²
2. Cardio Area - 62 m²
3. Stretching Area - 59 m²
4. Multipurpose Area - 92 m²
5. Equipment Storage - 19 m²
6. Private locker room (M) - 40 m²
7. Private locker room (F) - 41 m²
8. Restroom - 29 m²

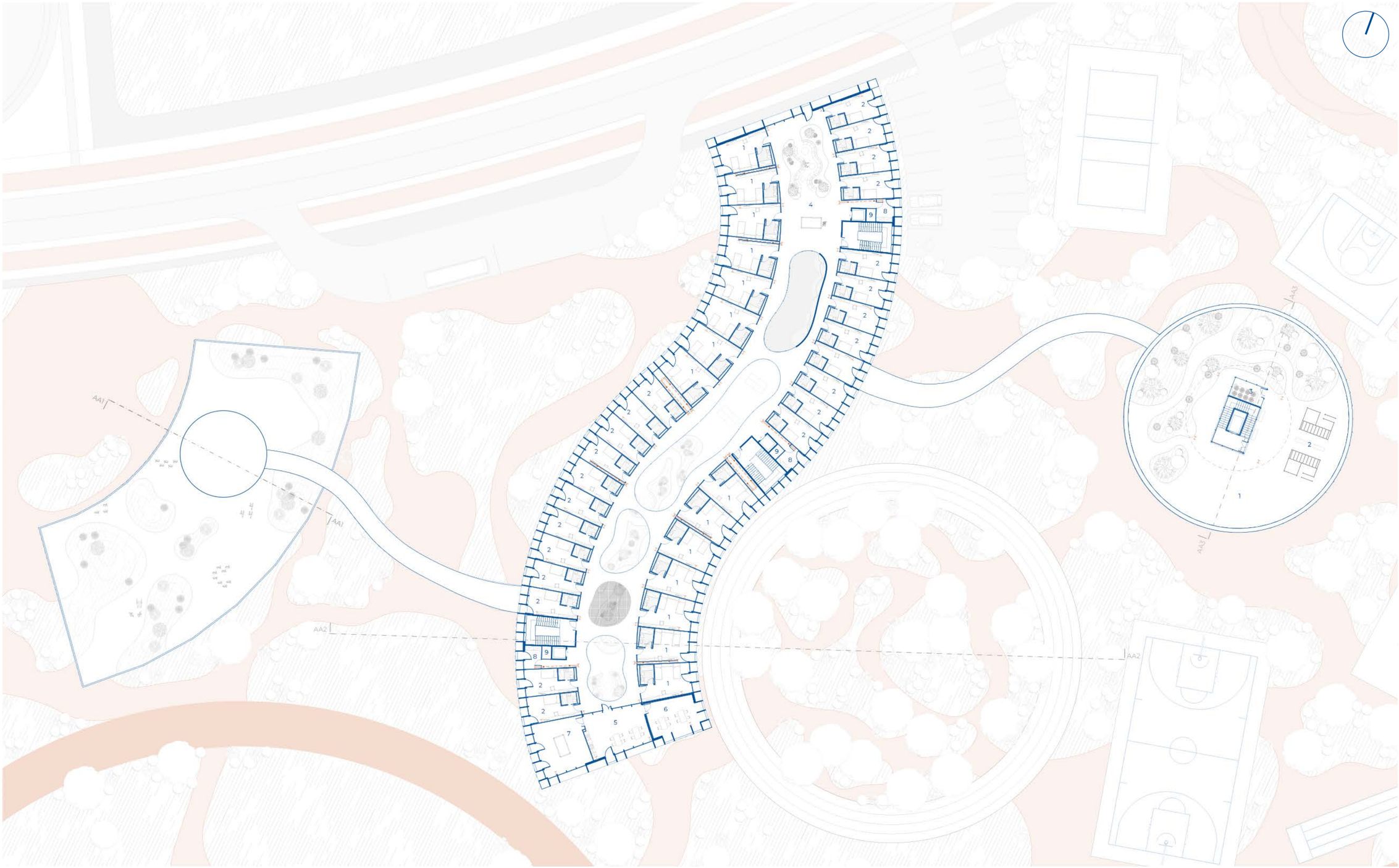


SECOND FLOOR PLAN
SC. 1:200

LEGEND

ACCOMODATION
1. Twin room - 20 m²
2. Single room - 16 m²
3. Accessibility room - 20 m²
4. Social space - 370 m²
5. Kitchenette - 48 m²
6. Exterior terrace - 34 m²
7. Multipurpose room - 46 m²
8. Cleaning closet - 7 m²
9. MEP Shaft - 2 m²

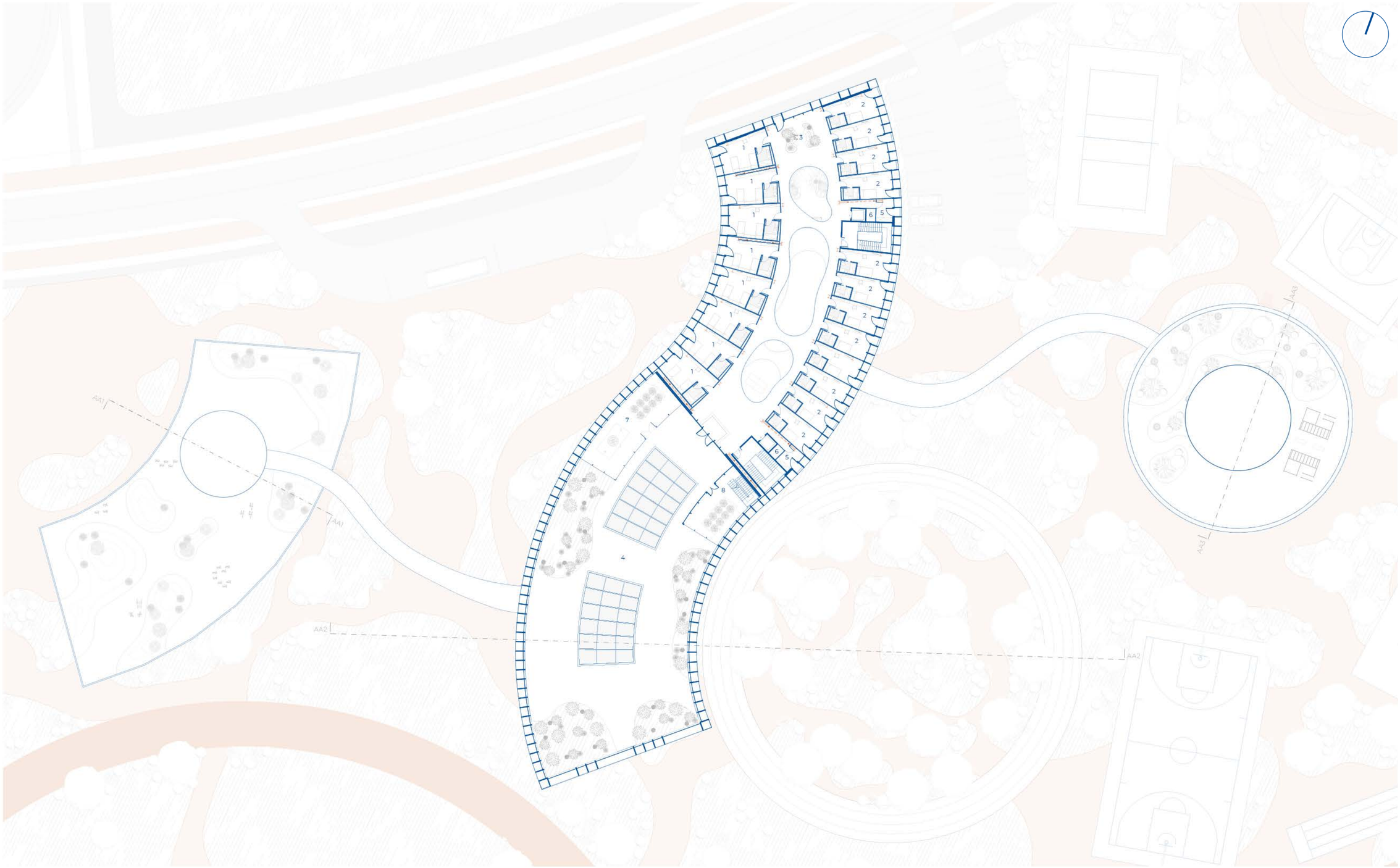
GYM
1. Outside training - 120 m²
2. Calisthenics Area - 112 m²
3. A.H.U. - 11 m²



THIRD FLOOR PLAN
SC. 1:200

LEGEND

ACCOMODATION
1. Twin room - 20 m²
2. Single room - 16 m²
3. Social space - 48 m²
4. Exterior terrace - 630 m²
5. Cleaning closet - 7 m²
6. MEP Shaft - 2 m²
7. A.H.U. area - 78 m²
8. A.H.U. area - 38 m²



ACCOMMODATION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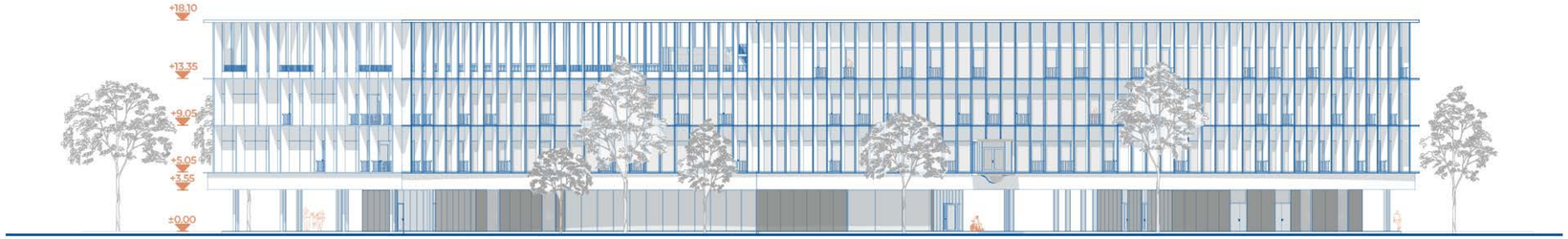
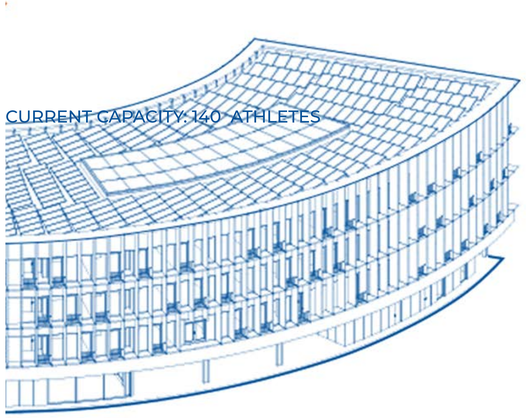
AA2 SECTION SC. 1:200

SOUTH ELEVATION SC. 1:200



EAST ELEVATION SC. 1:200

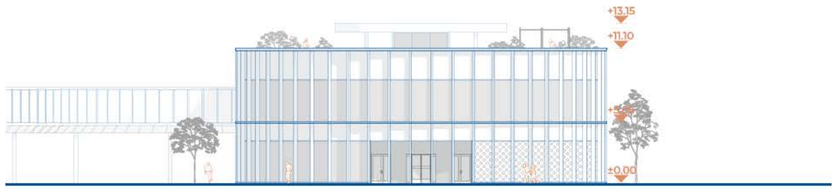
The architectural proposal integrates a strategic approach to **spatial adaptability**, allowing the building to evolve in response to fluctuating occupancy demands. A key feature of this design is the potential for **controlled expansion** on the third floor; by seamlessly enclosing the existing terrace, the facility can significantly **increase** its **accommodation capacity** within the original building envelope. It prioritizes functional resilience and long-term viability. By pre-planning this **modular transition**, the project minimizes future resource consumption and structural waste, ensuring that the building remains a versatile asset capable of scaling its operations without compromising its aesthetic or structural integrity.



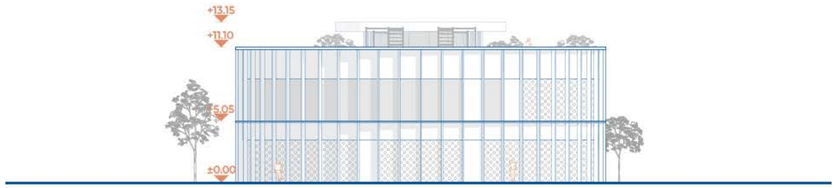
CURRENT CAPACITY: 140 ATHLETES

EXTENDED CAPACITY: 174 ATHLETES

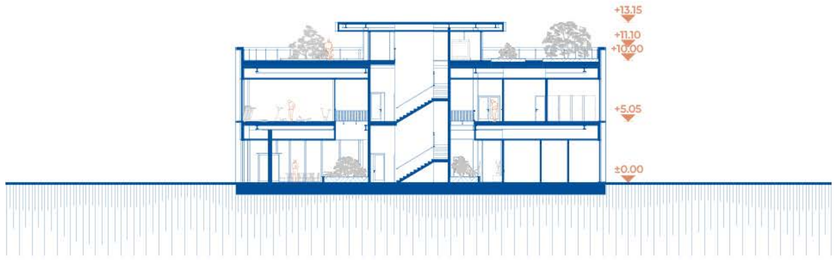
GYM



SOUTH ELEVATION SC. 1:200

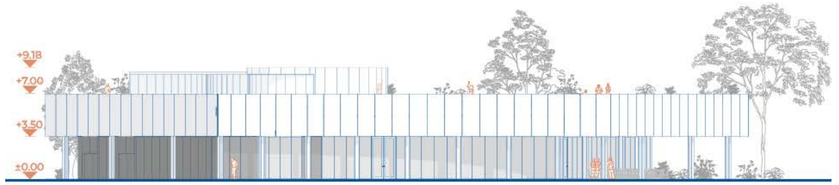


EAST ELEVATION SC. 1:200

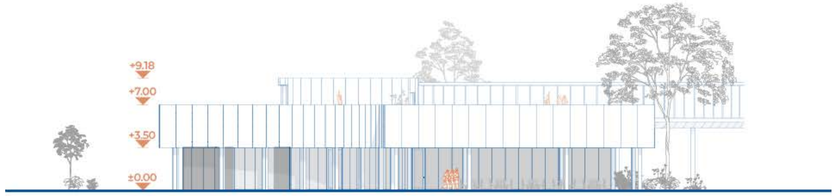


AA3 SECTION SC. 1:200

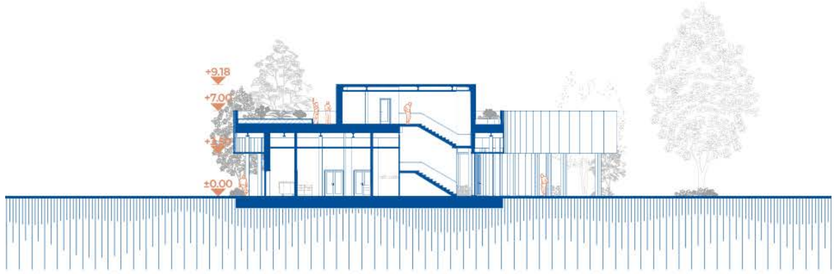
CAFETERIA



WEST ELEVATION SC. 1:200

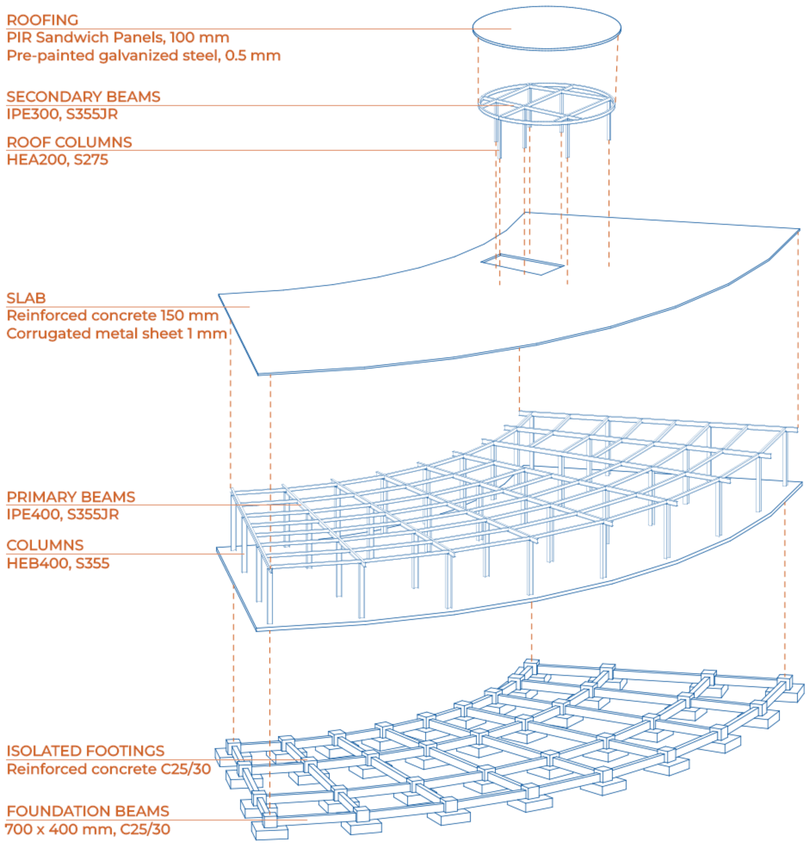


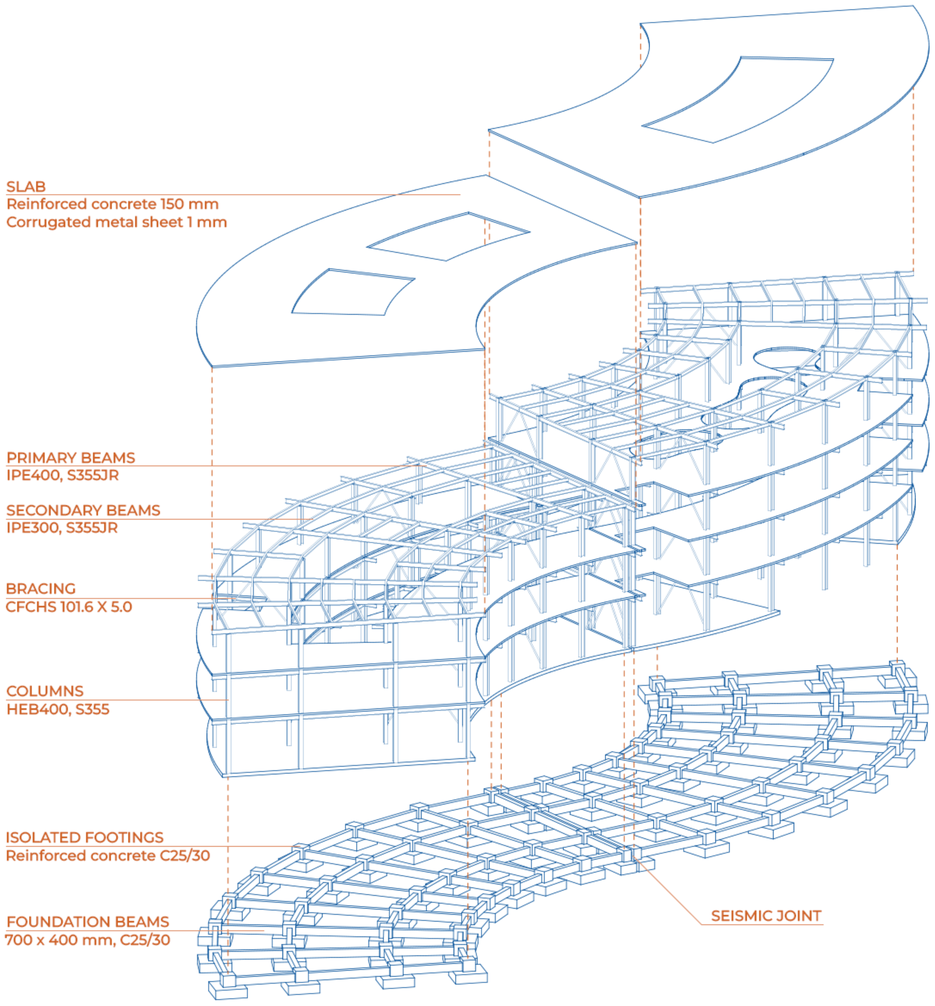
SOUTH ELEVATION SC. 1:200

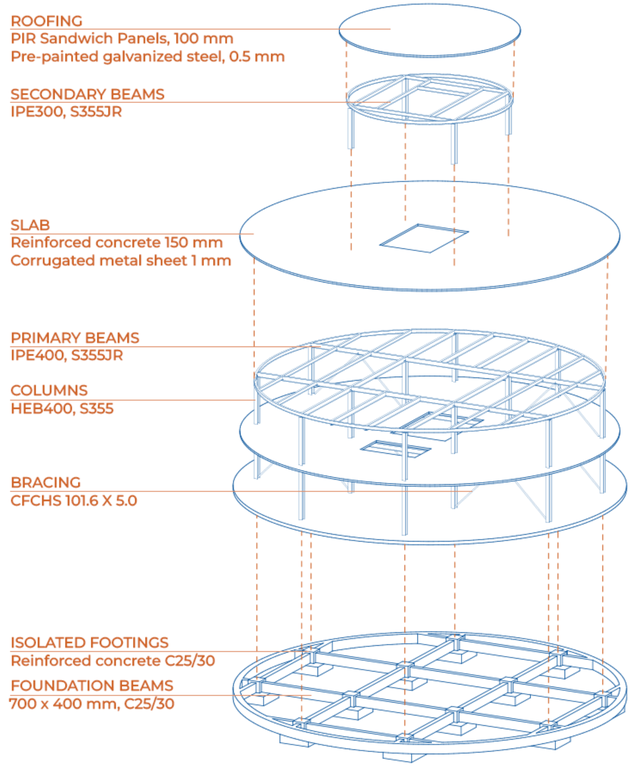


AA1 SECTION SC. 1:200

STRUCTURAL SYSTEM





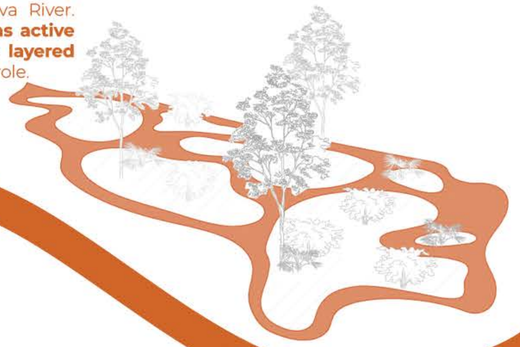


SUSTAINABILITY

LBC DIAGRAM

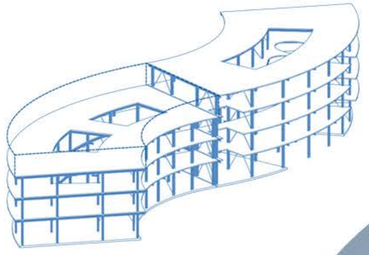
Soil restoration via phytoremediation

The transition of the site into a functional green space requires the **decontamination** of the chemical legacy left by cement production. Instead of excavation, the project proposes phytoremediation, an **'in situ' method** that utilizes plant root systems to extract and immobilize pollutants, while simultaneously preventing their leaching into the Sava River. Inspired by the concept of **landscape as active infrastructure**, the strategy adopts a **layered vegetation system** with a regenerative role.



