ARCHITECTURE
STUDENT
CONTEST

ARCHITECTURE STUDENT CONTEST 2026

Czech-Republic
Faculty of civil engineering CTU in Prague
Markéta PIPKOVÁ
Team 07

REWILDING RUST

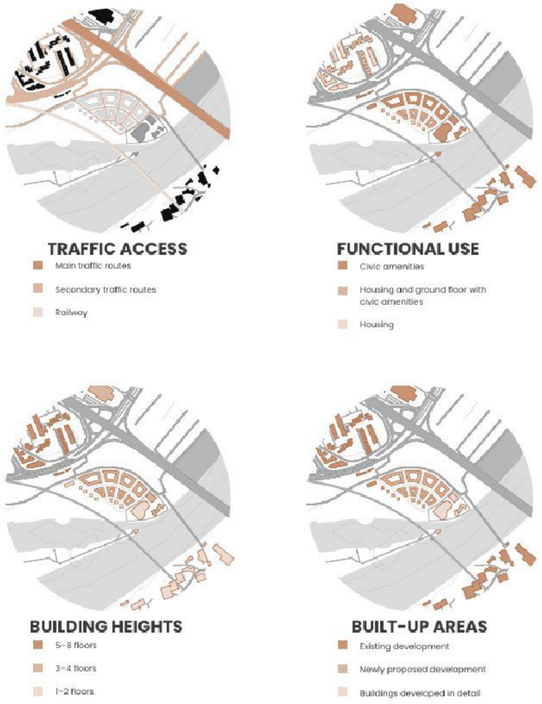
RIVER. HABITAT. HERITAGE.

Rewilding Rust transforms the industrial edge of the Sava River into a sustainable sports campus, where architecture, public space and restored nature create a new habitat for athletes, visitors and river wildlife.