The "Empty Shelf" Structural System

By decoupling structure from function, the “empty shelf” system allows for **content replacement** as site needs evolve. This **modular flexibility** enables vertical **expansion**, ensuring the building remains a **scalable infrastructure** that densifies its footprint without disrupting the regenerative landscape below.



Photovoltaic integration

The project integrates **249 photovoltaic panels** covering a total area of **558 m²** to capitalize on the site's solar potential. This rooftop array is strategically oriented to **maximize energy gain**. By generating **on-site renewable power**, the system provides a sustainable energy source for the building's lighting and ventilation systems.

Restoration of the riparian ecosystem

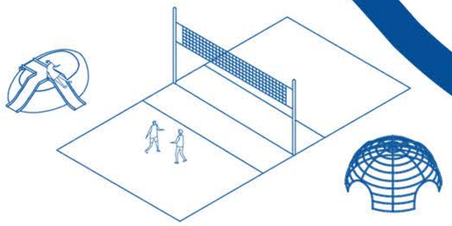
The project addresses this restoration through a strategy of **controlled distancing**. The promenade path does not directly touch the water's edge but maintains a safety distance from it. This setback allows nature to thrive and creates a **buffer between human activity and the ecosystem** at the water's fringe. Furthermore, in areas where the path effectively crosses over the water, its structure is **elevated on stilts**. These technical solutions allow the green belt to continue growing even beneath the boardwalks, preserving the **landscape's continuity** in the immediate vicinity of the water.

Rainwater harvesting infrastructure

Roof surfaces are used to harvest rainwater, channeling it into **storage tanks** sized for **maximum capacity**. The water is then **reused** for irrigating the urban park during dry spells and as **greywater** for sanitary purposes. The project features a **5,948 m² rainwater harvesting area**. Based on Belgrade's average annual rainfall of 700 l/m², and accounting for surface absorption and system efficiency, the **estimated annual collected is 3,330 m³**. This averages 9 m³ per day, significantly **reducing reliance on the public water grid**.

Community activation spaces

Participatory **micro-urbanism** anchors the intervention socially. Key actions, such as the **community-led configuration** of the mineral plaza, **play areas**, and interpretive points, foster collective ownership. Beyond fitness, the **sports facilities** are transformed into **cohesion platforms** where the boundary between professional and community sport dissolves.

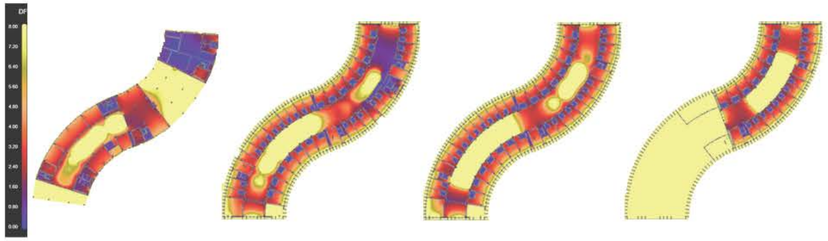


SUSTAINABILITY STRATEGY
NATURAL DAYLIGHT

The central element of the passive sustainability strategy for solar gain and natural light is the **geometry of the facade**. Vertical and horizontal elements, **cantilevered 1m from the glass surface**, provide a **gradation of light** and partial shading to improve **limiting overheating**.

In **winter**, the facade **does not obstruct light**, thereby **reducing energy consumption** for heating during the cold months.

DAYLIGHT FACTOR SIMULATIONS



The East and West orientation of the building's long facades, combined with the glazing ratio, ensures **optimal sunlight for visual comfort** throughout the year.

The **skylights** on the terrace **ensure natural light intake into the atrium**, a crucial aspect for sustaining the **indoor green areas**.

64	0.30	13	49	0.5
TL %	g-value	RL2 %	Rw	Ug

Glazing 1
DIAMANT (5mm) - Annealed
PVB SILENCE (0,76mm)
DIAMANT (5mm) - Annealed
COOL-LITE XTREME 70-33

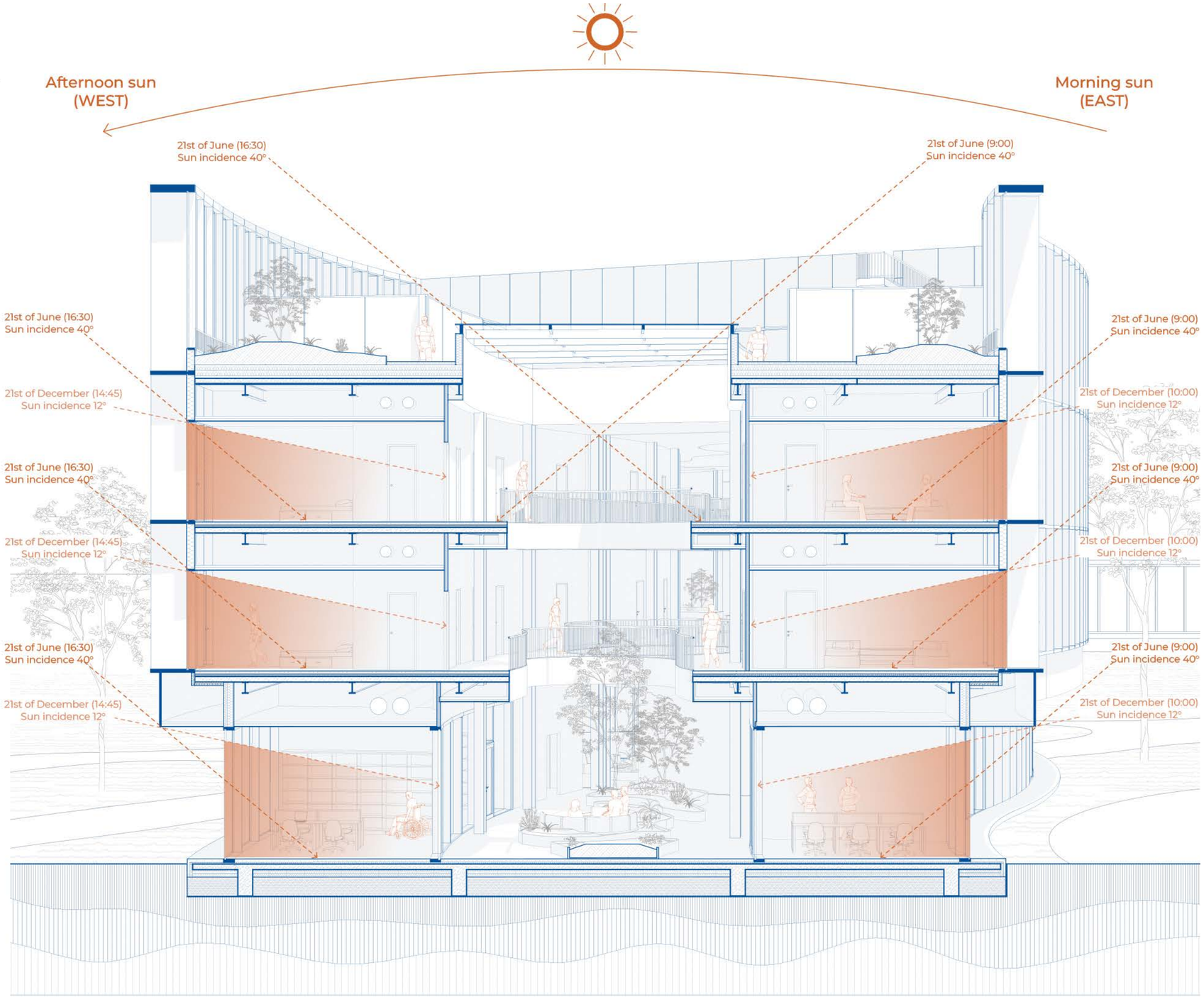
Cavity 1
Argon 90% 16 mm
Swisspacer Ultimate Pro

Glazing 2
DIAMANT (6mm) - Annealed

Cavity 2
Argon 90% 16 mm
Swisspacer Ultimate Pro

Glazing 3
PLANITHERM XN
DIAMANT (4mm) - Annealed
PVB SILENCE (0,76mm)
DIAMANT (4mm) - Annealed

Calumen SAINT-GOBAIN vetrotech SAINT-GOBAIN



SUSTAINABILITY STRATEGY
ACOUSTIC COMFORT

Acoustic comfort is vital for a function such as athlete accommodation, as rest is essential for peak performance during both training and competitions. The integration of **Saint-Gobain solutions** ensures the mitigation of airborne and impact noise to achieve **high indoor environmental quality**, with a focus on the **health and well-being of the users**.

All choices regarding constructive elements play an active role in ensuring acoustic comfort: the partition walls, the floor slabs between levels, the suspended ceilings, and the glass used for the facades:

SELECTION OF ACOUSTIC SOLUTIONS:

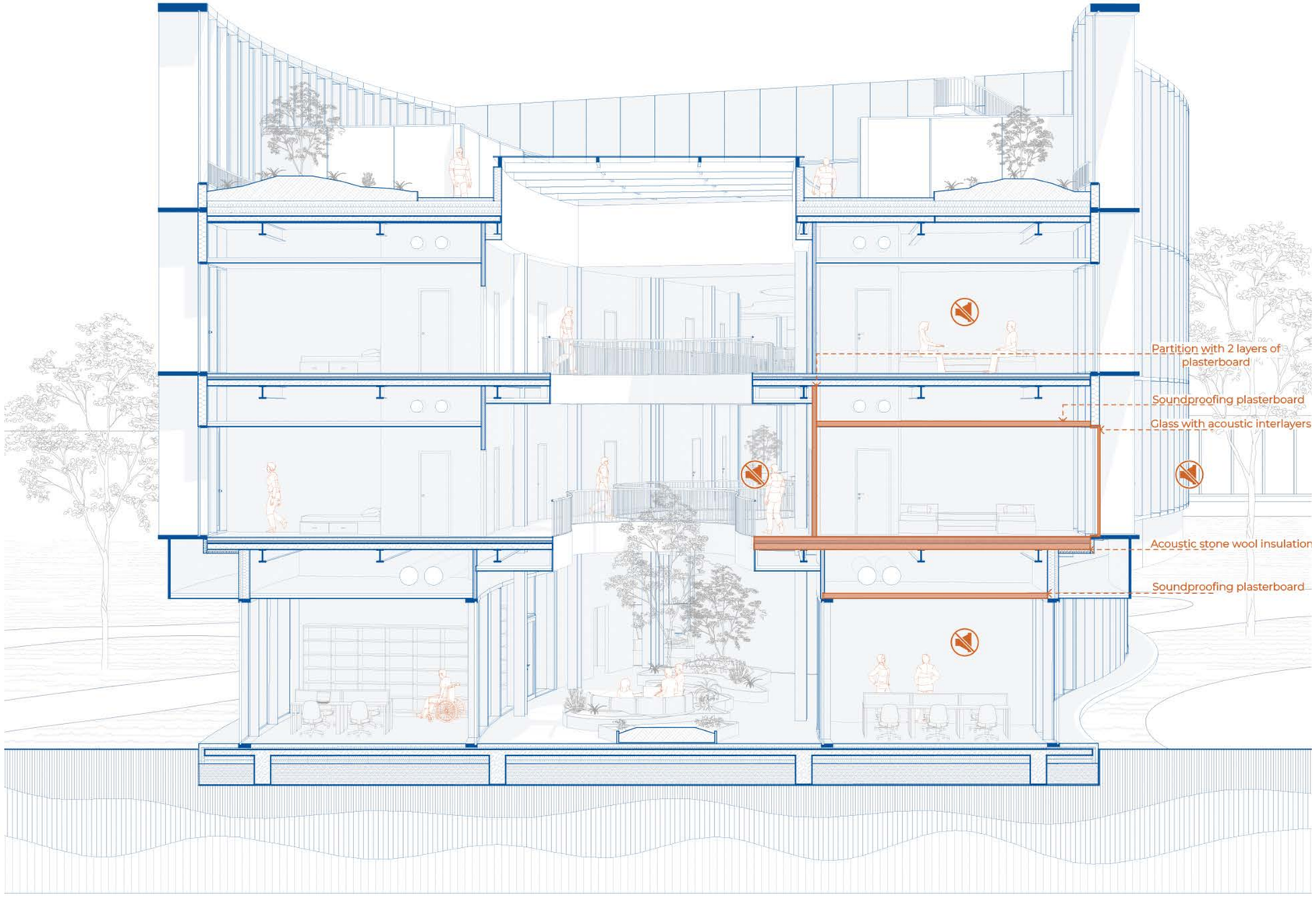
PARTITIONS WITH TWO LAYERS OF BLUE ACOUSTIC PLASTERBOARD :
-**DURALINE BLUE DB :**
-Reaction to **fire class and fire resistance** :
A2 s1 d0 & EI 90
-Sound insulation : 59 dB
-**ISOVER AKUSTO** (Mineral Wool - In Frame)

FACADE GLAZING :
-DIAMANT SI (16 Argon 90) 6 DIAMANT (16 Argon 90):
-Sound insulation : 49 dB

SUSPENDED CEILINGS WITH TWO LAYERS OF BLUE ACOUSTIC PLASTERBOARD :
-**DURALINE BLUE DB**
-12 - 15 dB reduction value

Ecophon & Gyptone solutions contribute to a **good working / studying environment** by enhancing the **users' wellbeing**.

SLAB BETWEEN FLOORS :
-ISOVER TDPT stone wool acoustic insulation for **floating floors**



SAINT-GOBAIN rigips SAINT-GOBAIN isover SAINT-GOBAIN ecophon SAINT-GOBAIN | Gyptone

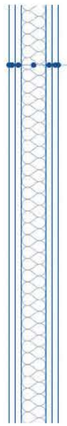
SUSTAINABILITY STRATEGY
INDOOR AIR QUALITY:
THE ACTIV' AIR TECHNOLOGY

Establishing a sustainable high standard of indoor environment requires a comprehensive and forward-thinking approach to air quality. We specifically selected Placostic with Activ' Air technology because it serves as a foundational element of our broader sustainability and well-being strategy.
To ensure the highest possible standard of indoor air quality, we are moving beyond traditional, energy-intensive methods.

Instead, we are implementing a robust, multi-layered system that bridges conventional mechanical ventilation with two distinct and powerful passive purification strategies: the integration of advanced, smart building materials, such as the Activ' Air Technology integrated with the Placostic Plaster and the use of natural biofiltration, through the integration of indoor green areas.

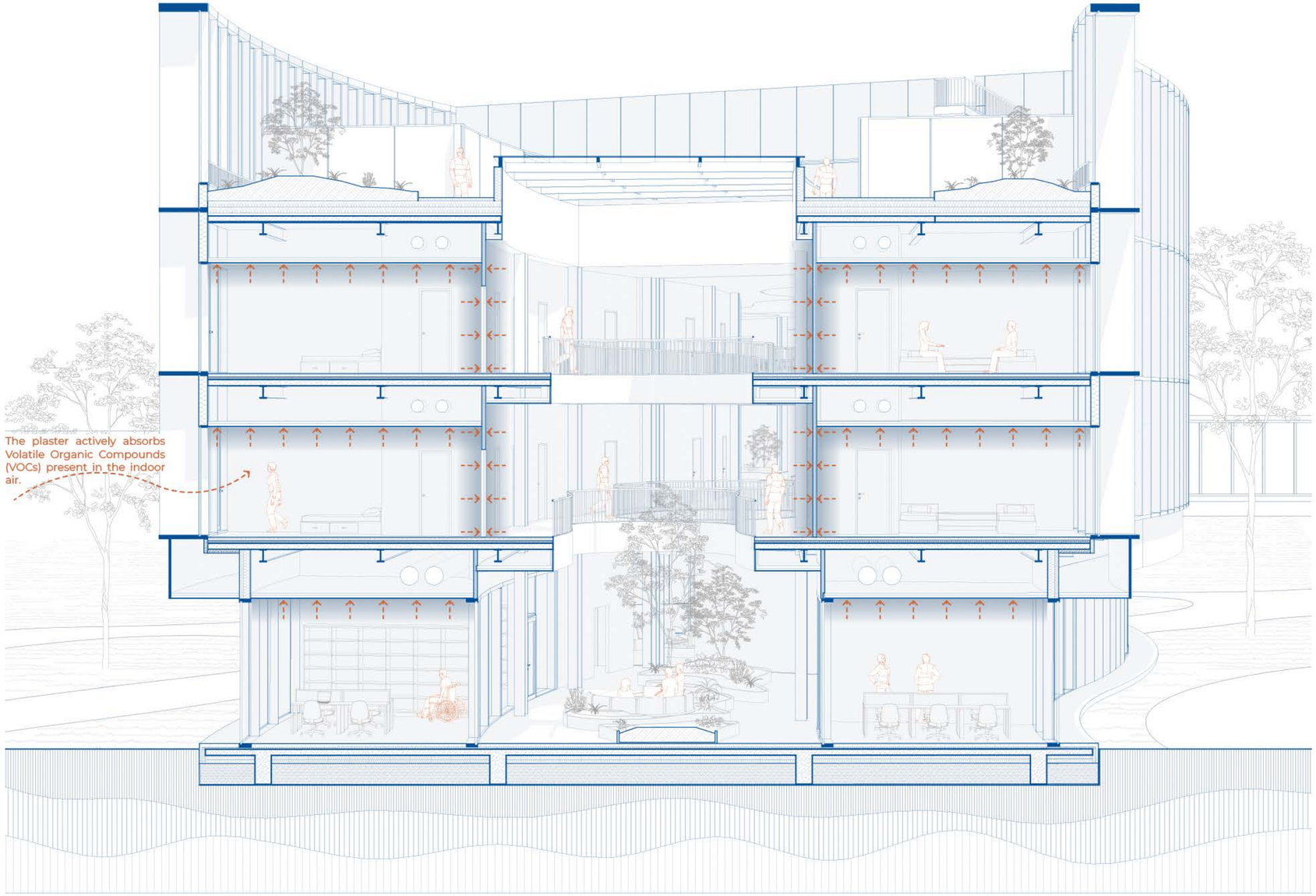
THE ACTIVE STRATEGY :
We rely on high-efficiency mechanical systems utilizing **Climaver solutions** for superior ductwork insulation and air distribution. This ensures constant air circulation, precise temperature control, and the filtration of external particulate matter. However, mechanical systems consume energy and cannot always efficiently or continuously eliminate **volatile organic compounds (VOCs)** that originate from indoor sources.

By integrating Activ' Air technology into our walls and ceilings, we introduce a continuous, energy-free purification layer that improves indoor air quality by reducing formaldehyde levels. It **works silently 24/7** with zero maintenance, actively capturing and permanently **neutralizing up to 94% of formaldehyde** emitted by everyday items like furniture, carpets, and cleaning supplies.