Bc. Markéta Pipková

FACULTY OF CIVIL
ENGINEERING
CTU IN PRAGUE

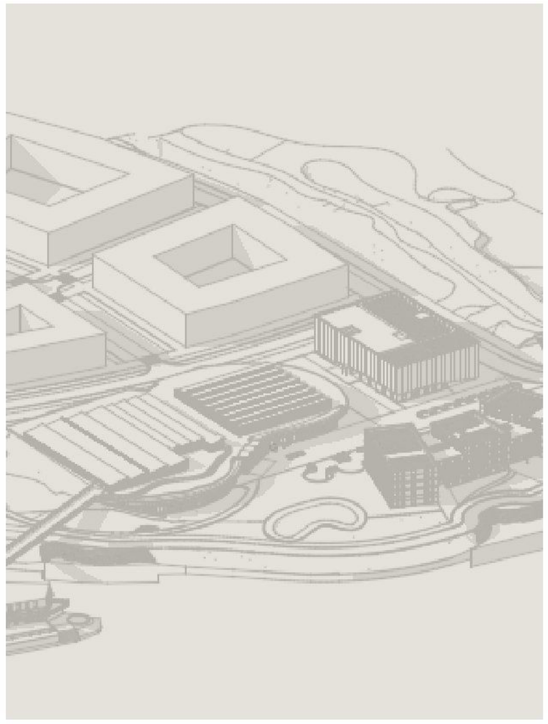
01



Analysis of the Site

07 - 12

02



Urbanism

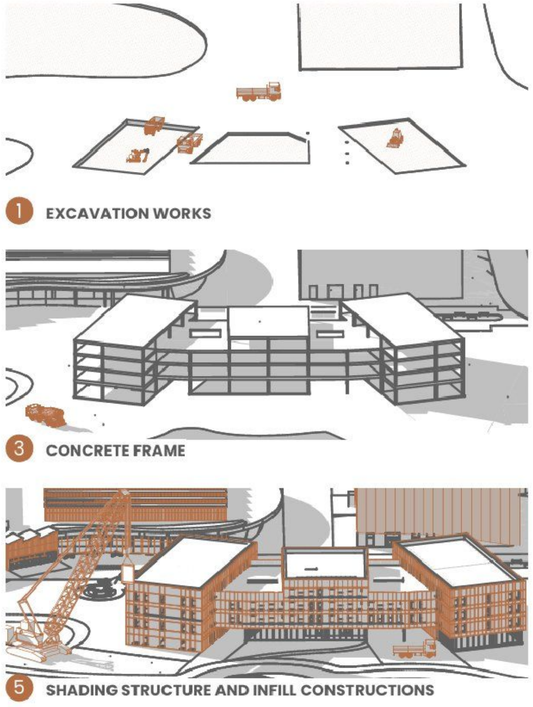
13-35

03

Athletes' Accommodation

36-55

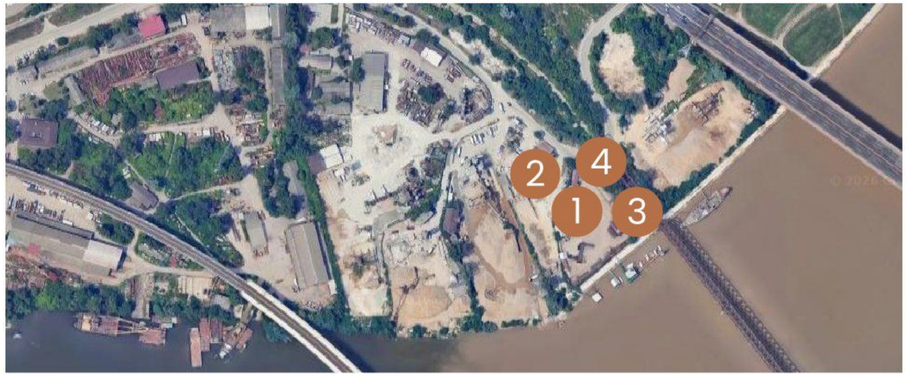
04



Accommodation – Technical Part

56-86

01 SITE ANALYSIS



1 Technological structures

2 Silos and halls

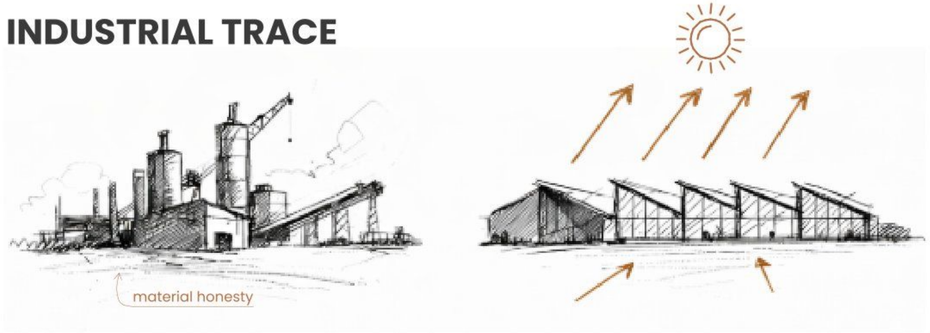
3 Infrastructure and greenery

4 Materials, details

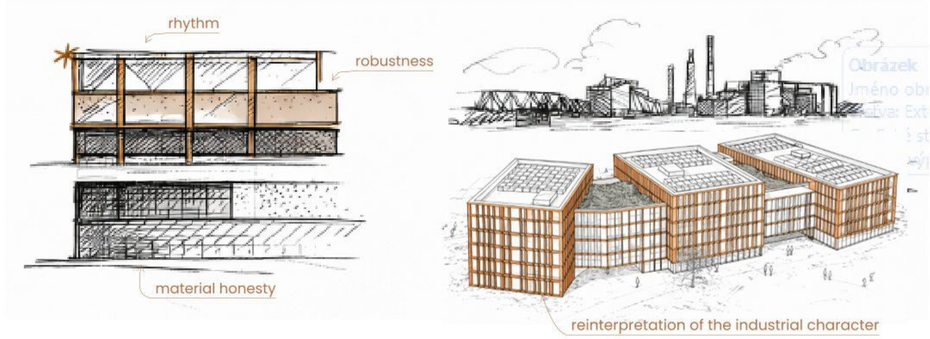
PHOTOGRAPHIC DOCUMENTATION OF THE SITE

The photographic documentation of the site shows a strong presence of an industrial character – technological structures, steel constructions, silhouettes of halls and infrastructural elements that give the place a clear identity. The aim is to draw from these traces and bring the industrial motif into the site, not as a direct copy, but as a reinterpretation.

INDUSTRIAL TRACE



INDUSTRIAL FACADE

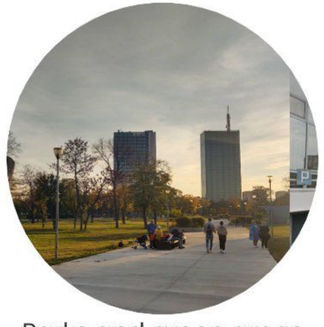


LEGEND:

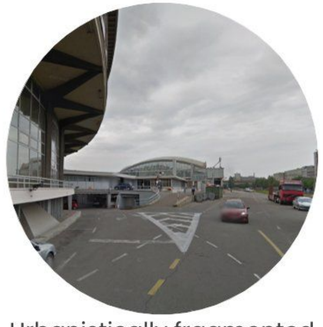
- Historical development
- Urbanistically fragmented development
- New high-rise development – landmarks in the area
- Parks and green areas
- Important points
- Cultural monuments, museums