INTERIOR WALL STRATIFICATION

FINISH - PLACOSTIC® ACTIV'AIR® 1 mm
SKIM COAT - Rigips® SUPER TOP 2 mm
SHEATING - Rigips® Duraline Blue 12.5 mm
SHEATING - Rigips® Duraline Blue 12.5 mm
INSULATION - Isover Akusto (Mineral wool - In Frame) 50 mm
SHEATING - Rigips® Duraline Blue 12.5 mm
SHEATING - Rigips® Duraline Blue 12.5 mm
SKIM COAT - Rigips® SUPER TOP 2 mm
FINISH - PLACOSTIC® ACTIV'AIR® 1 mm

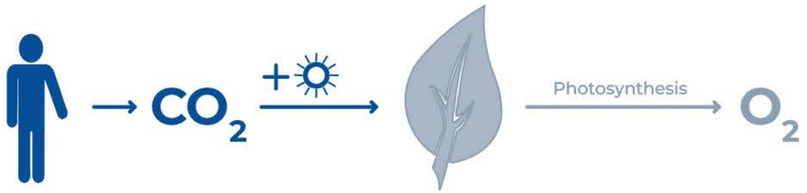


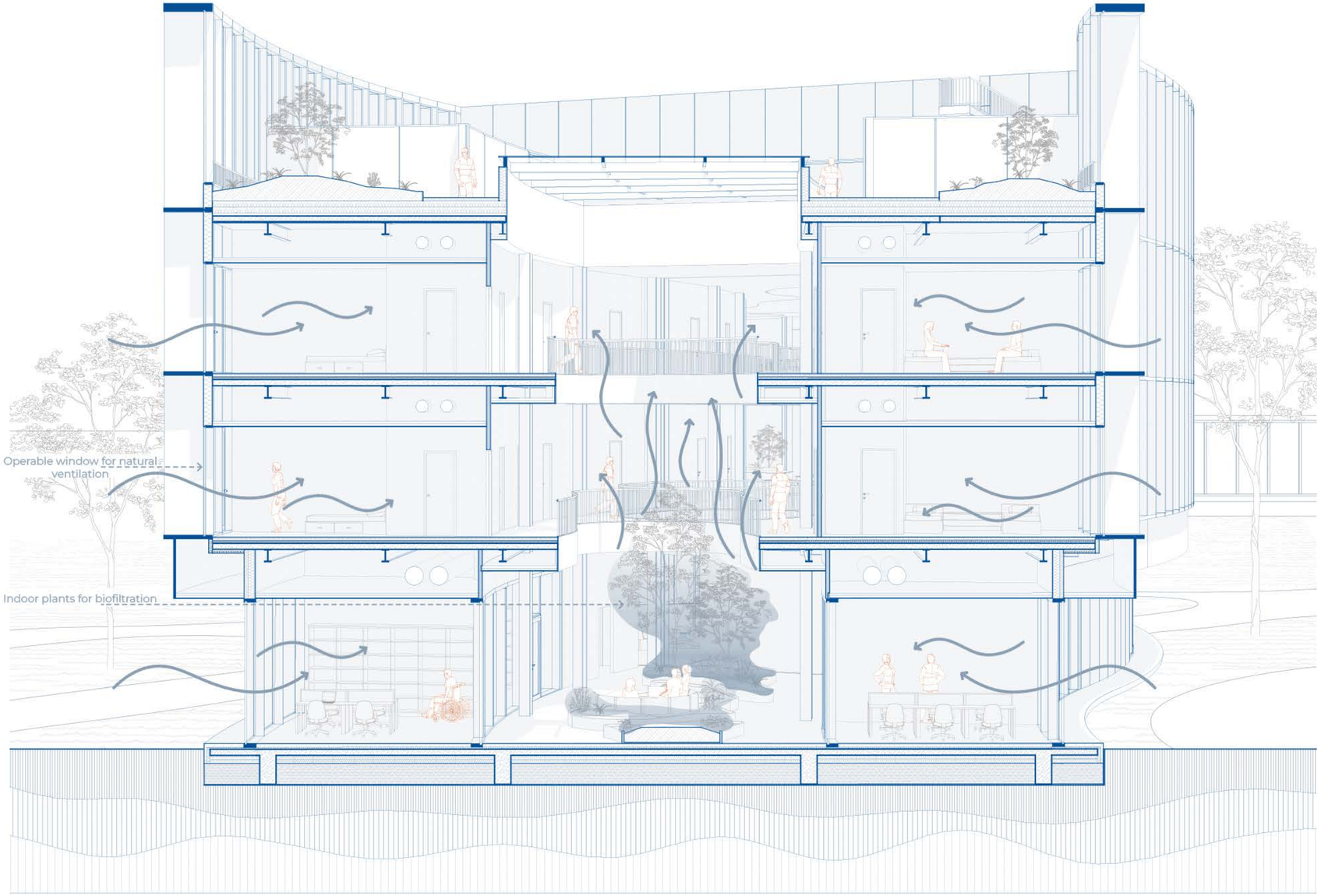
SAINT-GOBAIN placo SAINT-GOBAIN ACTIV' AIR® isover SAINT-GOBAIN

SUSTAINABILITY STRATEGY
INDOOR AIR QUALITY:
AIR BIOFILTRATION

Furthermore, **natural ventilation** within the interior spaces is effectively achieved through the strategic use of **operable windows**, integrated into every individual guest room and all shared communal areas. To complement our smart materials, we are integrating targeted indoor vegetation. This brings nature indoors, utilizing plants not just for aesthetic and psychological well-being **(biophilic design)**, but as active, living filters. **Integrated planters** throughout the building utilize the natural process of photosynthesis to actively filter the air.

By **absorbing the CO_2** exhaled by occupants and **converting it into fresh O_2**, the indoor greenery ensures a **continuous supply of oxygenated air**, significantly improving indoor air quality and the overall well-being of the guests. On a broader scale, the building's **exterior vegetation** acts as a **natural filter for pollutants** such as odors, noise, and dust. This significantly **improves outdoor air quality** while mitigating the impact of these factors on both the structure and its occupants.





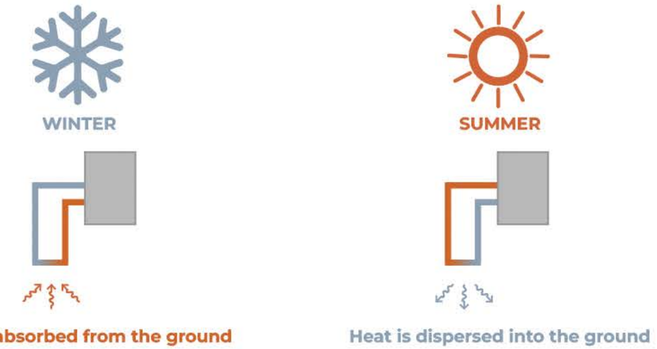
SUSTAINABILITY STRATEGY
HEATING & COOLING
GEOTHERMAL SYSTEM

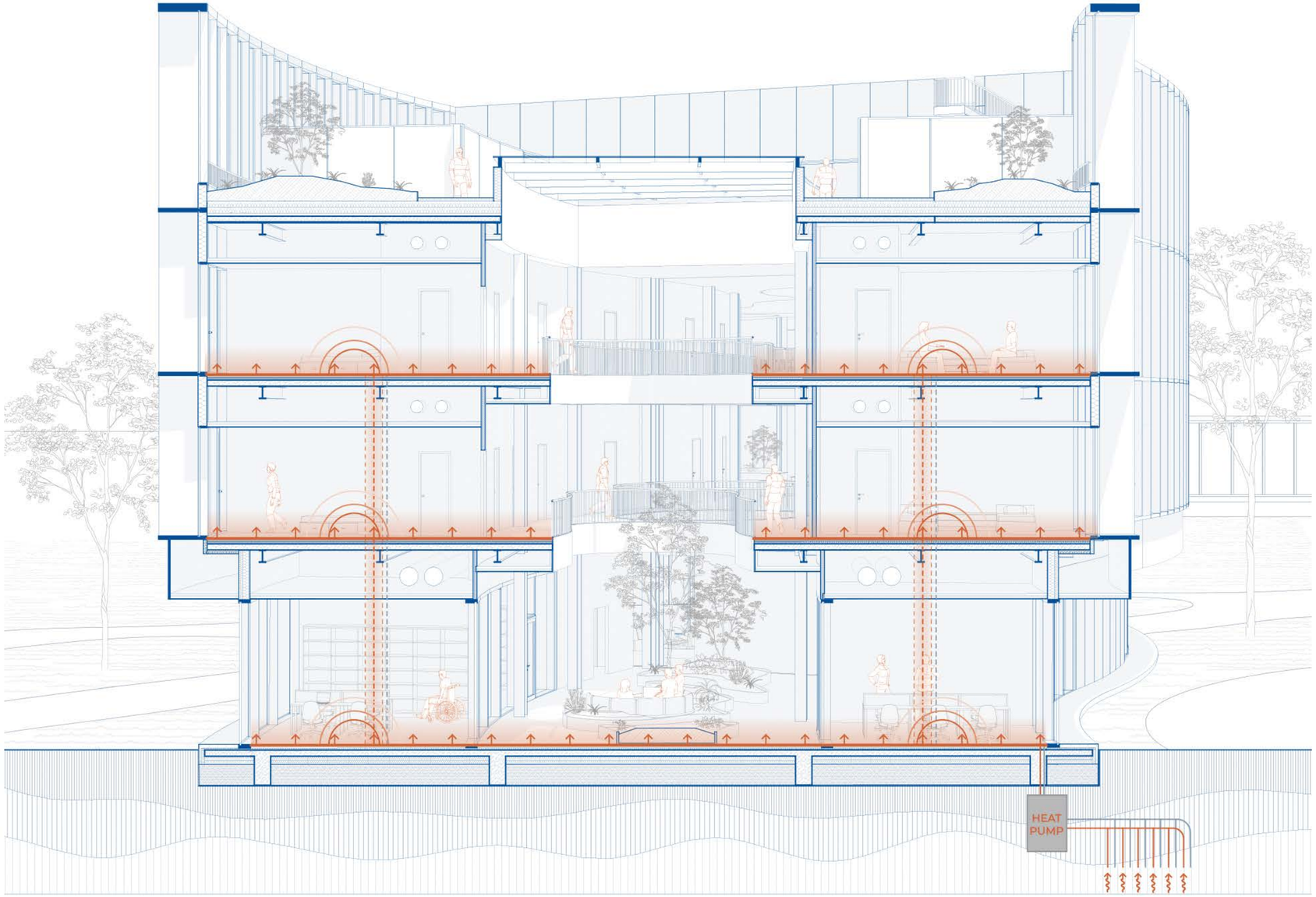
Geothermal systems capitalize on the **thermal inertia of the earth**. While air temperatures fluctuate drastically, the subsurface remains at a **constant temperature (approx. 12°C - 15°C)** year-round. Rather than generating heat through combustion, the system acts as a thermal bridge: in winter, it absorbs heat from the earth and in summer, it dissipates building heat back into the ground. During summer, the ground acts as a natural heat sink.

Why this is the most suitable solution for Belgrade:
This technology represents the absolute best option specifically for Belgrade. The city experiences a strict **continental climate** with really **cold winters (lowest temperatures -2°C to -1°C)** and **hot summers (highest temperatures 29°C to 32°C)**. This makes the **constant underground surface temperature** incredibly valuable.

The shift from generating to transferring is what lowers electrical demand. Traditional electric heating operates at a 1:1 ratio, but geothermal systems achieve a **Coefficient of Performance (COP) of 4 to 5**. **For every 1 kW of electricity used to power the pump**, the building receives **4-5 kW of thermal energy**. Effectively, **80% of the building's climate control is powered by free, renewable energy.**

As a result, it enables **highly efficient passive cooling during the hot months**. Furthermore, Belgrade frequently faces **severe winter air pollution** and **smog** driven by **traditional fossil fuel heating**. Because geothermal systems produce **zero local emissions**, this strategy directly **combats the city's air quality crisis,** which affects day to day life, while ensuring long-term **energy independence** from **volatile gas prices**.

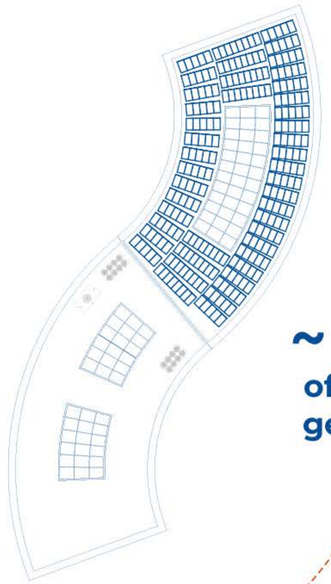




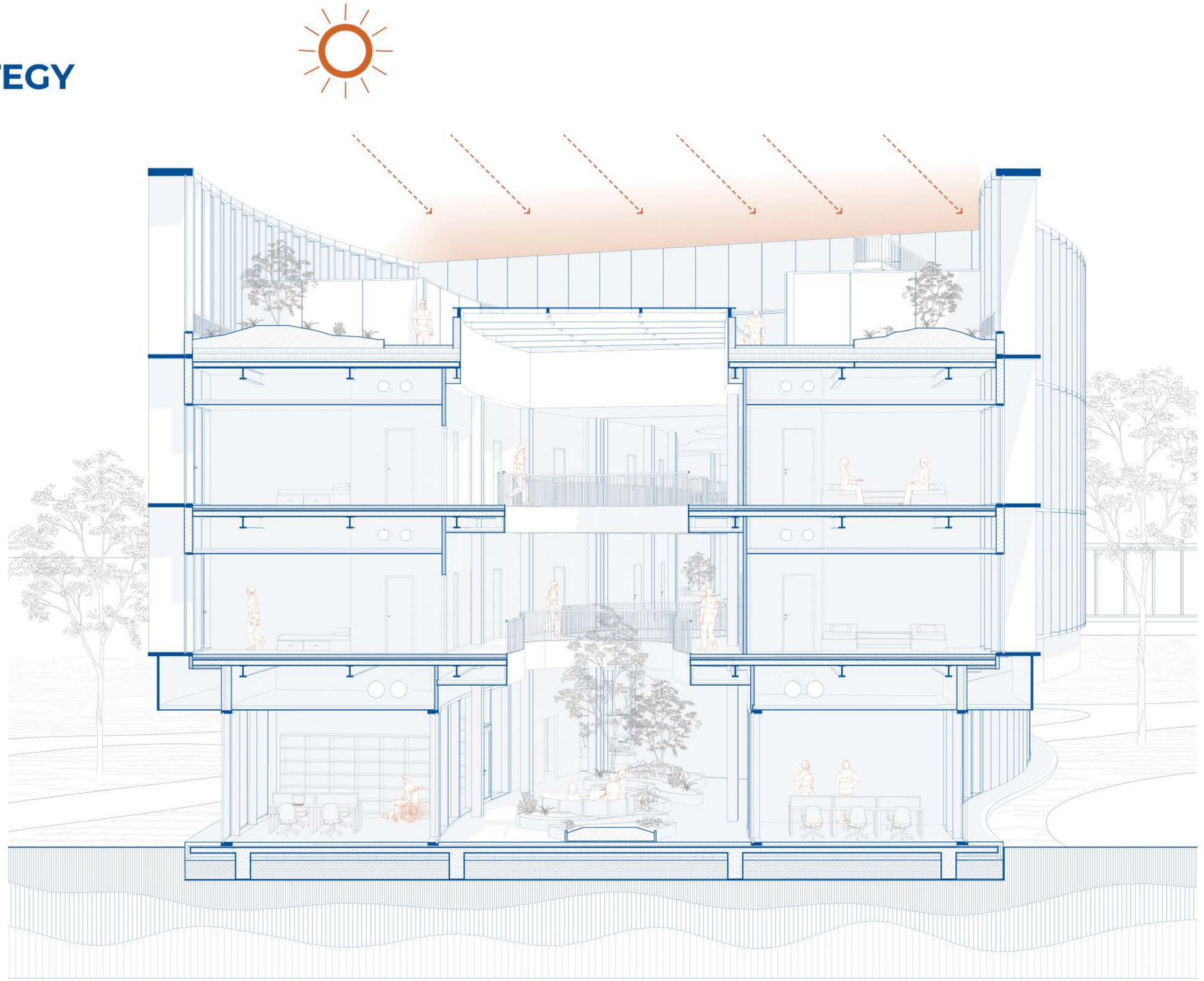
SUSTAINABILITY STRATEGY
HEATING & COOLING
PHOTOVOLTAIC SYSTEM

To maximize our sustainability strategy and further offset the **electrical demand of the geothermal pumps**, we integrated a second source of renewable energy: **a photovoltaic system**. We have installed **249 photovoltaic panels** covering a total surface area of **558 square meters**. The **clean electricity** generated by this array is used directly to power the heat pumps and the mechanical ventilation systems responsible for heating and cooling the building.

These panels are strategically **oriented to the south** on the terrace of the accommodation building. This optimal placement maximizes solar energy capture throughout the day. By pairing the efficiency of the geothermal thermal bridge with **on-site solar electricity generation**, the building's entire climate control cycle operates as a **highly self-sufficient, low-emission ecosystem**, reducing reliance on the public resources.



~ 132 MWh
of electrical energy generated annually



SUSTAINABILITY STRATEGY
FIRE SAFETY

The **fire safety strategy** is engineered to integrate with the building's architectural vision, prioritizing the **safety of the users** and **long-term structural resilience**. Rather than relying on isolated measures, we utilize a global **dual approach** that combines advanced, **specialized passive fire protection** from the **Saint-Gobain portfolio** with dynamic, **active smoke management systems**.

This dual-action strategy is thoughtfully designed to delay **fire propagation, prevent flashovers, and maintain clear visibility** along all **emergency exit routes**. Ultimately, this ensures an extended, **safe evacuation** window for all occupants while **securing the building's core infrastructure** for emergency responders.

PASSIVE FIRE PROTECTION

-**Structural Integrity (EI 120)**: Exposed structural steel columns in the atrium are fireproofed with **Igniver mortar**, providing 120 minutes of resistance to ensure **the framework remains stable during critical evacuation phases**.

-**Glazed Compartmentation (EI 90)**: Ground floor partitions feature **Contraflam by Vetrotech Saint-Gobain**, offering a robust **90-minute barrier against fire and radiant heat**.

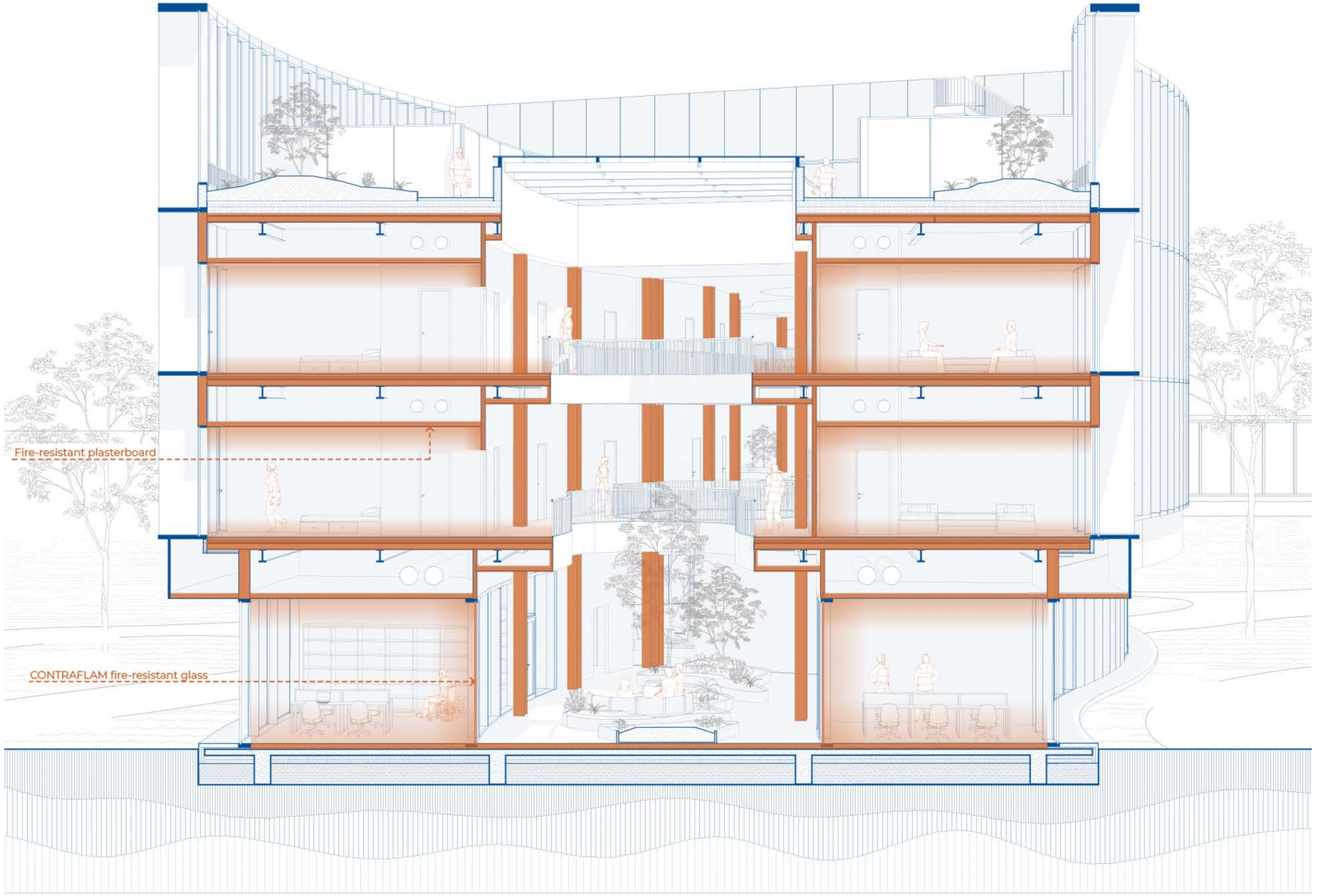
-**Fire-Rated Ceilings (EI 90)**: Accommodation units are protected by high-performance suspended ceilings using **Duraline Blue gypsum boards**, preventing vertical fire spread.

ACTIVE SYSTEMS & EVACUATION

-**Automated Smoke Extraction**: The atrium is equipped with **mobile skylights** designed to open automatically during a fire event, facilitating **rapid smoke and heat exhaust** to maintain clear visibility.

-**Optimized Evacuation**: The floor plan is engineered for rapid egress, with a **maximum travel distance of 20 meters** to the **nearest safe exit**, significantly exceeding standard safety requirements.

HEB400 EI 120
fireproofed with Igniver mortar



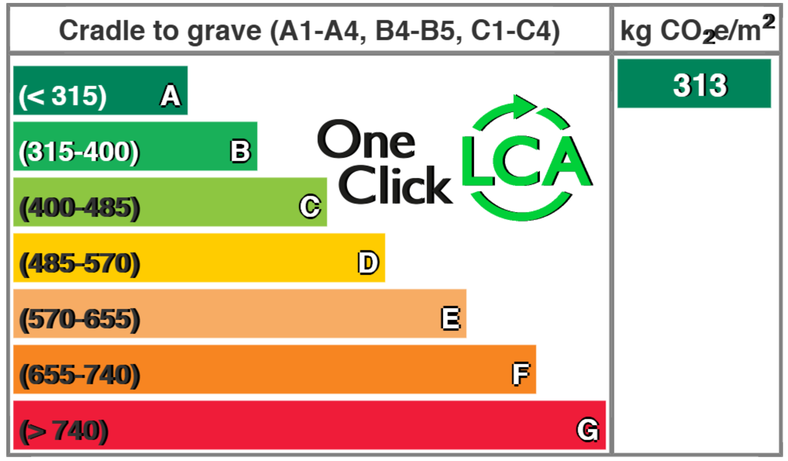
LIFE CYCLE ASSESSMENT

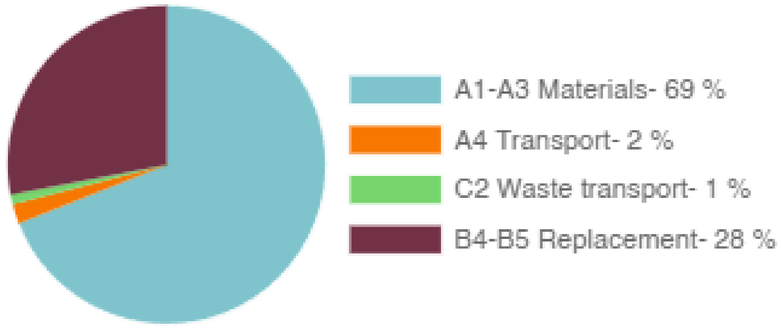
GENERAL RESULTS

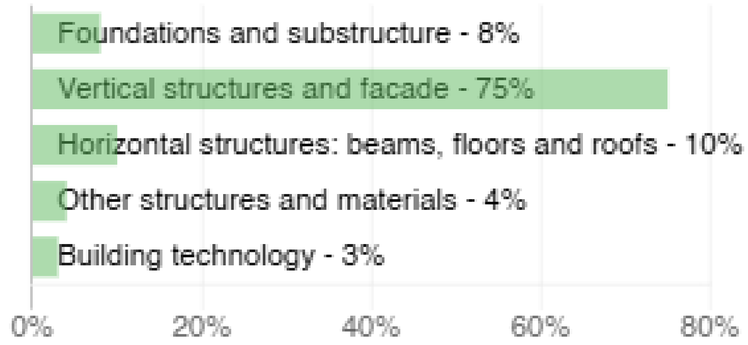
The project achieves a **Level A rating** in the **Life Cycle Assessment (LCA)**, recording a carbon intensity of only **313 kg CO2e/m2**. This result places the building in the highest performance bracket for the hospitality sector in Belgrade, successfully staying below the **low carbon threshold (<315)**. Covering the full **“Cradle to Grave”** scope, from **material extraction and construction** through to **maintenance and end-of-life**, this benchmark confirms a **highly optimized, low-impact design** that significantly outperforms standard industry practices.

The lifecycle analysis concludes that **69% of the embodied carbon** is concentrated in the initial **material phase (A1-A3)**, while **28%** is attributed to **long-term maintenance and replacements (B4-B5)**. By effectively minimizing **transport and waste** impacts to a combined **3%**, the design demonstrates a highly conscious, **circular approach** that significantly mitigates environmental impact from **“Cradle to Grave.”**

The **structural breakdown** of the building’s environmental impact reveals that **vertical structures and facades** represent the dominant share of embodied carbon at **75%**, expected, considering the materials (glass and aluminium). In contrast, the **horizontal assemblies** (beams, floors, and roofs) and the **foundation/substructure** contribute less at **10% and 8%**, respectively. By keeping the impact of **building technology** and miscellaneous materials to a combined **7%**, the bar chart reflects the **passive mechanisms** integrated.





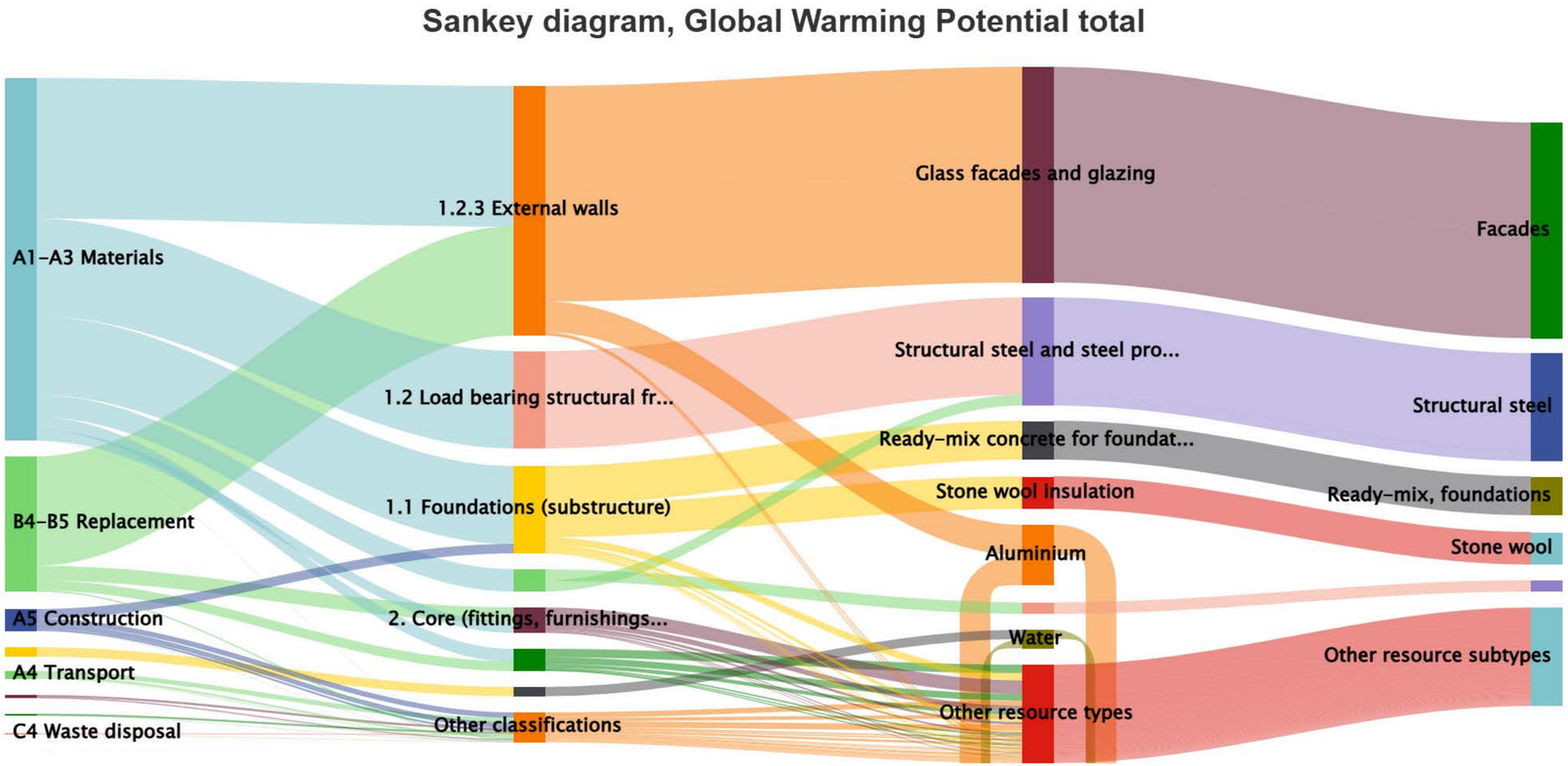


LIFE CYCLE ASSESSMENT

VISUALIZATION OF FLOWS & TRANSFER

The Sankey diagram for **Global Warming Potential (GWP)** provides a comprehensive visualization of **carbon flows**, mapping the relationship between **life-cycle stages** and specific building resources. It clearly identifies **External Walls** as the most significant emission pathway, driven primarily by **glass facades and glazing**, which constitute the single largest carbon source in the project.

Beyond the envelope, the initial **material stage (A1-A3)** branches extensively into the **primary structure**, where **structural steel** and **ready-mix concrete** emerge as critical contributors. The diagram also highlights the long-term impact of the **maintenance and replacement phase (B4-B5)**, which directs substantial flows toward **facade components** and **stone wool insulation**. This visual correlation confirms that while the substructure holds significant mass, the building's **carbon intensity** is concentrated in **high-performance materials** like **steel, aluminum, and glass**, justifying the project's focus on an **optimized, high-efficiency facade strategy** to maintain its **Level A LCA rating**.



LIFE CYCLE ASSESSMENT

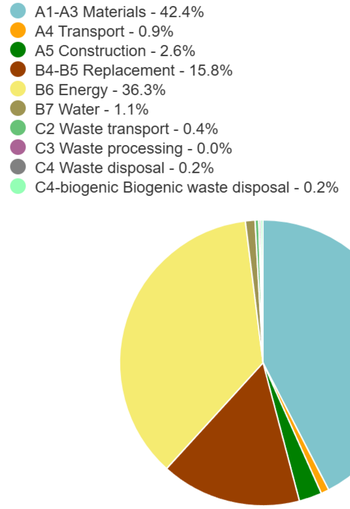
OVERVIEW OF GLOBAL WARMING POTENTIAL TOTAL

The building's **environmental profile** reveals a sophisticated balance between **operational efficiency** and **material optimization**, with **electricity use (B6)** and **initial materials (A1-A3)** contributing **36.3%** and **42.4%** to the total **Global Warming Potential**, respectively.

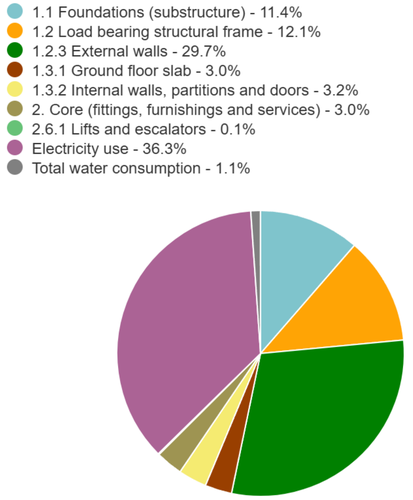
While the **substructure** accounts for nearly **68%** of the project's **total mass**, it only generates **11.4%** of the **carbon emissions**, whereas the **vertical envelope**, specifically **glass facades and glazing (25.3%)** and **structural steel (13.5%)**, is the **primary carbon driver** despite its lower mass.

The **lifecycle strategy** effectively minimizes **construction and end-of-life waste** to **under 4%** (integrating reuse and recycle), focusing the building's sustainability impact on **high-performance glazing** and **long-term energy decarbonization**, ensuring a **holistic approach to carbon neutrality.**

Global Warming Potential total kg CO2e - Life-cycle stages

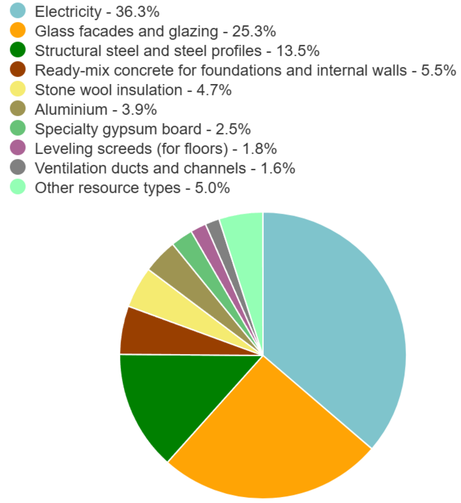


Global Warming Potential total kg CO2e - Classifications

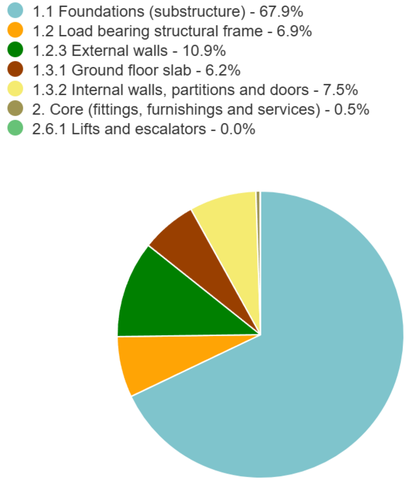


Global Warming Potential total kg CO2e - Resource types

This is a drilldown chart. Click on the chart to view details



Mass kg - Classifications



LIFE CYCLE ASSESSMENT

BUILDING CIRCULARITY

The project achieves an **advanced 42% Building Circularity score**, demonstrating a robust departure from standard linear construction models. This metric is the direct result of a rigorous **Life Cycle Assessment (LCA)** approach, strategically optimizing both **material provenance (Input)** and **End-of-Life scenarios (Output).**

MATERIAL INPUT:
SECONDARY RESOURCE MAXIMIZATION (41.6% Recovered)
Mitigating the extraction of virgin raw materials through the strategic integration of secondary streams.

Structural Secondary Material: The primary load-bearing framework uses **100% recycled steel**, significantly reducing the project's reliance on primary resource extraction and lowering embodied carbon.

In-Situ Earth Strategy: 100% of the excavated soil is retained and repurposed for on-site landscaping and bio-filtration zones, optimizing local topography.

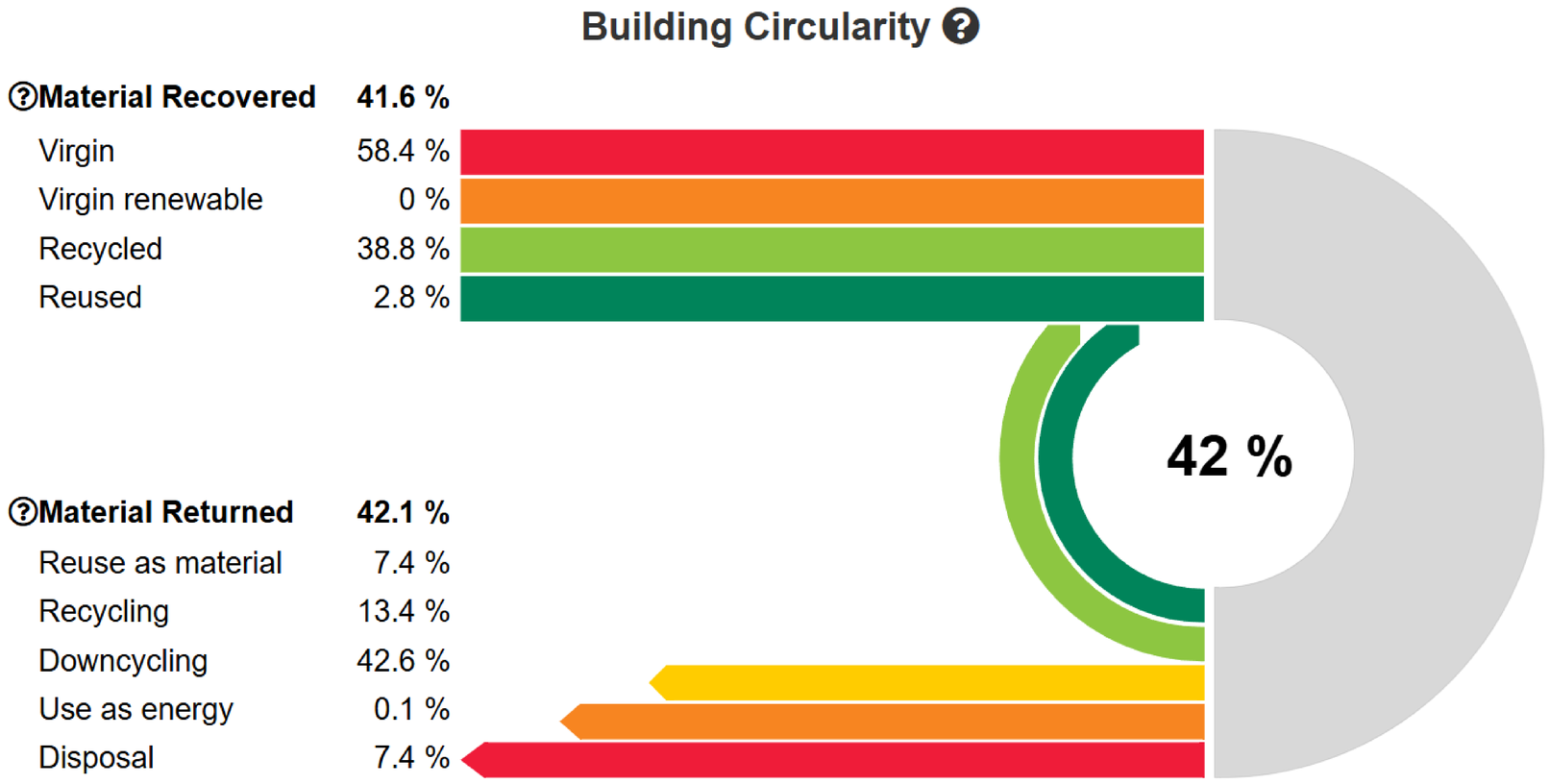
END-OF-LIFE (EoL):
SELECTIVE DECONSTRUCTION STRATEGY (42.1% Returned)
Ensuring high-value material recovery through forward-thinking detailing and dry-assembly techniques.

Design for Disassembly (DfD): By leveraging dry, reversible mechanical connections, the steel framework **avoids irreversible welding**. At the end of its service life, the structure is slated for **dismantling and direct reuse**, retaining its highest structural value.

Adhesive-Free Envelope: The ventilated facade incorporates **mechanically fastened thermal insulation**. The strict avoidance of chemical binders ensures the panels remain uncontaminated, allowing for **future reuse**.

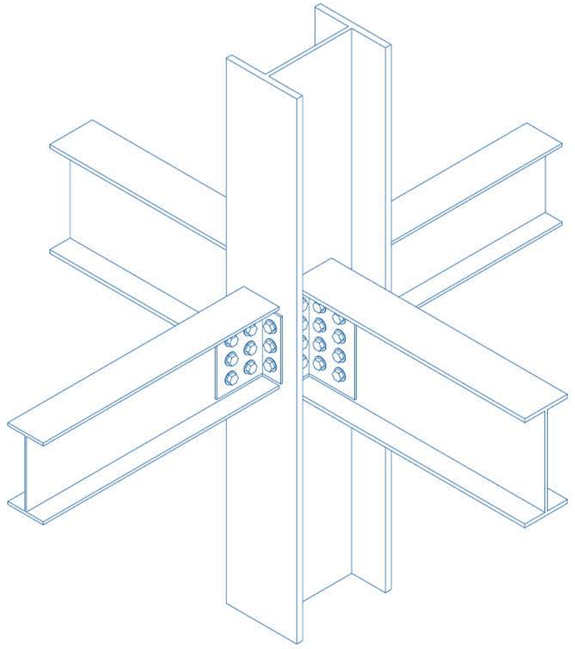
Gypsum Recycling: Interior partition systems, integrating **Saint-Gobain Placostic Activ' Air**, are detailed for selective deconstruction. This guarantees the clean separation of the board, enabling the core to enter recycling loops for new gypsum manufacturing.

Mineral Mass Downcycling: High-density mineral elements, such as the concrete foundations, are designated for post-demolition crushing. This process generates secondary aggregates for future infrastructure, effectively diverting significant mass from landfill disposal.

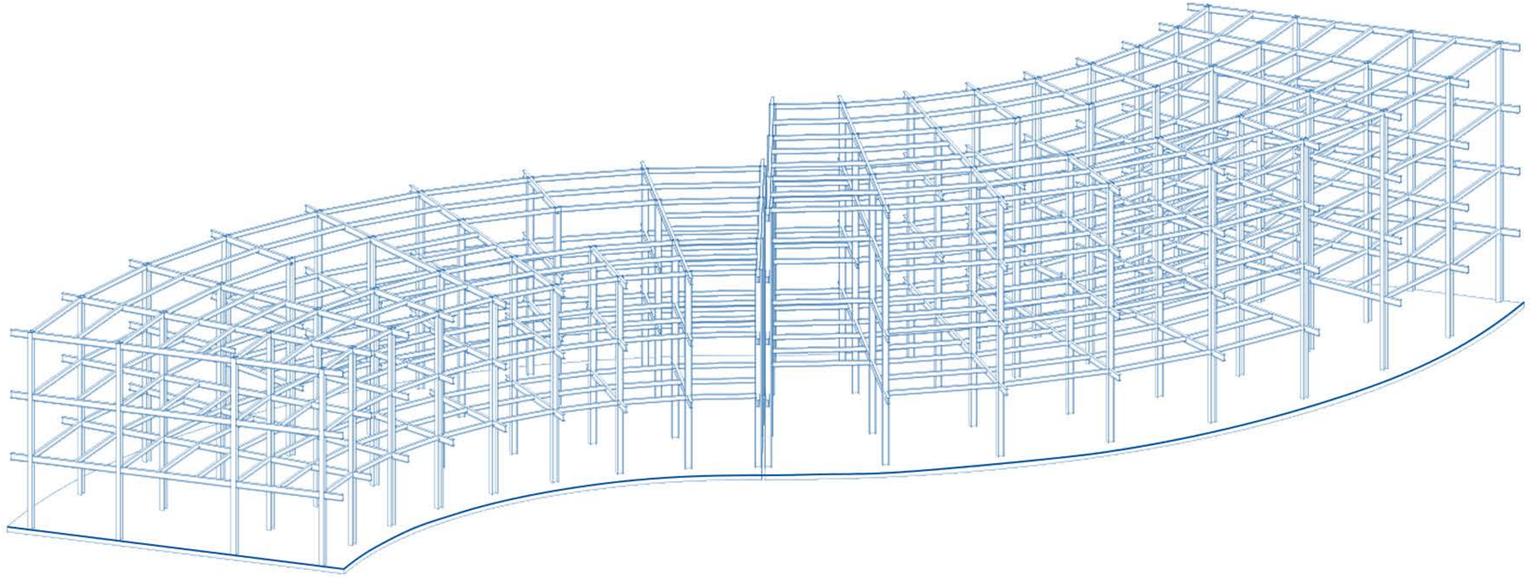


SUSTAINABILITY STRATEGY
REUSABLE STRUCTURE

Despite the fluid geometry of the envelope, the structural integrity is maintained through a modular grid of **standardized I/H-section steel members**. A key aspect of our sustainability strategy is the use of **mechanical bolted joints over permanent welding**. This approach facilitates future disassembly and the potential reuse of components, significantly increasing the material's longevity and minimizing environmental impact.