Historical development

New high-rise development



Parks and green areas

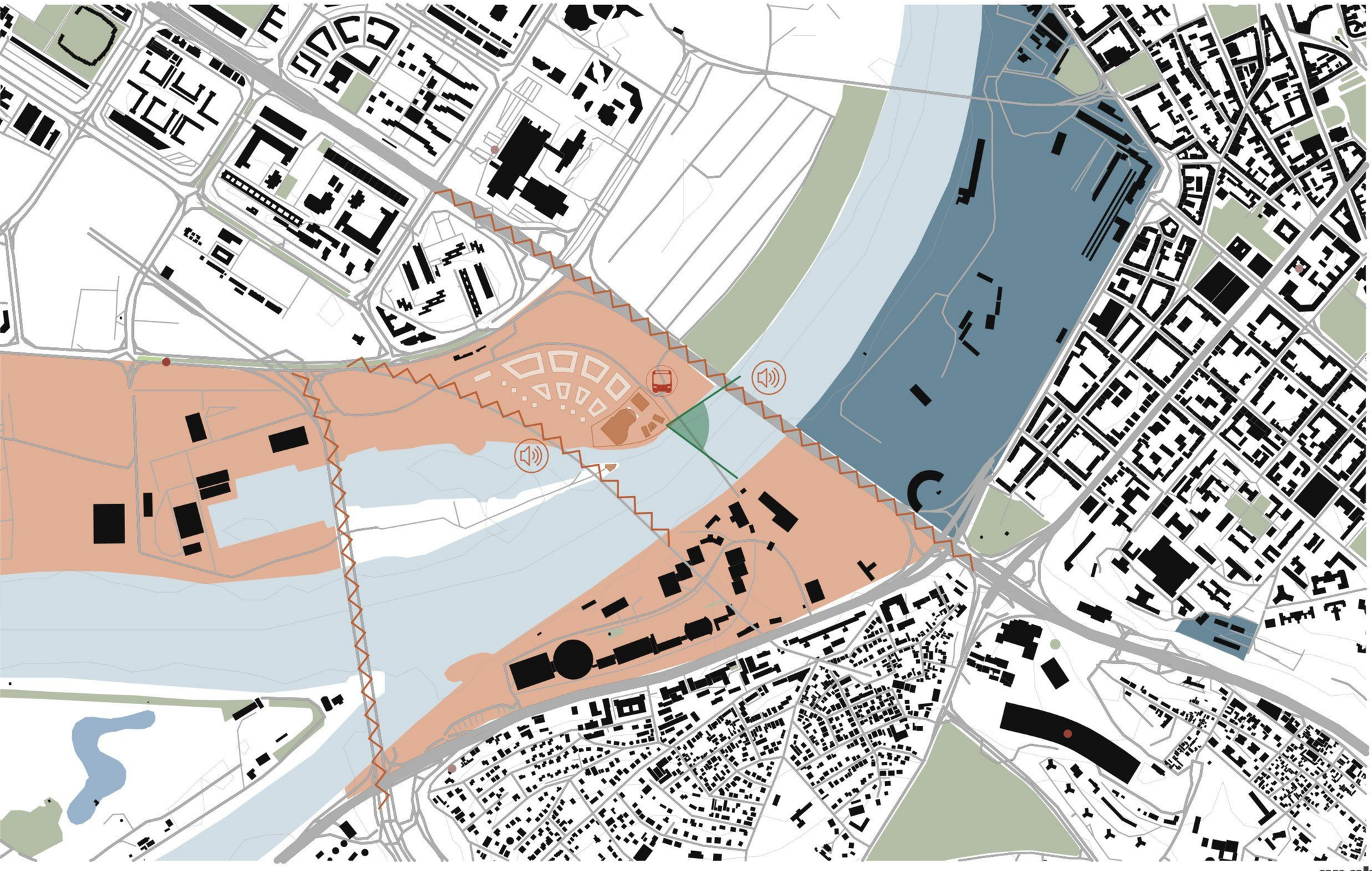


Urbanistically fragmented development

M 1:20 000

0 200 800m

analysis of wider relations



LEGEND:

- Historical development
- Urbanistically fragmented development
- New high-rise development – landmarks in the area
- Parks and green areas
- Important points
- Cultural monuments, museums
- Noise from transport infrastructure
- Views
- Public transport stops
- Newly proposed development
- Newly proposed development – area developed in detail

M 1:10 000

0 100 400m

analysis of closer relations

TRAFFIC ACCESS

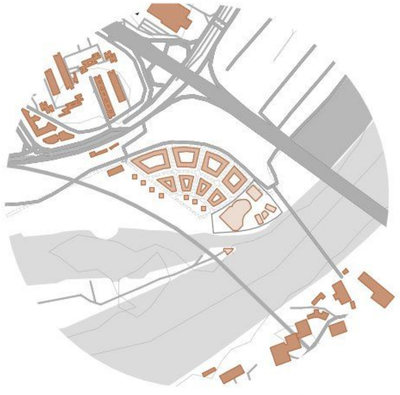
- Main traffic routes
- Secondary traffic routes
- Railway

FUNCTIONAL USE

- Civic amenities
- Housing and ground floor with civic amenities
- Housing

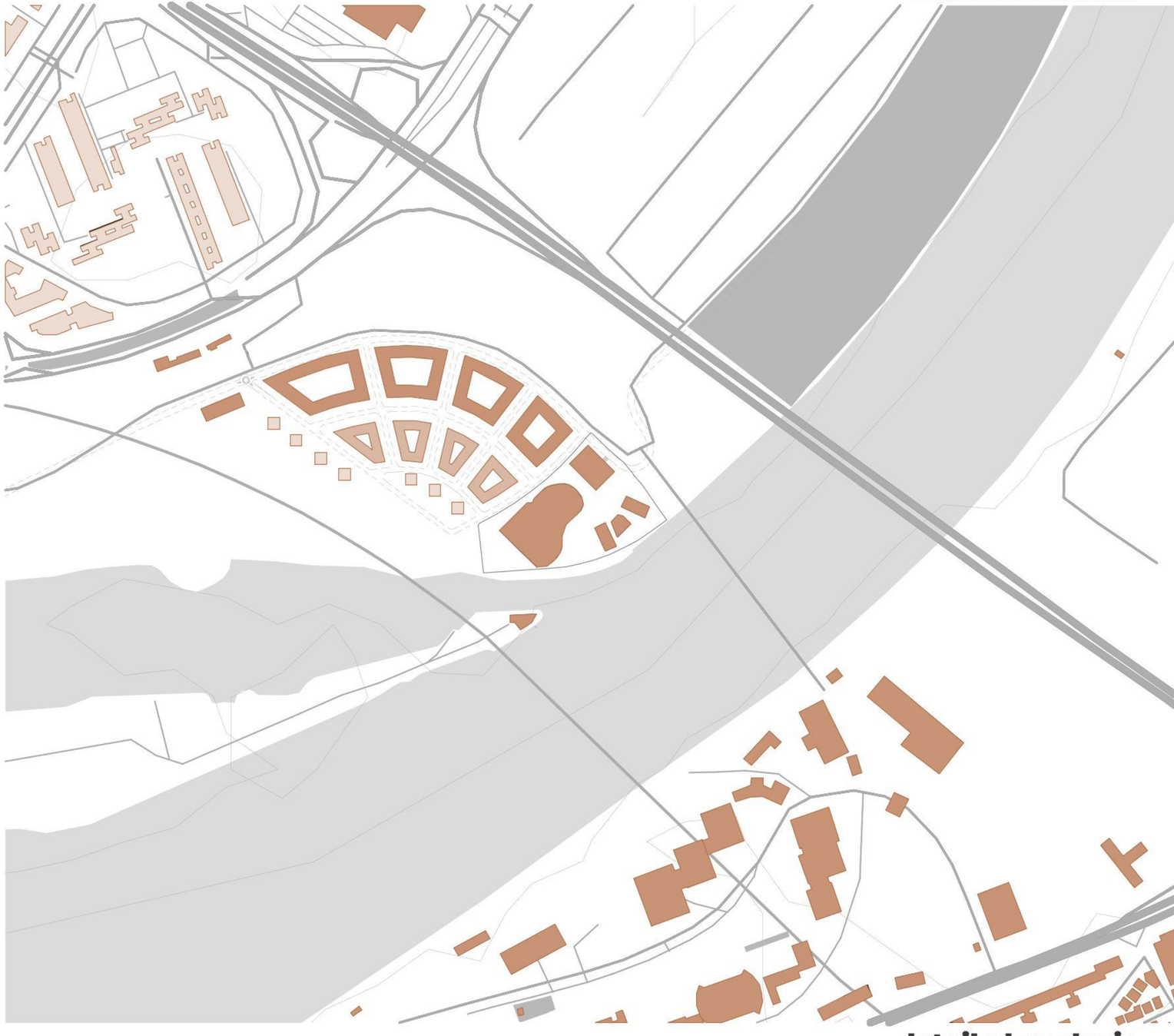
BUILDING HEIGHTS

- 5–8 floors
- 3–4 floors
- 1–2 floors



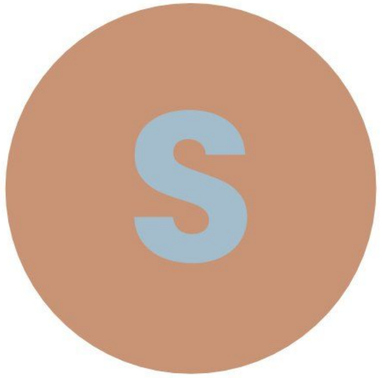
BUILT-UP AREAS

- Existing development
- Newly proposed development
- Buildings developed in detail



M 1: 5 000

0 50 200m

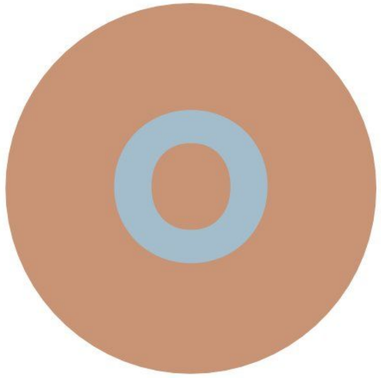


STRENGTHS

Strategic location at the confluence of the Sava and Danube rivers.
Historical and cultural core: Kalemegdan, Old Belgrade.
Modern traffic bridges and transport nodes: Ada Bridge, Gazela Bridge, E-75/ E-70.
Large green areas: Ada Ciganlija, Košutnjak, Kalemegdan.
Multifunctional buildings: Štark Arena, Sava Centar, Belgrade Waterfront.
High development dynamics – attractive for investors.

WEAKNESSES

Traffic congestion, missing metro system, insufficient cycle paths.
Uneven development: luxury districts versus neglected urban blocks.
Lack of public spaces and shade in New Belgrade.
Older prefabricated apartment buildings with low energy efficiency.
Flood risks and outdated sewerage infrastructure.