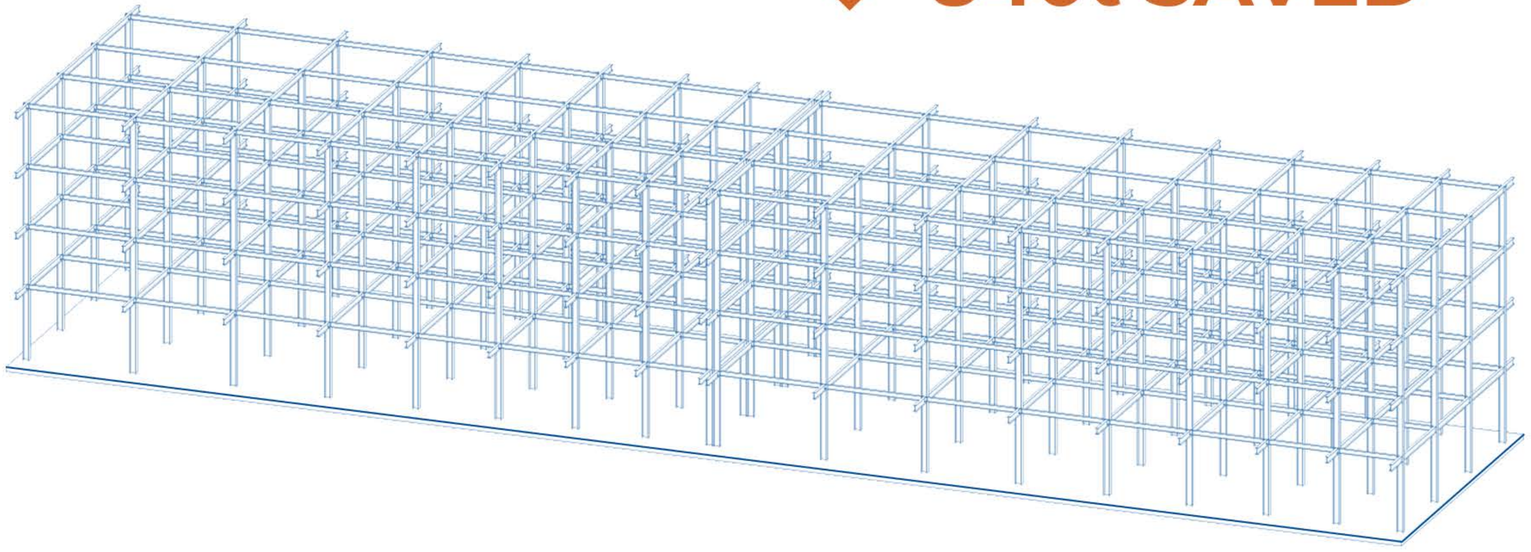
By implementing a **Design for Disassembly strategy**, we enable the full recovery of these components for future use. While manufacturing identical new elements for a second building would require another 990 tonnes of CO2, the reuse of this existing framework generates a **carbon saving of approximately 85%**. This translates to **avoiding nearly 840 tonnes of CO2** emissions in the next life cycle, as the environmental cost is reduced solely to minor refurbishment and transport, rather than energy-intensive primary production.



DISASSEMBLY AND REUSE

- 85% CO2

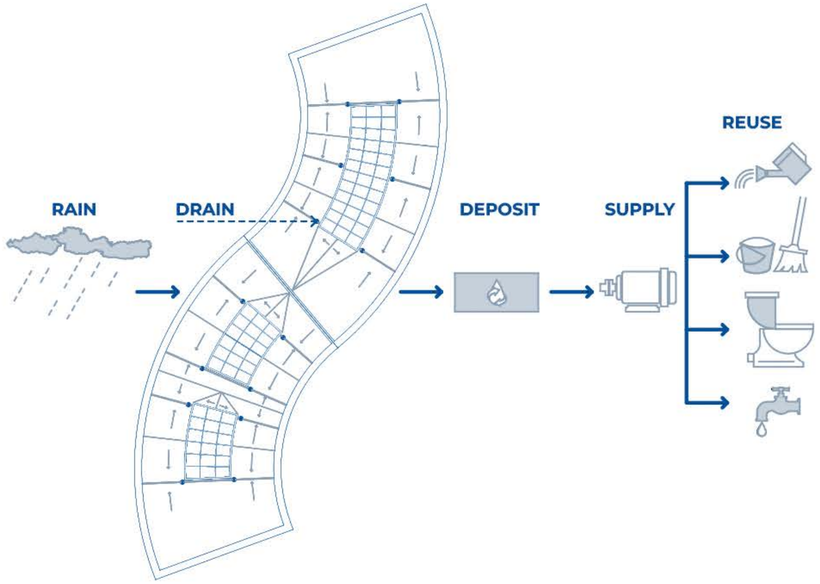
~840t SAVED

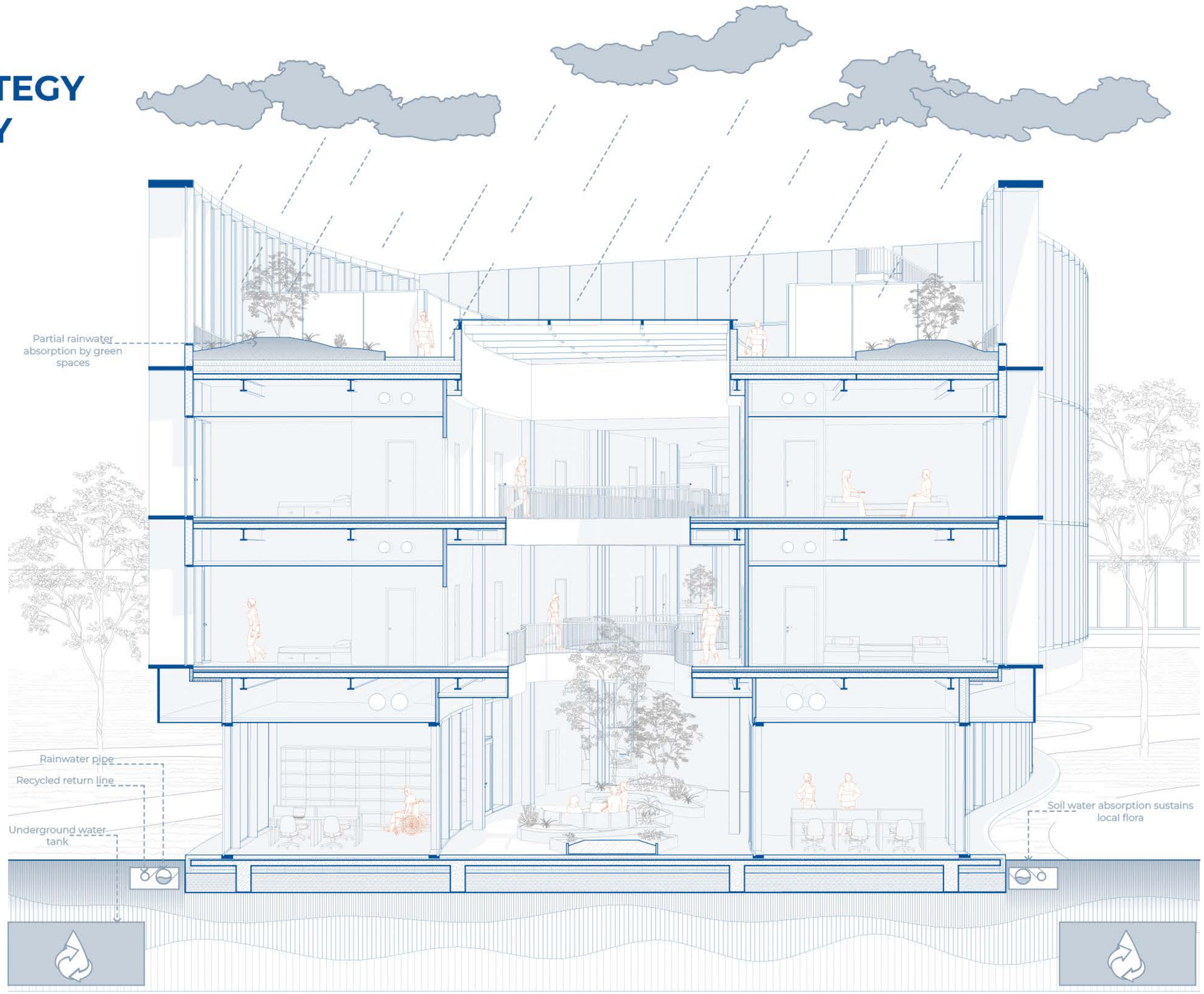


SUSTAINABILITY STRATEGY
RESOURCE EFFICIENCY
WATER HARVESTING & REUSE

Rainwater is a key resource in the project's sustainability strategy. It is harvested through **drains** located on the three new buildings' terraces **(5,948 m² rainwater harvesting area)** and collected in two underground tanks shared between buildings in the new area. This water is then recirculated back into the system via pumps and used for various purposes **(estimated annual collected is 3,330 m³)**.
To ensure the highest reliability and durability in our water infrastructure, we utilize advanced water supply and drainage systems from **PAM Saint-Gobain**.

These high-performance piping solutions guarantee **safe and efficient transport of the collected water** throughout the facility. Once collected, this water is then recirculated back into the system via pumps and used strictly for **non-potable use**, specifically for **irrigation, maintenance, cleaning purposes, cooling systems**. This water management approach not only enhances the building's environmental performance but also improves **resource efficiency** and **reduces municipal water consumption**.





SAINT-GOBAIN

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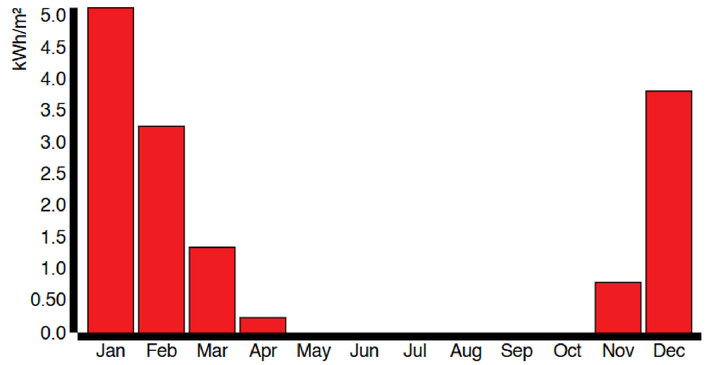
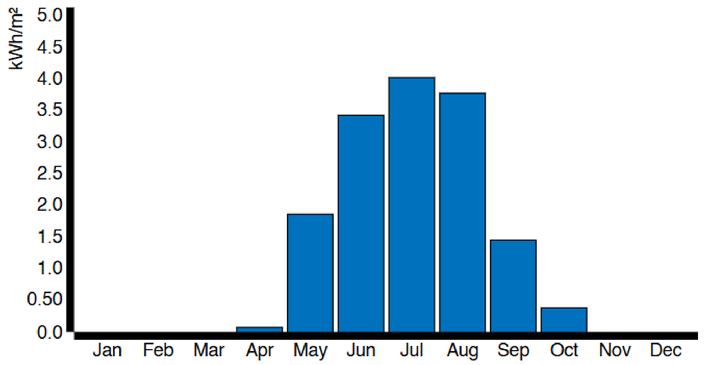
SAINT-GOBAIN SAVE INTERNATIONAL

ENERGY REQUIREMENTS ASSESSMENT

Heating needs



Cooling needs



Heating needs (kWh/m²)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Heating	5,13	3,25	1,34	0,23	–	–	–	–	–	–	0,8	3,81	14,56
Total	5,13	3,25	1,34	0,23	–	–	–	–	–	–	0,80	3,81	14,56

Cooling needs (kWh/m²)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cooling	–	–	–	0,07	1,85	3,42	4,02	3,78	1,45	0,38	–	–	14,97
Total	–	–	–	0,07	1,85	3,42	4,02	3,78	1,45	0,38	–	–	14,97

Compliance

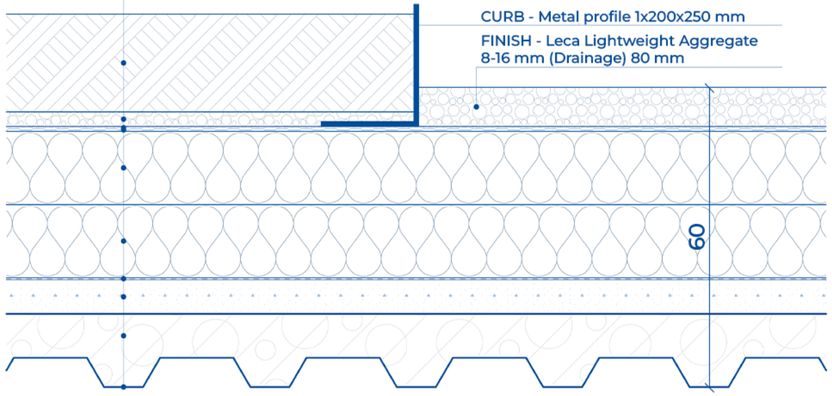
Indicator	Building [kWh/m²]	Limit value [kWh/m²]	Comply
Heating needs	14,6	15,0	Yes
Cooling needs	15,0	15,0	Yes

Lighting autonomy 300 Lux	Autonomy [%]	Required [%]	Comply
TZ: SPACE 1 DAYLIGHTINGCONTROLS	60,8	60.0 %	Yes
TZ: SPACE 2 DAYLIGHTINGCONTROLS	60,6	60.0 %	Yes
TZ: SPACE 3 DAYLIGHTINGCONTROLS	60,8	60.0 %	Yes
TZ: SPACE 4 DAYLIGHTINGCONTROLS	60,6	60.0 %	Yes
TZ: SPACE 5 DAYLIGHTINGCONTROLS	61,0	60.0 %	Yes
TZ: SPACE 6 DAYLIGHTINGCONTROLS	60,5	60.0 %	Yes
TZ: SPACE 7 DAYLIGHTINGCONTROLS	60,7	60.0 %	Yes
TZ: SPACE 8 DAYLIGHTINGCONTROLS	60,4	60.0 %	Yes
TZ: SPACE 9 DAYLIGHTINGCONTROLS	60,8	60.0 %	Yes

Summer comfort (overheating % of season)	Overheating [%]	Required [%]	target [%]	Comply
TZ: SPACE 1	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 2	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 3	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 4	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 5	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 6	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 7	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 8	0,0	10.0 %	5.0 %	Yes
TZ: SPACE 9	0,0	10.0 %	5.0 %	Yes

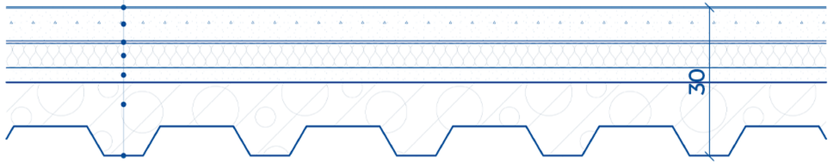
GREEN ROOF SLAB STRATIFICATION

FINISH - Weber Green Substrate (Extensive/Intensive) 200 mm
PROTECTION - Leca Green (Lightweight Expanded Clay) 30 mm
PROTECTION - Saint-Gobain Adfors Geotextile 1 mm
WATERPROOFING - weber.tec 911 Anti-Root Bituminous Membrane 3 mm
WATERPROOFING - weber.tec 911 Anti-Root Bituminous Membrane 3 mm
THERMAL INSULATION - Isover Roofine 5 (High Density Stone Wool) 150 mm
THERMAL INSULATION - Isover Roofine 5 (High Density Stone Wool) 150 mm
VAPOUR BARRIER - Isover Vario XtraSafe smart membrane 1 mm
SLOPING SCREED - weber.floor 4360 Low-Carbon Flowable Screed 30-80 mm
STRUCTURE - Reinforced concrete with Cryso low-carbon additives 150 mm
STRUCTURE - Corrugated metal sheet (Decking) 1 mm
CURB - Metal profile 1x200x250 mm
FINISH - Leca Lightweight Aggregate 8-16 mm (Drainage) 80 mm



FLOOR SLAB SLAB STRATIFICATION

FINISH - weber.floor design microcement 3 mm
FLOATING SLAB - weber.floor 4310 fiber-reinforced screed 67 mm
CEMENT SLURRY PROTECTION - weber.floor 4940 separating foil
ACOUSTIC INSULATION - Isover TDPT stone wool insulation 50 mm
LEVELING SCREED - weber.floor 4010 self-leveling screed 30 mm
STRUCTURE - Reinforced concrete with Cryso low-carbon additives 150 mm
STRUCTURE - Corrugated metal sheet (Decking) 1 mm



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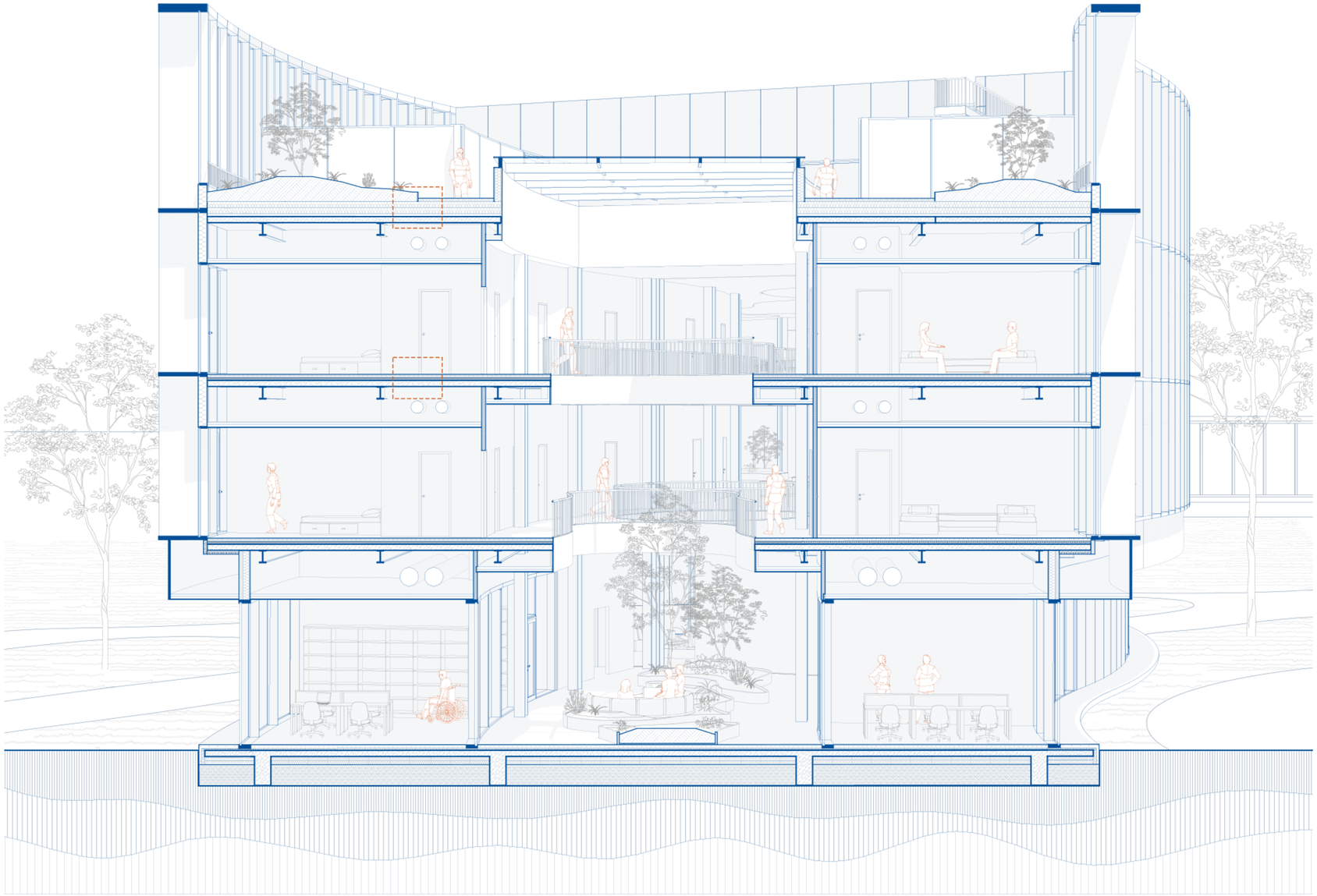
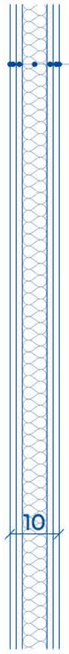
isover SAINT-GOBAIN
chryso SAINT-GOBAIN
SAINT-GOBAIN