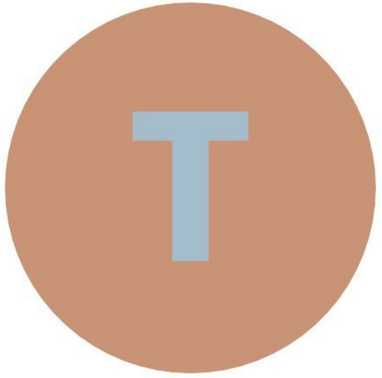


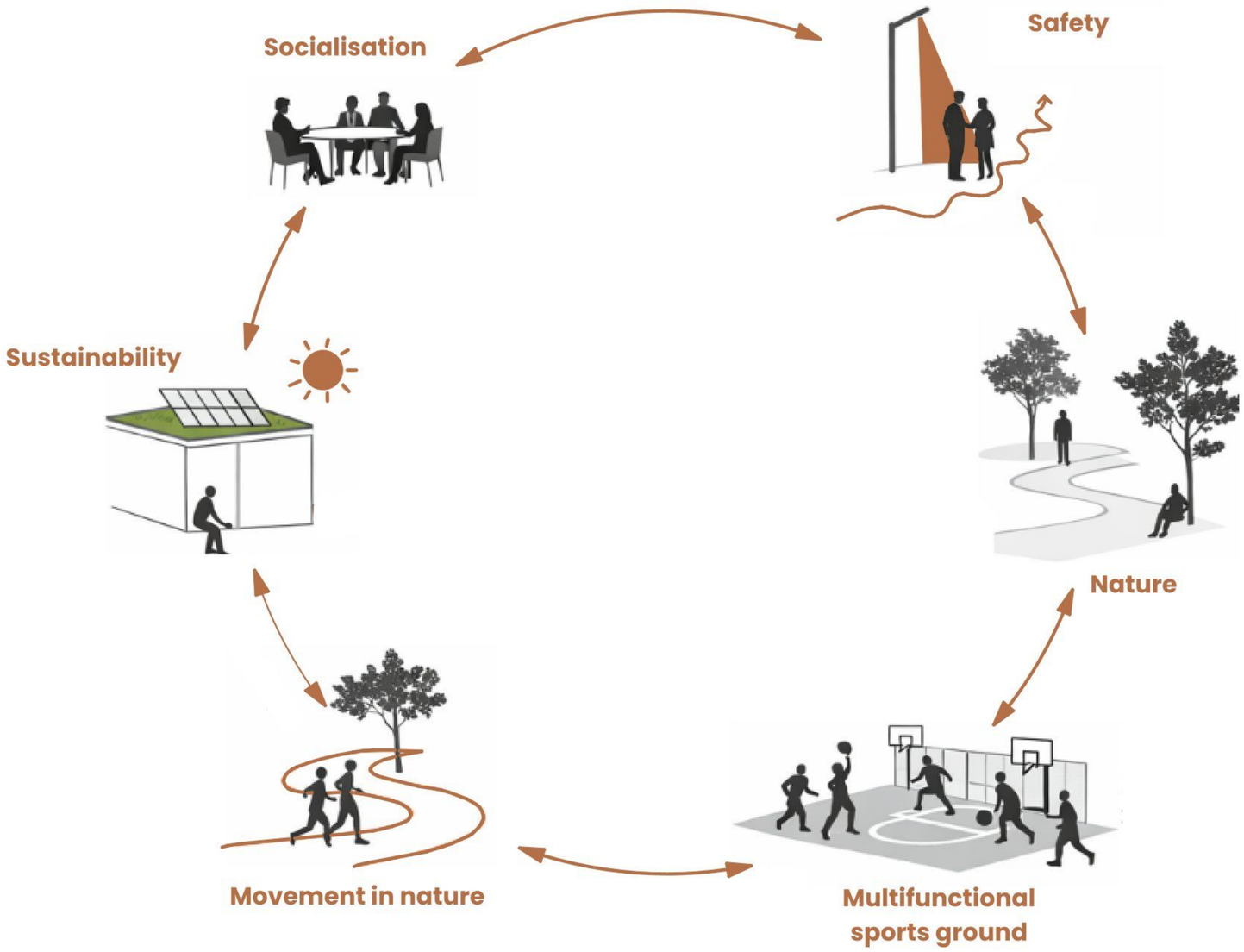
OPPORTUNITIES

Development of green infrastructure: green roofs, tree alleys, parks.
Climate adaptation: retention areas, urban cooling.
Revitalisation of brownfields and riverfronts through new waterfront projects.
Development of cycling and pedestrian mobility, connecting the centre with recreational areas.
Smart city solutions: digital mobility, intelligent energy management.
Tourism – use of cultural heritage and events, such as concerts and sports

THREATS

Further growth of individual car transport leading to congestion in central areas.
Development pressure causing loss of greenery and public spaces.
Climate change leading to more frequent extreme temperatures and rainfall.
Social inequalities – division of the city into “luxury” and “neglected” zones.
Lack of funding and weak coordination of planning.
Urban chaos caused by rapid expansion without regulation.




Socialisation
Safety
Sustainability
Nature
Movement in nature
Multifunctional
sports ground

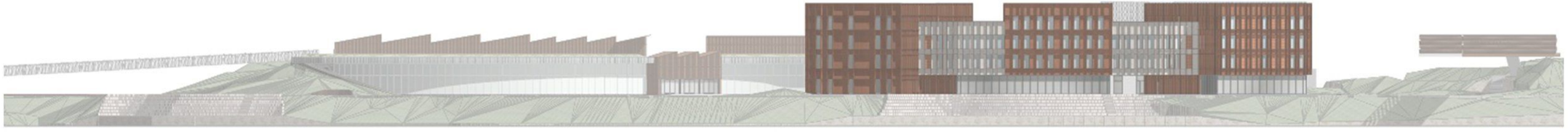
Urbanism and Relationship to the Site
The architectural concept is based on the ambition to create a sports campus that does not turn away from the city or the landscape, but actively connects both. The urban structure works with a main access axis leading into the heart of the area and naturally ending at the riverside promenade. The campus responds to its surroundings and opens the riverbank to the wider public.

Compositional and Operational Solution
A pair of axes organises all the main functions of the site. The entrance facilities and parking are located near the access point, the sports hall forms the compositional centre, and the accommodation is oriented towards the river and the views. The operational structure is clear and allows smooth movement for both athletes and visitors, while clearly separating quiet and active parts of the campus.

Architectural Concept
The overall architectural expression works with openness, views and layered scale. The large sports volumes are complemented by the finer scale of the accommodation areas, creating a balanced composition between monumentality and human scale. The architecture does not create a barrier, but an environment that supports natural movement and orientation within the site.

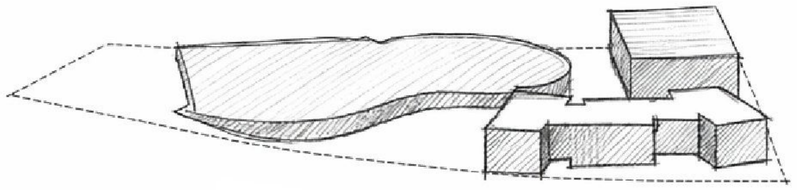
Public Space and Movement
Between the individual buildings, a network of pedestrian routes, squares and recreational terraces is created. This network connects all parts of the sports campus and opens it towards both the city and the landscape. These routes are not understood only as transit spaces, but as fully valuable places for staying, meeting and informal activities.
The public spaces naturally connect to the sports areas and allow them to be used even outside sporting events. The composition of the public space works with varying degrees of openness and intimacy – from quieter terraces oriented towards the river to livelier squares near the main entrances and sports buildings. This creates a sequence of places with different atmospheres, supporting the everyday life of athletes, recreational use by residents and meetings of the wider public.

Accommodation and Privacy
The accommodation volumes are shaped as open and folded forms that respond to the surrounding environment and the orientation towards the river. This massing creates protected semi-private spaces intended primarily for the residents of the accommodation facilities, while also allowing a gradual transition into the publicly accessible parts of the campus.

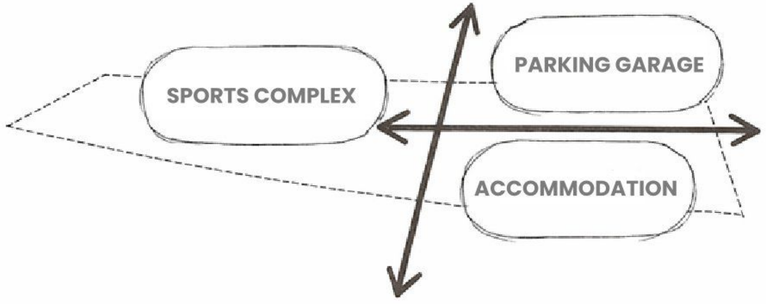


CITY CONNECTION | RIVERSIDE PROMENADE | RIVER VIEWS | PUBLIC SPACE | PEDESTRIAN ROUTES | ORIENTATION TOWARDS THE RIVER | ACCESSIBILITY | RIVERBANK | CAMPUS LIFE

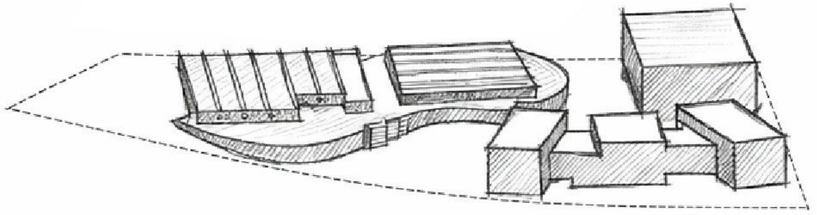
SITE ANALYSIS AND TRANSPORT CONNECTIONS



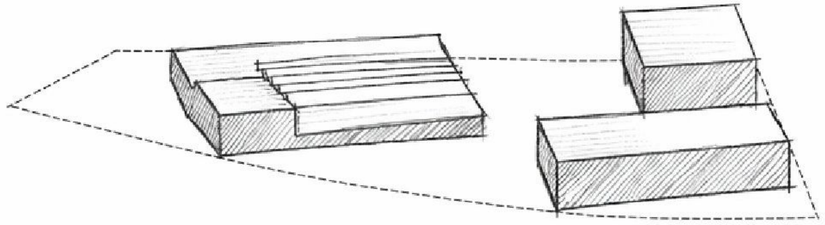
FORMING THE VOLUMES ACCORDING TO TERRAIN AND VIEWS