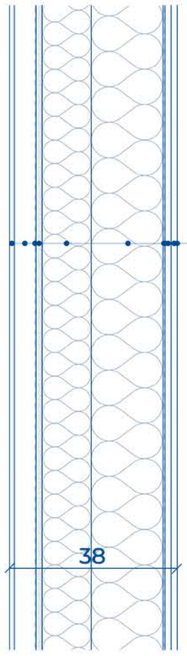


INTERIOR WALL STRATIFICATION



- FINISH - PLACOSTIC® ACTIV'AIR® 1 mm
- SKIM COAT - Rigips® SUPER TOP 2 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- INSULATION - Isover Akusto (Mineral wool - In Frame) 50 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- SKIM COAT - Rigips® SUPER TOP 2 mm
- FINISH - PLACOSTIC® ACTIV'AIR® 1 mm

EXTERIOR WALL STRATIFICATION



- FINISH - Vertical Metal Cladding (Click/Standing Seam) 10 mm
- VENTILATION - Air Cavity (Metal Sub-structure) 40 mm
- WIND BARRIER - Isover Vario Fassade (UV Resistant Membrane) 1 mm
- SHEATING - Glasroc X 12.5 mm
- THERMAL INSULATION - Isover Profi Fassade (M. Wool - Continuous) 100 mm
- THERMAL INSULATION - Isover Forte (M. Wool - In Frame) 150 mm
- VAPOUR BARRIER - Isover Vario XtraSafe smart membrane 1 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- SHEATING - Rigips® Duraline Blue 12.5 mm
- SKIM COAT - Rigips® SUPER TOP 2 mm
- FINISH - PLACOSTIC® ACTIV'AIR® 1 mm

weber SAINT-GOBAIN

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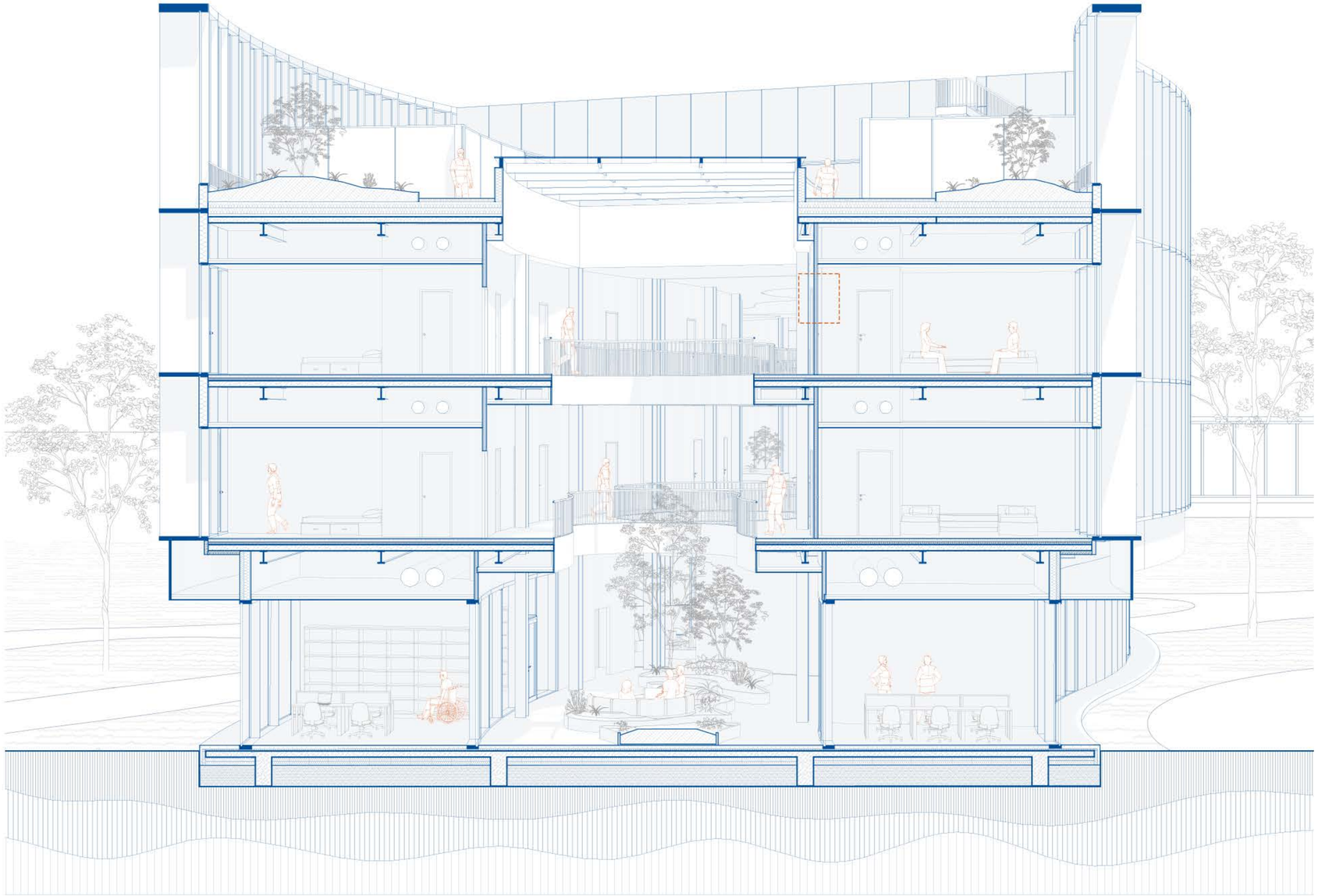
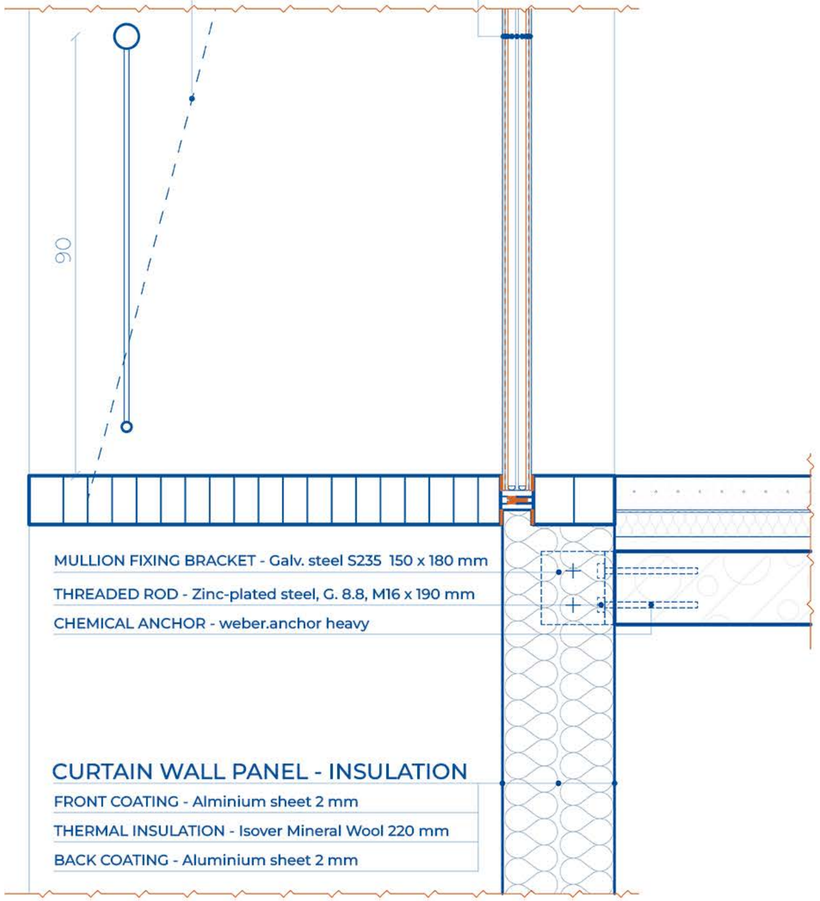


TRIPLE GLAZED UNIT

GLAZING 1 - DIAMANT Annealed 5 mm
GLAZING 1 - PVB SIlence 0.76 mm
GLAZING 1 - DIAMANT Annealed 5 mm
GLAZING 1 - COOL-LITE XTREME 70-33
CAVITY 1 - Argon 90% + Swisspacer Ultimate Pro
GLAZING 2 - DIAMANT Annealed 6 mm
CAVITY 2 - Argon 90% + Swisspacer Ultimate Pro
GLAZING 3 - PLANITHERM XN
GLAZING 3 - DIAMANT Annealed 4 mm
GLAZING 3 - PVB Silence 0.76 mm
GLAZING 3 - DIAMANT Annealed 4 mm

Stainless steel structural tension rod



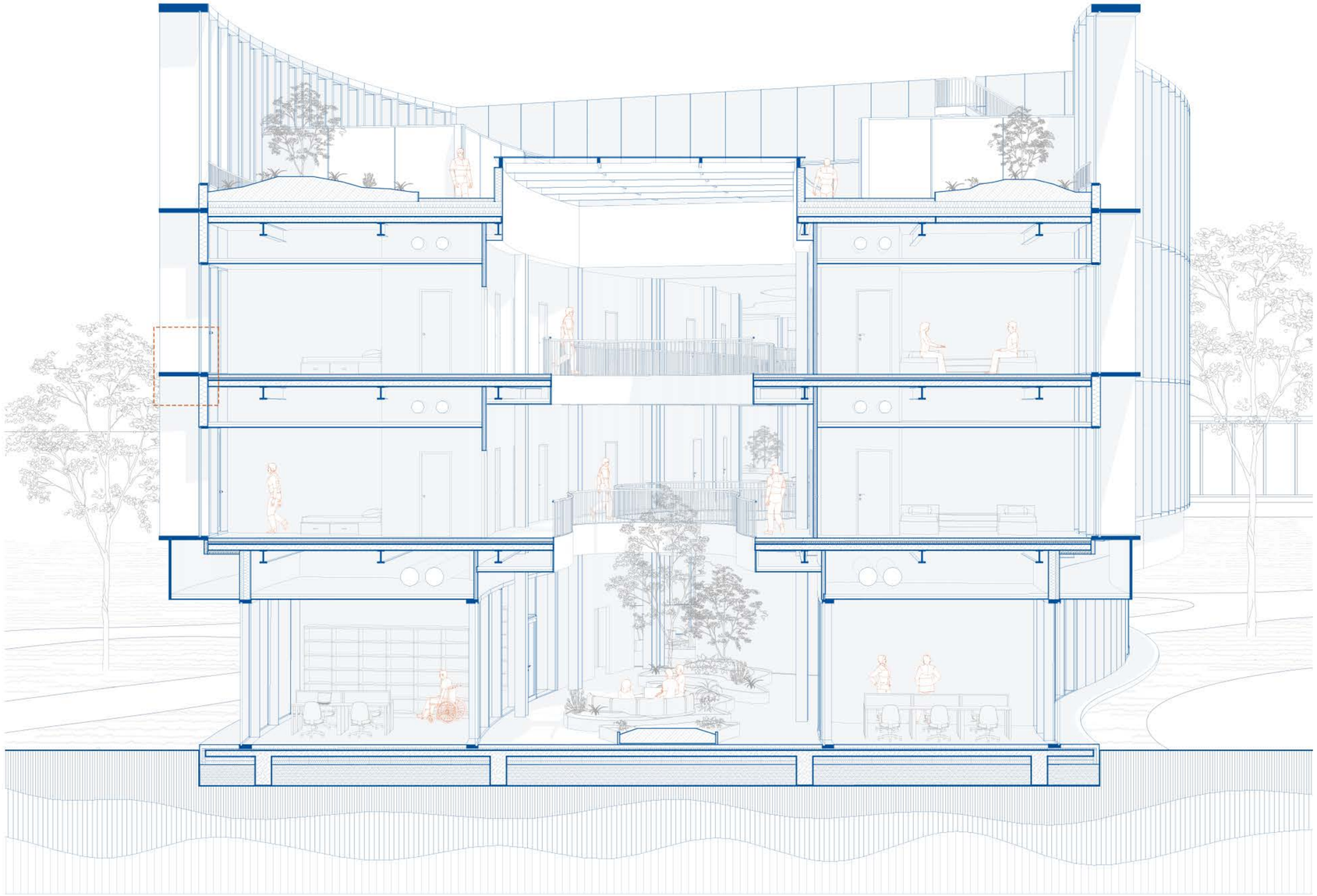
MULLION FIXING BRACKET - Galv. steel S235 150 x 180 mm

THREADED ROD - Zinc-plated steel, G. 8.8, M16 x 190 mm

CHEMICAL ANCHOR - weber.anchor heavy

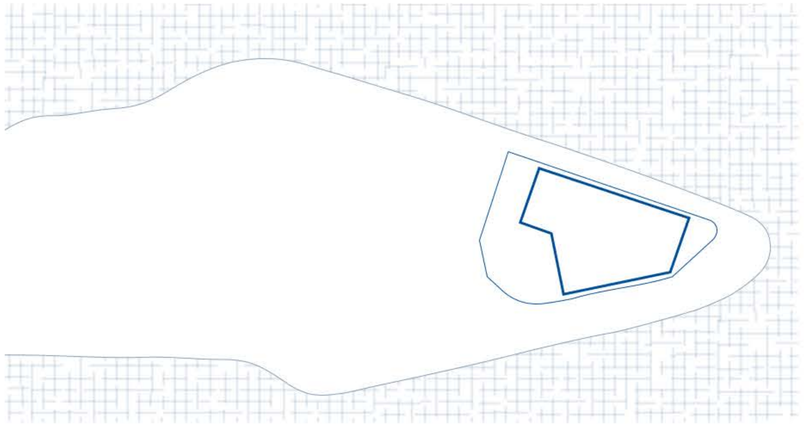
CURTAIN WALL PANEL - INSULATION

FRONT COATING - Alminium sheet 2 mm
THERMAL INSULATION - Isover Mineral Wool 220 mm
BACK COATING - Aluminium sheet 2 mm

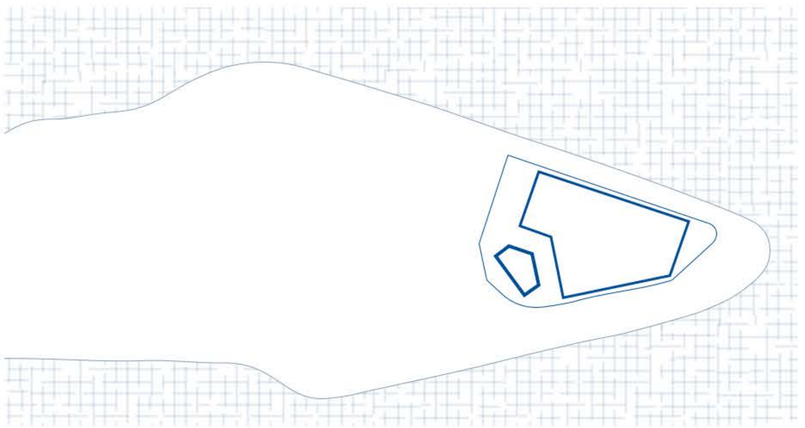


ZONE B
RENOVATION

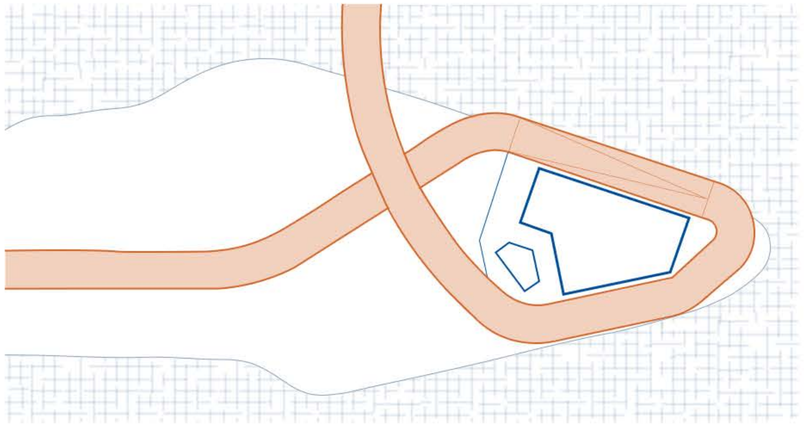
INTERVENTION STRATEGY



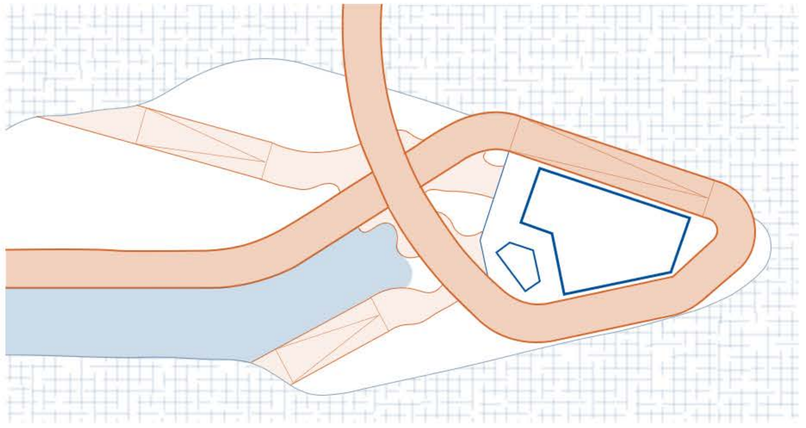
The Yachting Club is currently detached from the urban fabric, characterized by constrained road access and a **lack of connectivity** with the Zone A riverside. Internally, the building remains inaccessible to those with reduced mobility, while access to the second floor is limited to a single internal route, reinforcing its **programmatic and physical isolation.**



To ensure the building meets modern standards of inclusivity, an **autonomous vertical circulation core**, comprising a staircase and an elevator, is proposed. This strategic addition achieves **universal accessibility** and grants **independent access** to each of the three storeys, allowing the building's diverse functions to operate with total programmatic autonomy.



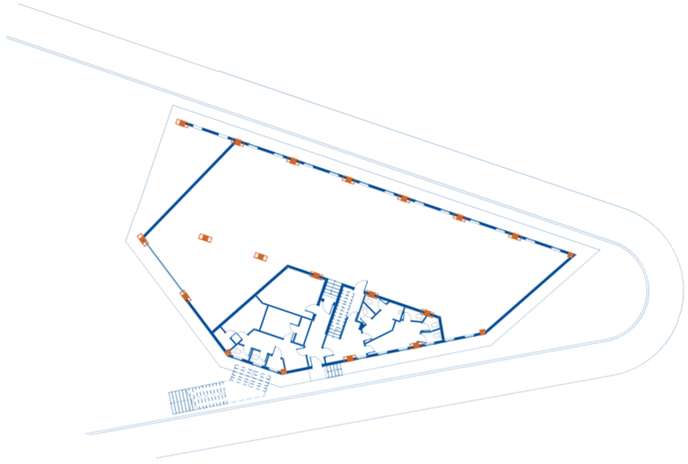
The proposed **bridge** connecting Zone A and Zone B envelops the building, strategically **funneling pedestrian flux** toward the facility's public programs. By extending along the waterfront, this elevated pathway seamlessly integrates the yachting club into the city's **urban infrastructure**, transforming it into a vital node within the continuous riverside promenade.



Adhering to the environmental constraints of the **Pygmy Cormorant's habitat**, the proposal incorporates **discreet secondary circulations** that optimize **access to both waterfronts.**

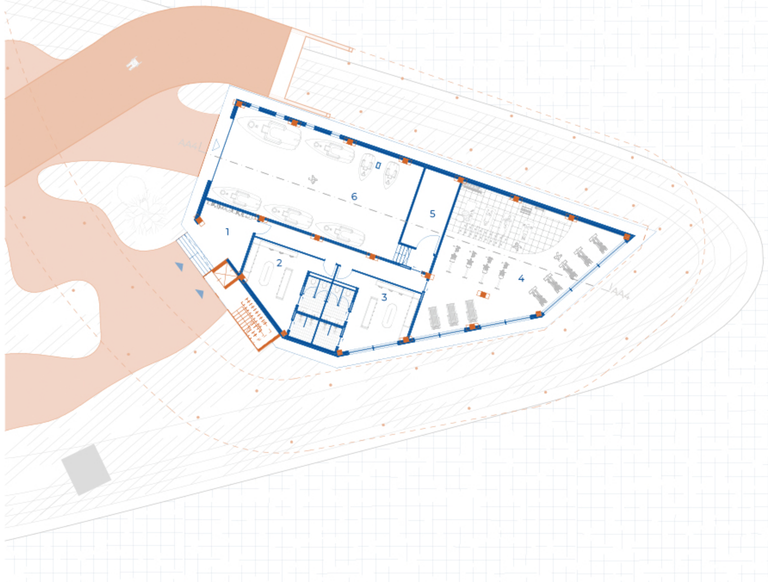
SPATIAL OPTIMISATION

Before
Ground floor

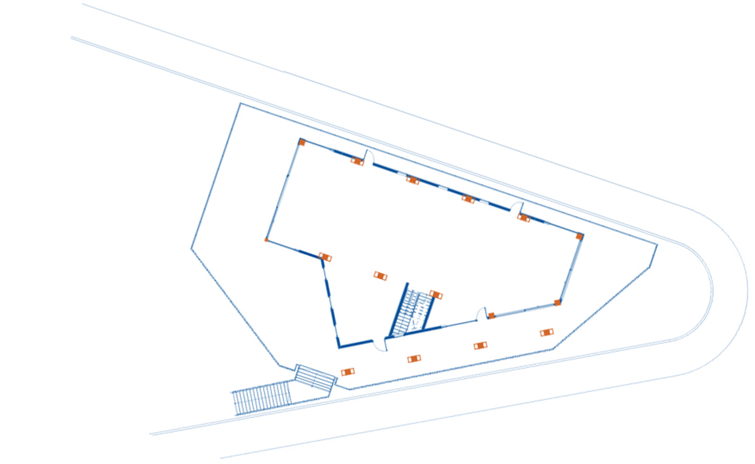


After
Ground floor

The club's core is preserved by compacting **boat storage** to integrate **a modern training area with Sava River views. New locker rooms** were added, following direct consultations with the Yacht Club to meet athlete needs.