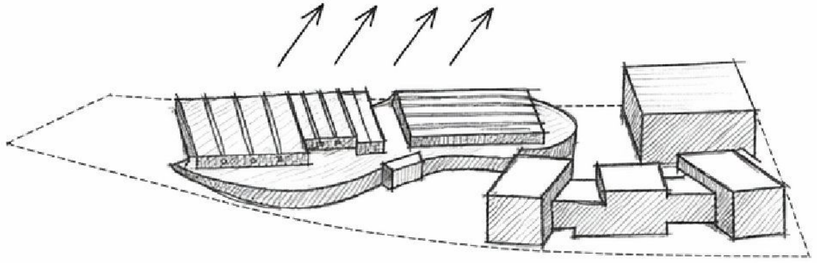
DEFINITION OF MAIN FUNCTIONAL ZONES



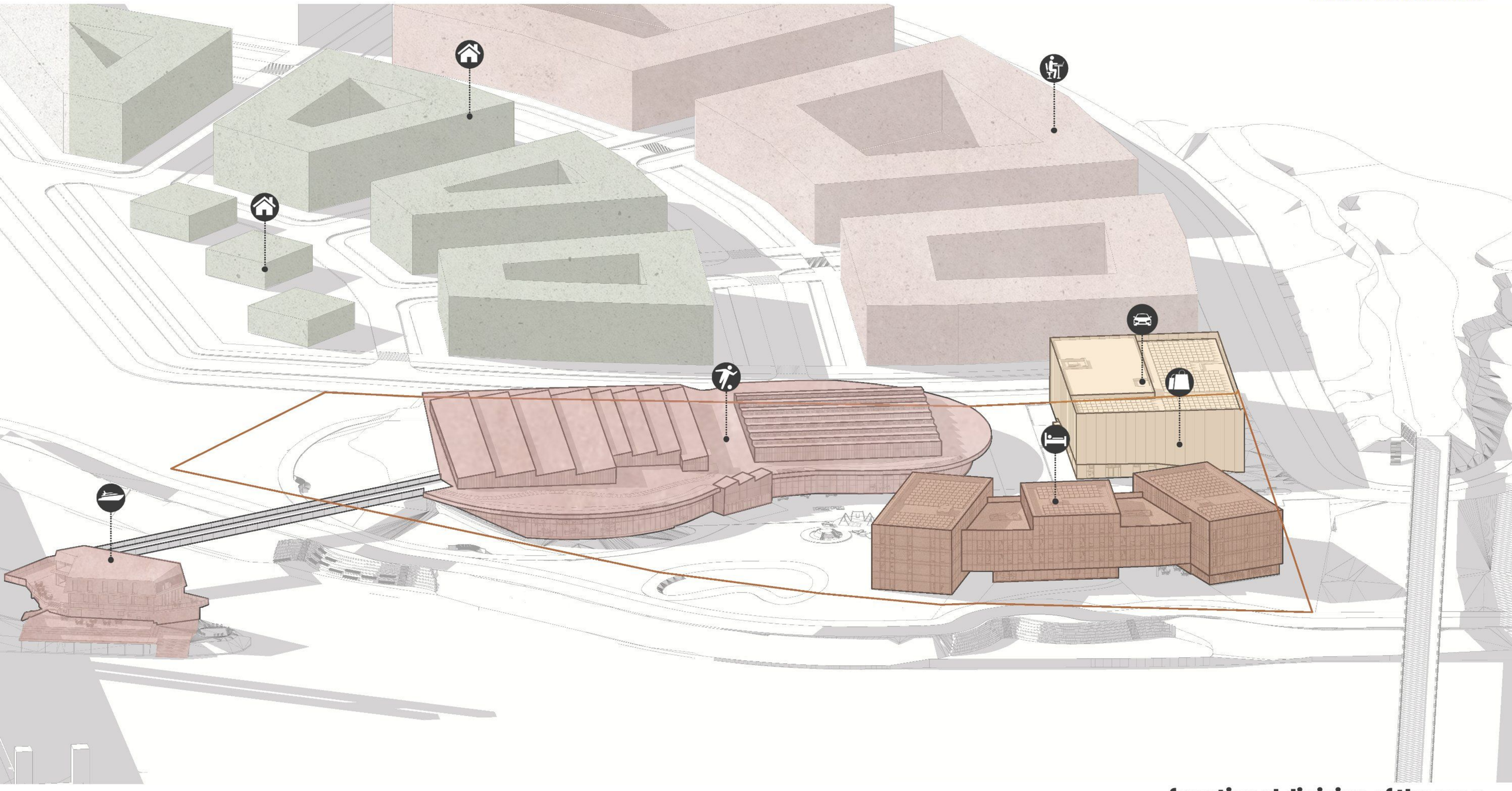
OPENING THE BUILDING TOWARDS THE RIVER



MASSING OF SPORTS HALL AND ACCOMMODATION



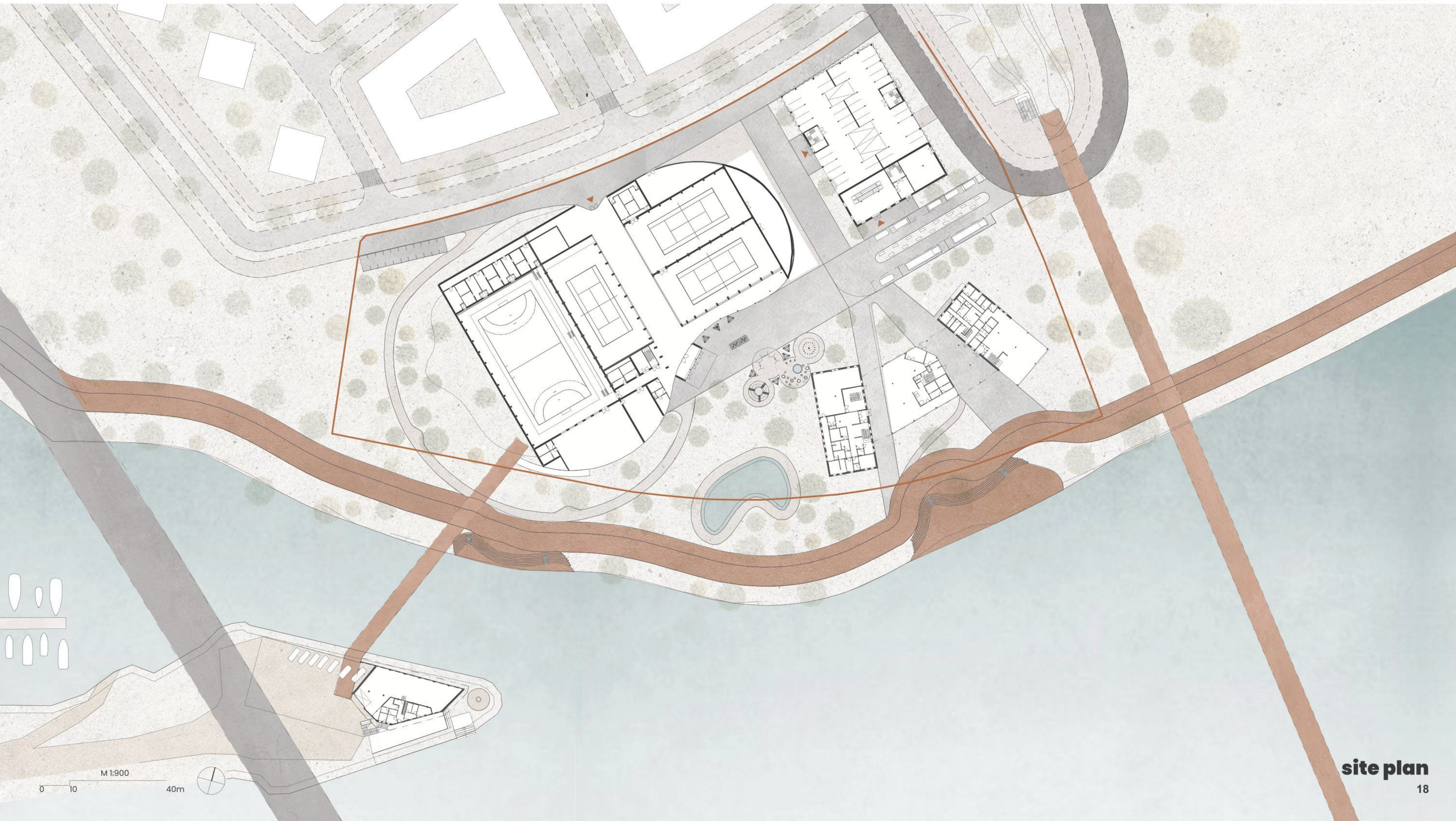
FINAL MASSING AND OPERATIONAL SOLUTION



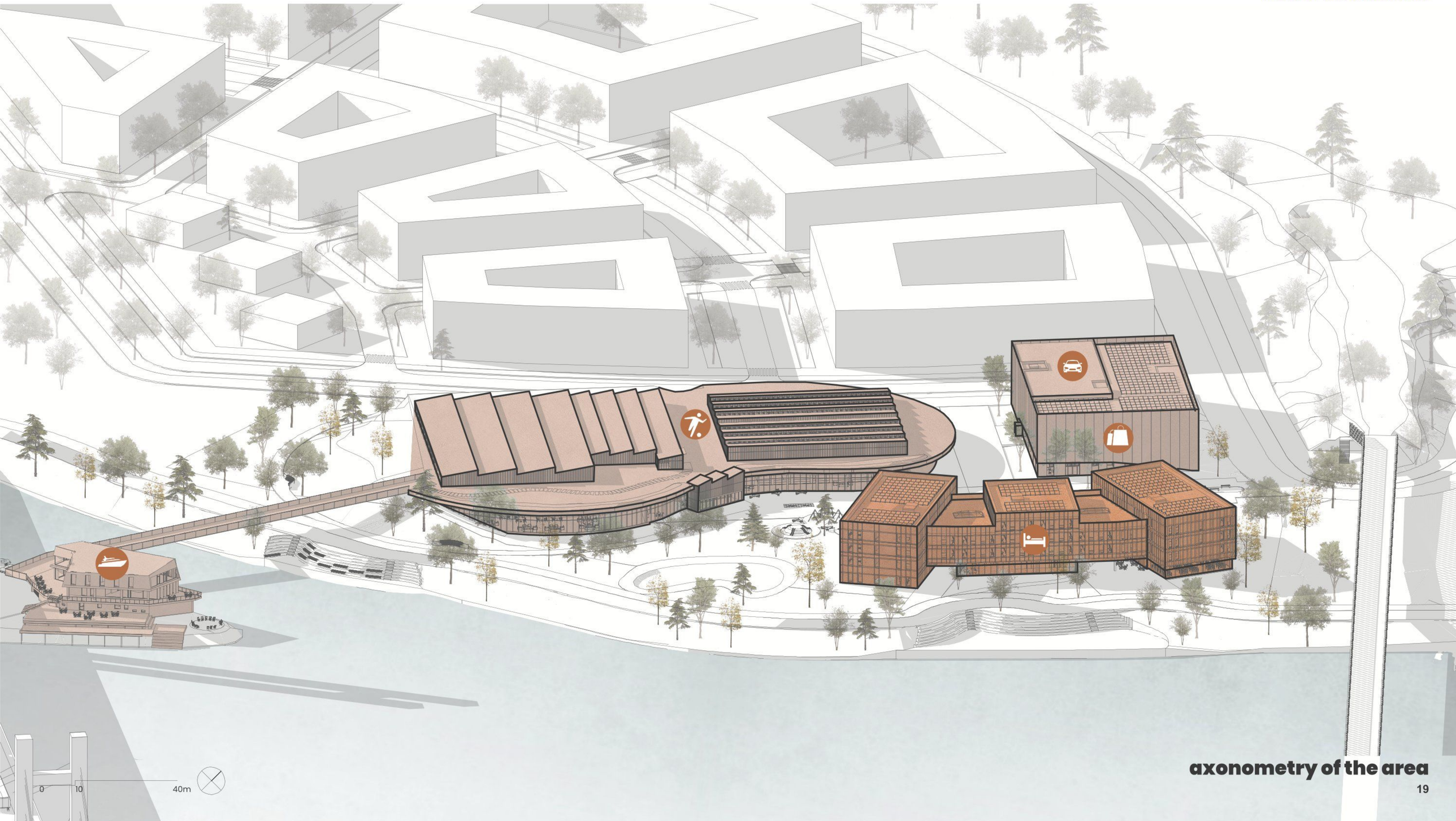
M 1:750

0 10 40m

functional division of the area