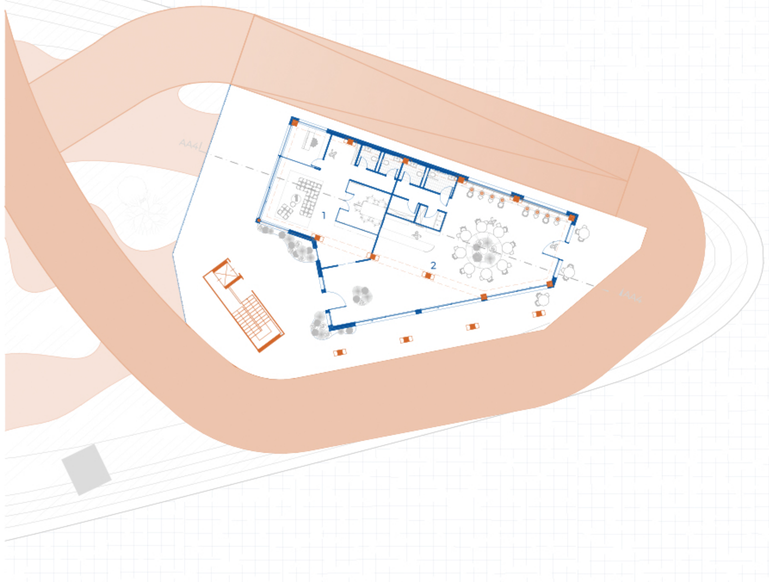


Before
First floor

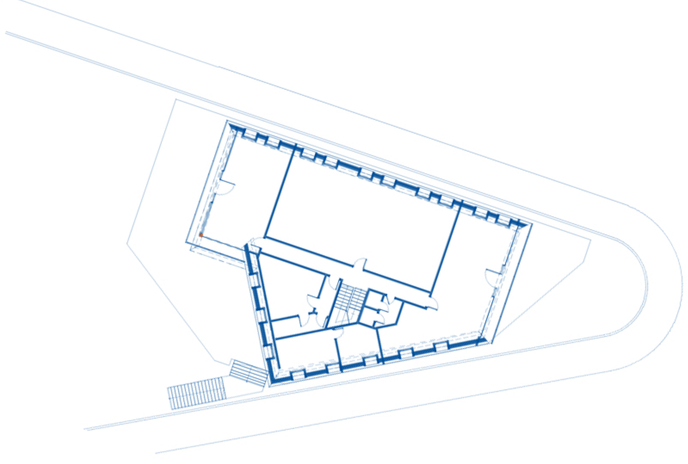


After
First floor

While the first floor upgrades the **club's administration**, most of the level becomes a public **café**. This transformation leverages the location to create a **vibrant social hub for the local community.**

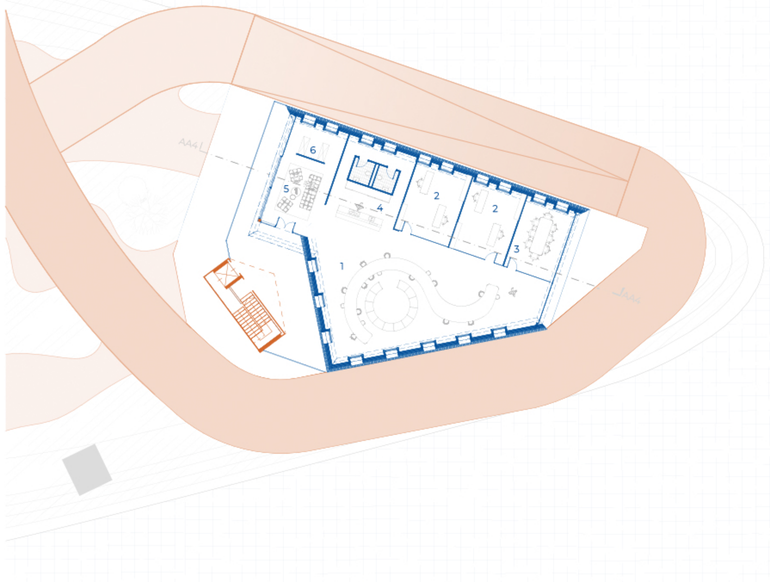


Before
Second floor



After
Second floor

The second floor features an **open, multifunctional layout** designed for diverse scenarios. This version enhances the **indoor-outdoor connection**, offering superior spatial flow compared to the original design.

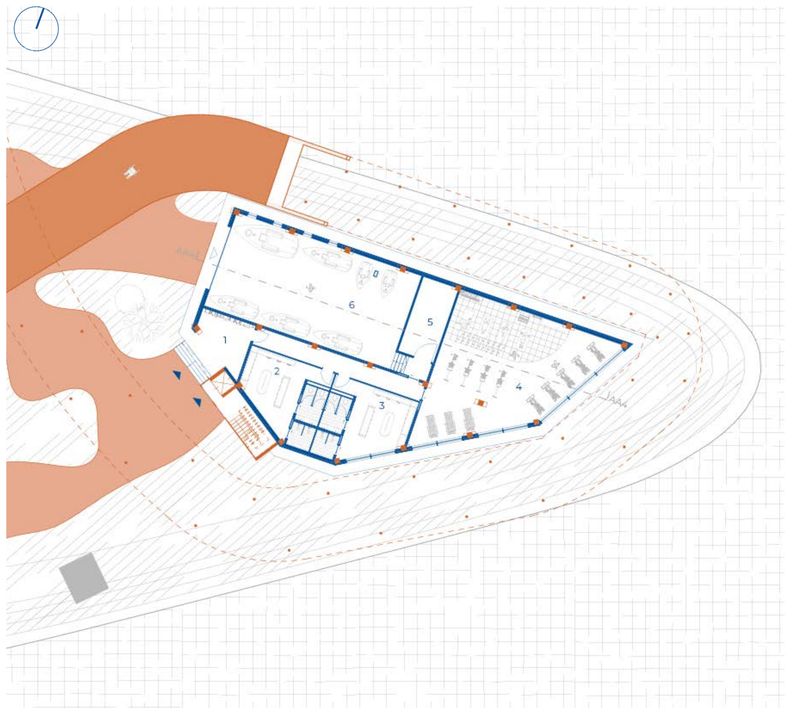


GROUND FLOOR

While the ground floor continues to serve as the **functional core** for the **yachting club**, the layout has been strategically reorganized to improve internal circulation and programmatic efficiency.

The training zones have been redesigned to incorporate a new, high-transparency facade. These enlarged apertures **maximize natural light** and establish a constant **visual dialogue** with the **surrounding environment.**

GROUND FLOOR PLAN SC. 1:200



1. Entrance 15 m2
2. Locker room (M) 27 m2
3. Locker room (F) 27 m2
4. Gym 123 m2
5. Heating plant room 18.5 m2
6. Hangar 130 m2

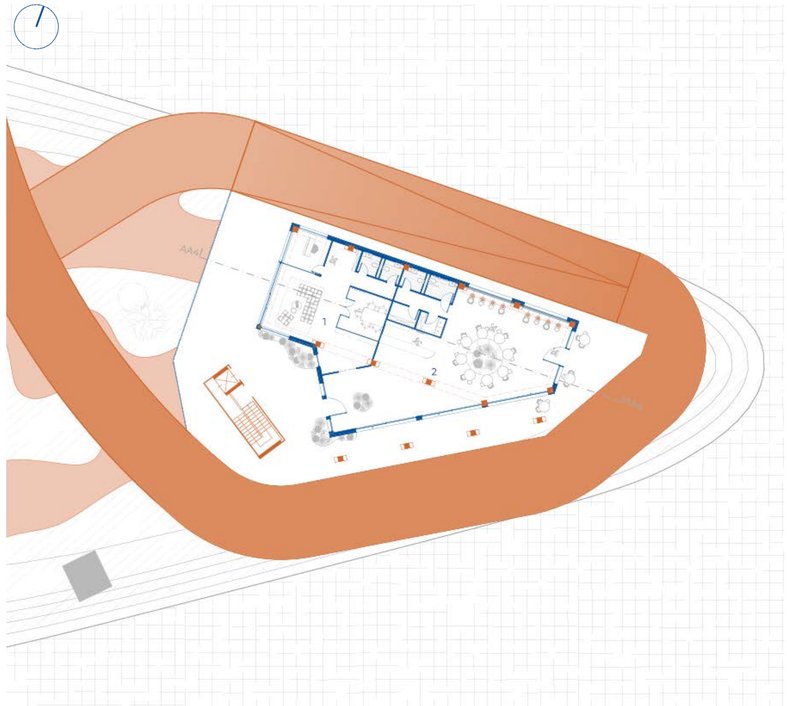
GYM AREA VISUALISATION

FIRST FLOOR

The first floor hosts a dual program of **administrative offices** and a **new social node**. Oriented toward the Sava River, the café utilizes the **large-scale windows** of the **existing facade** to maximize natural light and visual connectivity. The transition to an outdoor seating area elevates the **biophilic quality of the space**, creating a fluid hospitality experience.

Beyond its functional role, the **café** serves as a **social catalyst**, drawing in the **local community** while providing a dedicated space for **relaxation** and **interaction** among **yachting club members.**

FIRST FLOOR PLAN SC. 1:200



1. Administrative office 88 m2
2. Café 157 m2

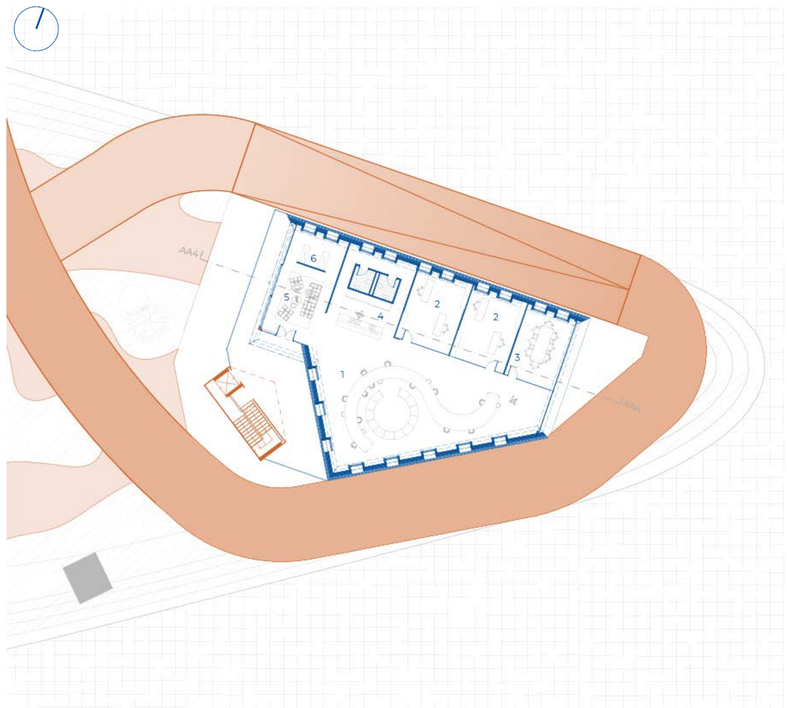
CAFE AREA VISUALISATION

SECOND FLOOR

The second floor serves as a flexible **co-working hub**, reinforcing the building's role as a public-facing facility. This intervention leverages **programmatic synergies** with the existing café to create a **multi-use social destination**.

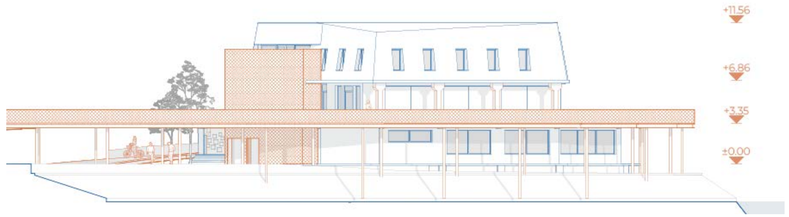
Defined by an ethos of **openness** and **multifunctionality**, the space is designed to be **highly adaptable**, providing a **fluid environment** that responds to the diverse requirements of the local community.

SECOND FLOOR PLAN SC. 1:200



1. Coworking 86.5 m2
2. Office 26.5 m2
3. Meeting room 22 m2
4. Kitchenette 14 m2
5. Lounge area 16 m2
6. Cloakroom 12 m2

CO-WORKING AREA VISUALISATION

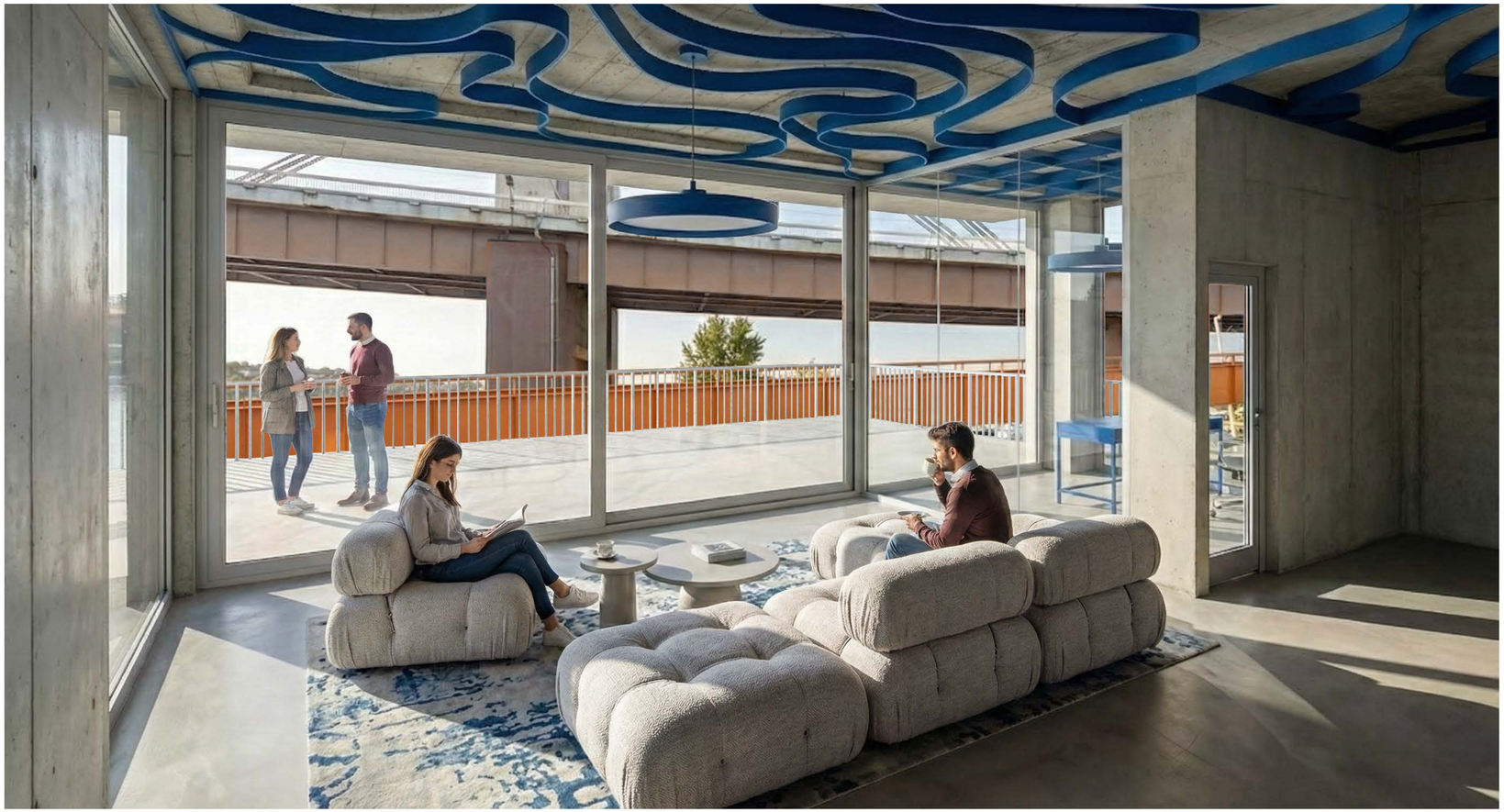


SOUTH ELEVATION SC. 1:200

EAST ELEVATION SC. 1:200

AA4 SECTION SC. 1:200

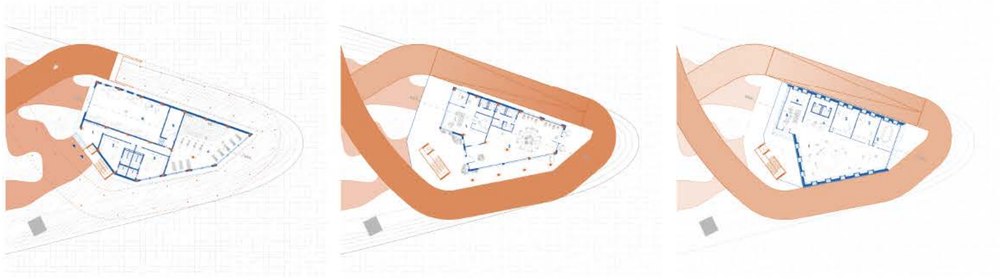
ADMINISTRATIVE AREA VISUALISATION



SUSTAINABILITY STRATEGY
MAXIMUM CONNECTIVITY
MINIMAL INTERVENTION

Minimal Intervention & Adaptive Reuse: This proposal reorganizes the interior to **optimize** Yacht Club activities while **opening the building to the public**. By upgrading the building's layers, we accommodate **new functions without disrupting private use**. A new external **staircase** serves all levels, allowing them to operate in parallel, while an **elevator** ensures **equitable access** for seniors and people with disabilities.

The main intervention **connects** a continuous ramp to the bridge, which acts as a **link** to the new construction and an **extended terrace** for the club's first floor, fully integrating the landmark into the urban circuit.



GROUND FLOOR

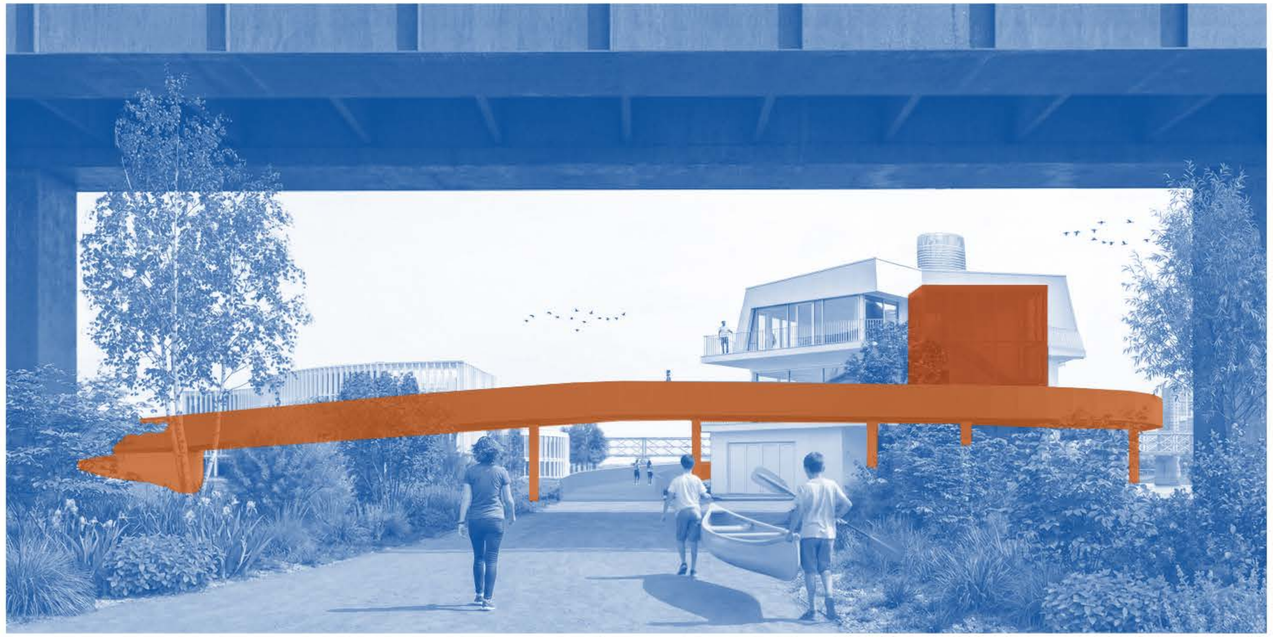
1. Entrance 15 m2
2. Locker room (M) 27 m2
3. Locker room (F) 27 m2
4. Gym 123 m2
5. Heating plant room 18.5 m2
6. Hangar 130 m2

FIRST FLOOR

1. Administrative office 88 m2
2. Café 187 m2

SECOND FLOOR

1. Coworking 86.5 m2
2. Office 26.5 m2
3. Meeting room 22 m2
4. Kitchenette 14 m2
5. Lounge area 16 m2
6. Cloakroom 12 m2



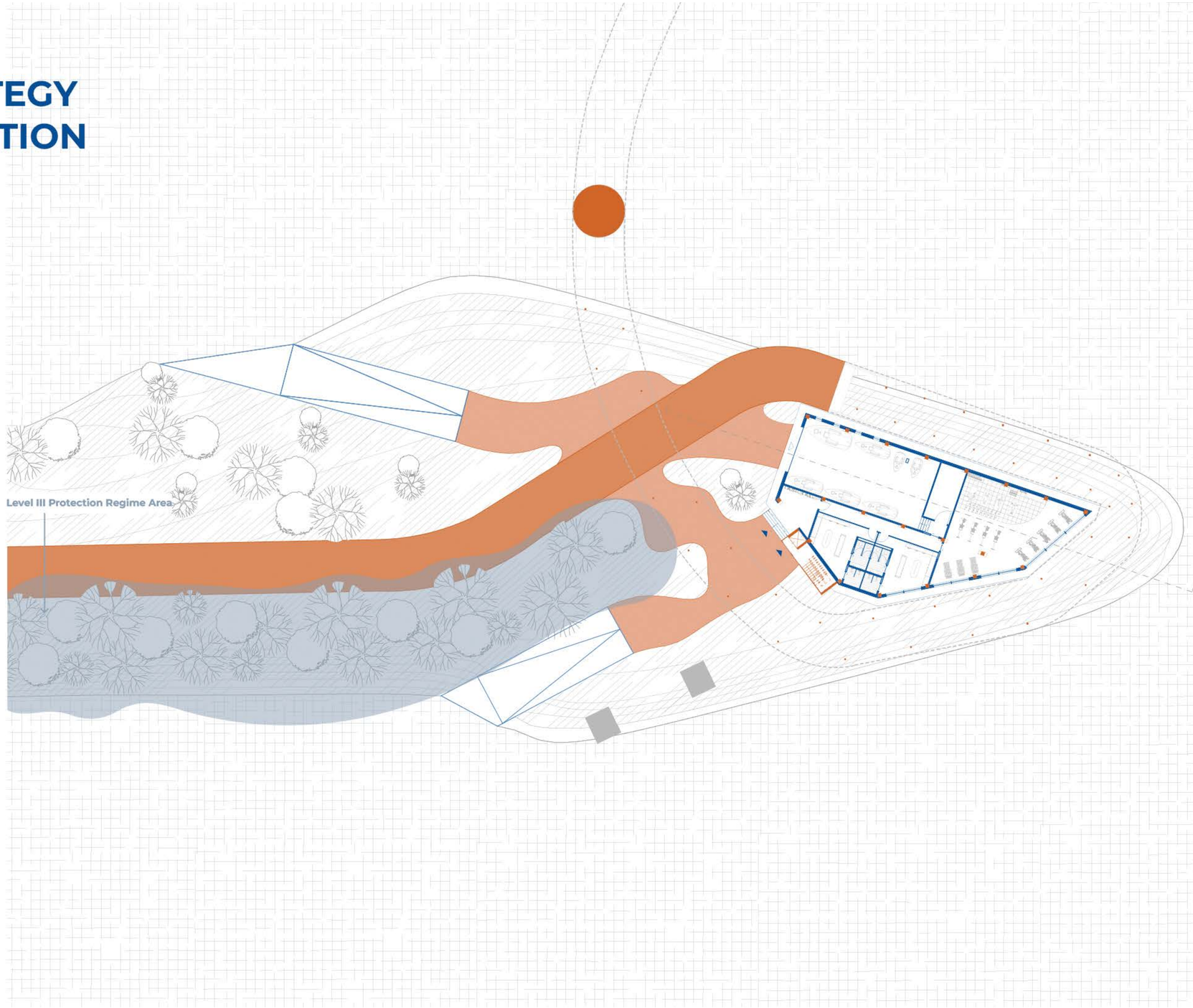
SUSTAINABILITY STRATEGY
BIODIVERSITY PROTECTION
PYGMY CORMORANT HABITAT

Situated along the Sava River, the project neighbors a **highly sensitive ecological zone**: the winter roost of the **Pygmy Cormorant** (Microcarbo pygmeus). Our architectural vision is defined by a **commitment to coexistence**, where human activity **does not displace nature**, but rather respects and regenerates it. This hypothesis is sustained by adopting the **restoration strategy** based on **controlled distancing** and **biophilic infrastructure**. This approach rigorously protects the **Level III Protection Regime Area** and conserves the **flora formations** essential for the survival of this species, ensuring that **human presence supports ecosystem regeneration** without disrupting it.

PROTECTED AREA - ZONE B

-**Zero Disturbance to Protected Zones**: The landscaping intervention around the club is carefully designed to completely avoid any impact on the Level III Protection Regime Area. We **fully preserve the existing green areas** and riparian vegetation, which serve as the vital **winter roosting habitat** for this strictly protected species.

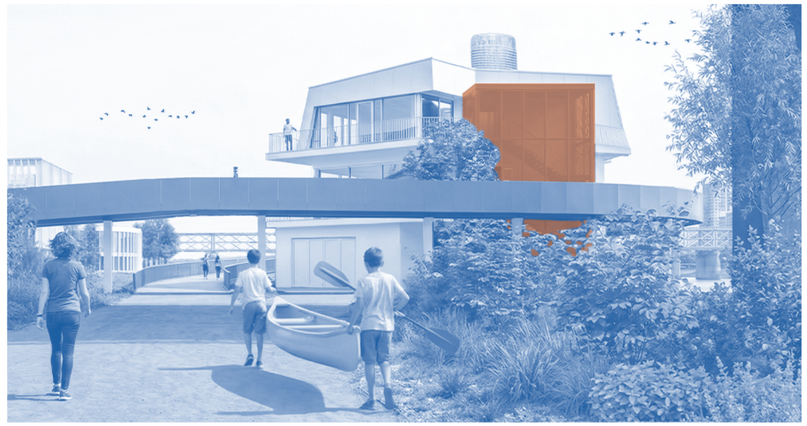
-**Strategic Yachting Access**: The **water access points** for the yachting club athletes are strategically **localized in immediate proximity to the club's building**. This consolidation of human activity **minimizes the operational footprint** on the riverbank and ensures that the sensitive habitat areas remain an **undisturbed zone** for the birds.

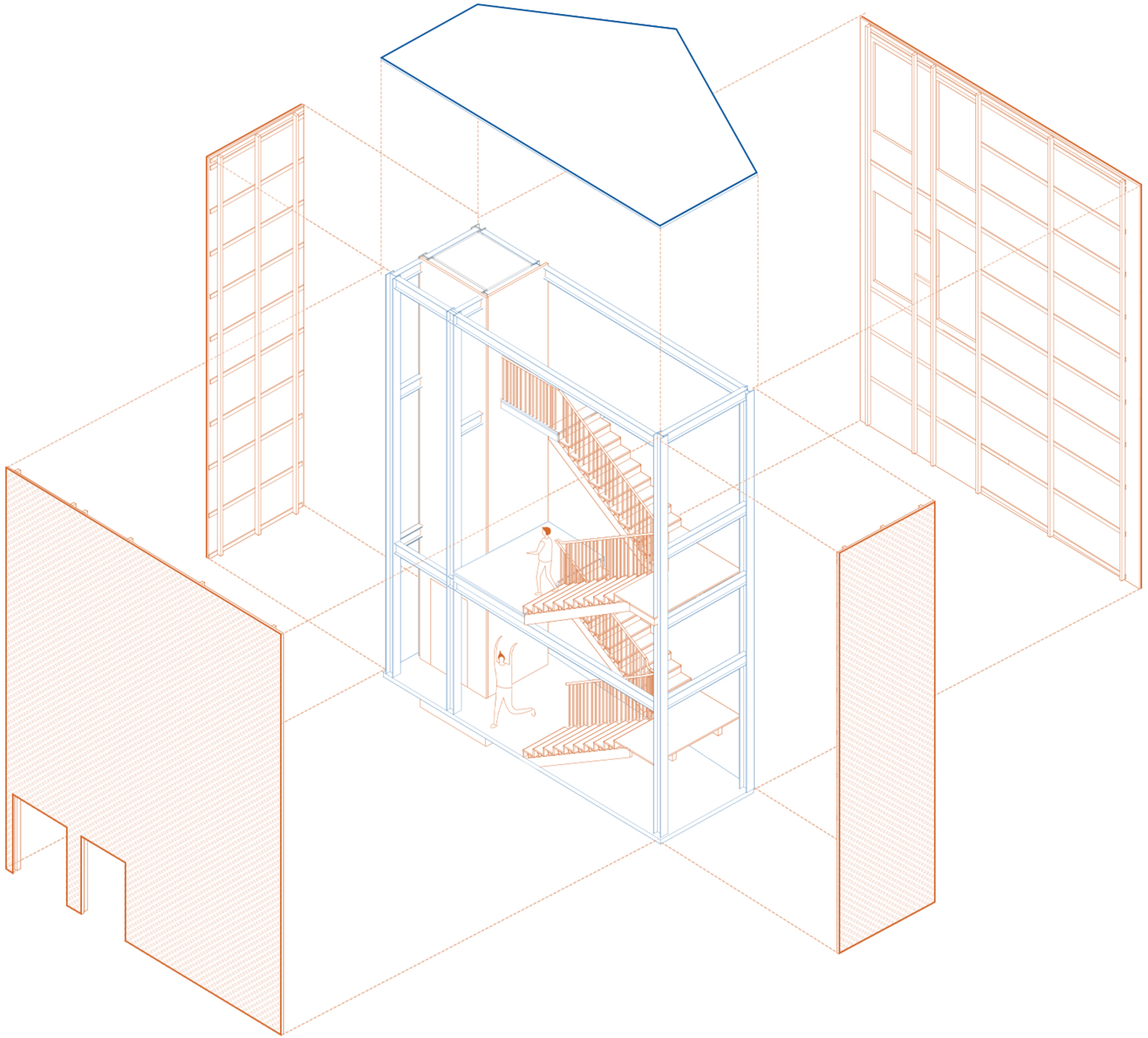


SUSTAINABILITY STRATEGY
ACCESSIBILITY

To provide **efficient access across all levels** while preserving the **building's distinct architectural silhouette**, the vertical circulation is **externalized** into an independent volume. This strategic separation allows the **various functions** within the club to operate with **complete programmatic autonomy**, providing separate entry points without compromising the internal floor plates. Furthermore, this tower acts as a **vital structural and social node**. By anchoring the new pedestrian bridge that wraps around the building, the circulation core transcends its functional role, becoming an **integral part of the site's public infrastructure** and enhancing the overall urban permeability of the waterfront.

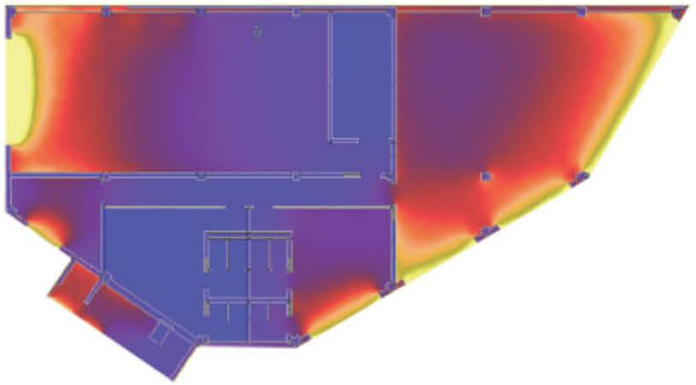
A central driver of this intervention is the commitment to **universal design and inclusive connectivity**. The inclusion of an elevator within the new volume ensures that all users, including **persons with reduced mobility**, can seamlessly navigate the building's upper levels. This accessibility extends beyond the building itself, as the elevator serves as the primary **link** to the newly proposed **bridge crossing the water**.



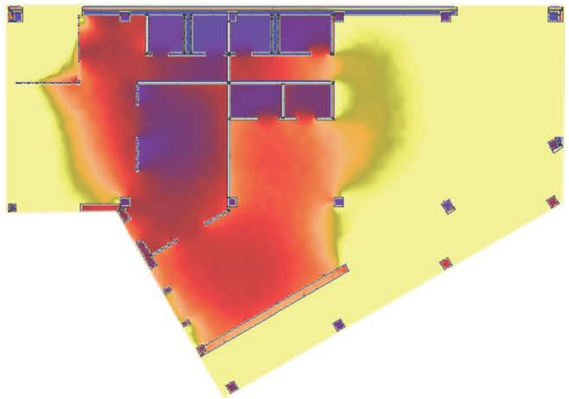


SUSTAINABILITY STRATEGY
NATURAL DAYLIGHT

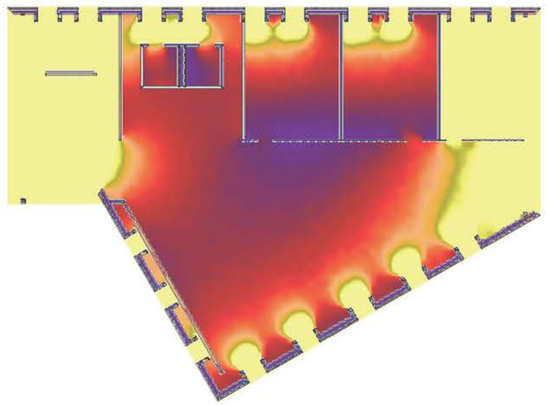
DAYLIGHT FACTOR SIMULATIONS



GROUND FLOOR



FIRST FLOOR



SECOND FLOOR

By **reconfiguring the building's original window-to-wall ratio**, we ensure that every newly introduced function benefits from the suitable daylight distribution, fundamentally **reducing our reliance on artificial lighting**. On the ground floor, the newly integrated, expansive **east-facing glazing** in the gym enables a **visual connection with the exterior landscape and the riverfront**.

Furthermore, moving into the **social and work spaces**, the café, dedicated offices, and coworking area, **strategic solar gain** is harnessed to actively elevate the **interior atmosphere**. This abundant natural light fosters a **dynamic environment** that significantly **boosts productivity, mental clarity, and overall occupant well-being**.

To achieve this high level of transparency **without compromising the building's thermal integrity**, we specified **Saint-Gobain DIAMANT COOL-LITE XTREME glazing**.

This **advanced glazing** maximizes **light transmission** while acting as a **thermal shield**, **preventing overheating** and **ensuring year-round visual and thermal comfort**.

64	0.30	13	49	0.5
TL %	g-value	RL2 %	Rw	Ug

Glazing 1
DIAMANT (5mm) - Annealed
PVB SILENCE (0.76mm)
DIAMANT (5mm) - Annealed
COOL-LITE XTREME 70-33

Cavity 1
Argon 90% 16 mm
Swisspacer Ultimate Pro

Glazing 2
DIAMANT (6mm) - Annealed

Cavity 2
Argon 90% 16 mm
Swisspacer Ultimate Pro

Glazing 3
PLANITHERM XN
DIAMANT (4mm) - Annealed
PVB SILENCE (0.76mm)
DIAMANT (4mm) - Annealed

Calumen SAINT-GOBAIN vetrotech SAINT-GOBAIN

SUSTAINABILITY STRATEGY
THERMAL REHABILITATION

Initially, the exterior of the Academic Yachting Club in Belgrade consisted solely of exposed, **uninsulated concrete**, resulting in **zero energy performance**. To comprehensively upgrade the thermal performance of the building's envelope, we implemented a **high-performance Saint-Gobain ETICS solution**, integrating **Isover Profi Fassade Mineral Wool** with the **weber.therm** range.

LCA Carbon Optimization

Because the building's heating and cooling are powered by **high-efficiency renewable systems (Geothermal)**, **over-insulating** the walls would **unjustifiably increase the embodied carbon** (material footprint) without significant ecological benefits. **This thickness represents our optimal Life Cycle Assessment (LCA) balance**.

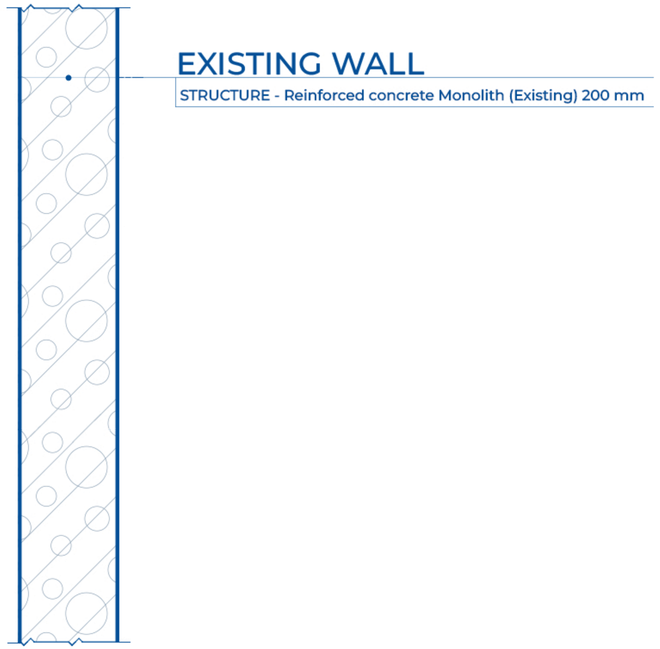
Architectural Integrity

Preserving a moderate insulation profile **avoids deep window reveals**, **maximizing natural daylight** penetration and reducing artificial lighting demands.

Through an **optimized material strategy**, we elevated the facade's thermal resistance to **R = 3.11 m²K/W (U = 0.32 W/m²K)**. This specific value is a **conscious, sustainable design choice** driven by **three key factors**:

Local Compliance

The intervention successfully surpasses the **Serbian national baseline for building retrofits (U_{max} = 0.40 W/m²K)**, ensuring total regulatory compliance and **economic feasibility**.



R ~ 0.09 m²K/W
BEFORE

~ x35

R = 3.11 m²K/W
AFTER

REINFORCEMENT WALL STRATIFICATION

FINISH - weber.pas aquaBalance 2 mm
PRIMER - weber G700 1 mm
REINFORCEMENT - weber.therm family 3 mm
MESH - weber.therm 397 1 mm
THERMAL INSULATION - Isover Profi Fassade (Mineral Wool - Continuous) 100 mm
ADHESIVE - weber.therm prestige 5 mm
STRUCTURE - Reinforced concrete Monolith (Existing) 200 mm
PRIMER - weber.prim plus 1 mm
BASE PLASTER - weber.cal BIO-base 20 mm
FINISH COAT - weber pluscalc 3 mm
AIR PURIFIER - PLACOSTIC® ACTIV'AIR® 1 mm
FINISH - 1 mm

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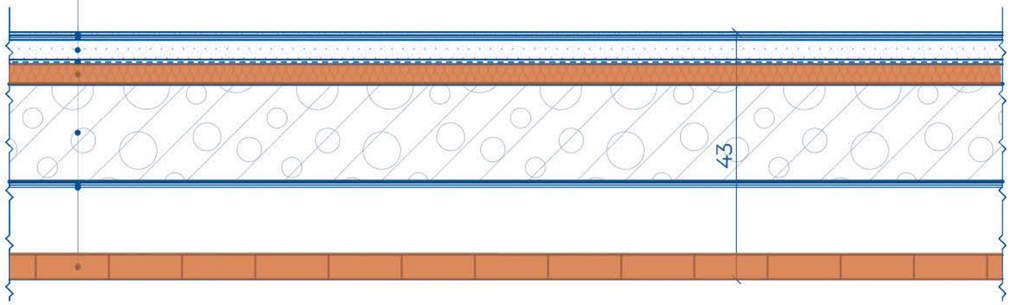
SUSTAINABILITY STRATEGY
ACOUSTIC COMFORT

Previously, the Yachting Club's interior consisted of **bare concrete slabs** with **zero acoustic measures**, resulting in high noise transmission and severe reverberation. To elevate the user experience, we implemented a holistic **Saint-Gobain multi-comfort strategy**. We treated the floor assemblies with **Isover TDPT Rigid Mineral Wool** to **reduce impact sound** between levels. We paired this solution with **Placostic Activ' Air** to ensure an optimal balance of acoustic comfort and superior indoor air quality. Furthermore, as a defining **interior design choice**, we introduced **bespoke ceiling grids**. These suspended structures are not merely aesthetic, they function as advanced **acoustic baffles**, actively **absorbing sound waves, controlling echo**, and cultivating a focused, serene environment for the club's users.

REINFORCEMENT SLAB STRATIFICATION

FINISH - weber.floor 4650 Design Mono 6 mm
PRIMER - weber.floor 4716 1 mm
SCREED - weber.floor 4310 Fiber - reinforced 40 mm
REINFORCEMENT - weber.floor 4945 Glass Fiber Mesh 1 mm
IMPACT SOUND INSULATION - Isover TDPT Rigid Mineral Wool 40 mm
STRUCTURE - Reinforced concrete Monolith (Existing) 150 mm
AIR PURIFIER - PLACOSTIC® ACTIV'AIR® 2 mm
UNDERSIDE PAINT - 1 mm
FINISH - Metal grille 50 mm



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