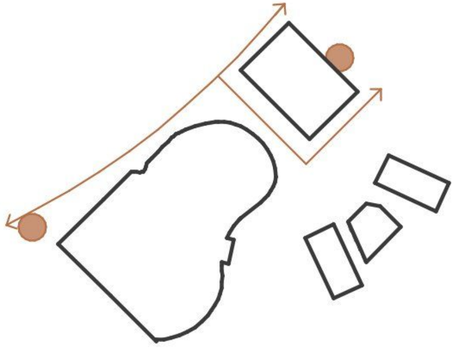
site plan



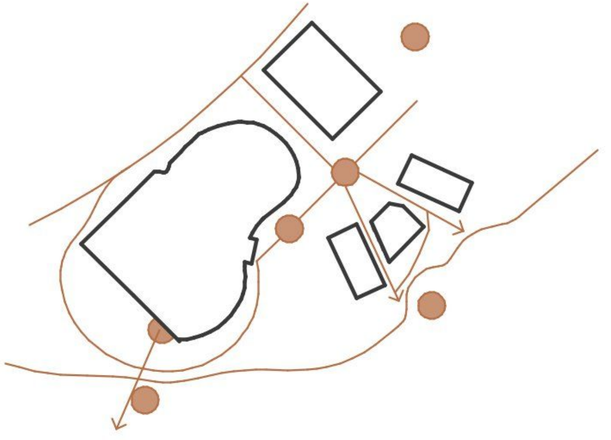
axonometry of the area

LEGEND

- Public transport stop
- Traffic access to the area – shared zone
- Bus parking spaces
- Electric vehicle parking spaces
- Supply access
- Kiss & Ride parking spaces
- Main pedestrian routes
- Cycle paths



TRAFFIC DIAGRAM



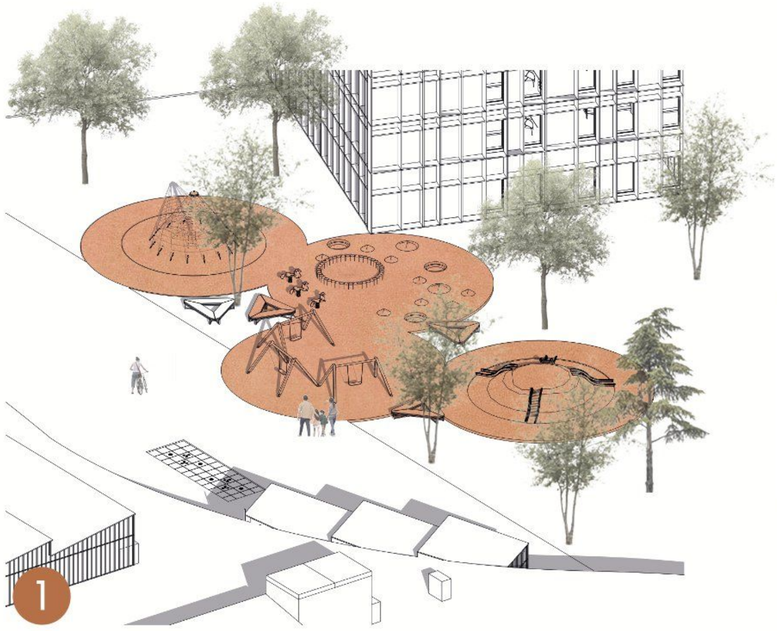
PEDESTRIAN MOVEMENT DIAGRAM

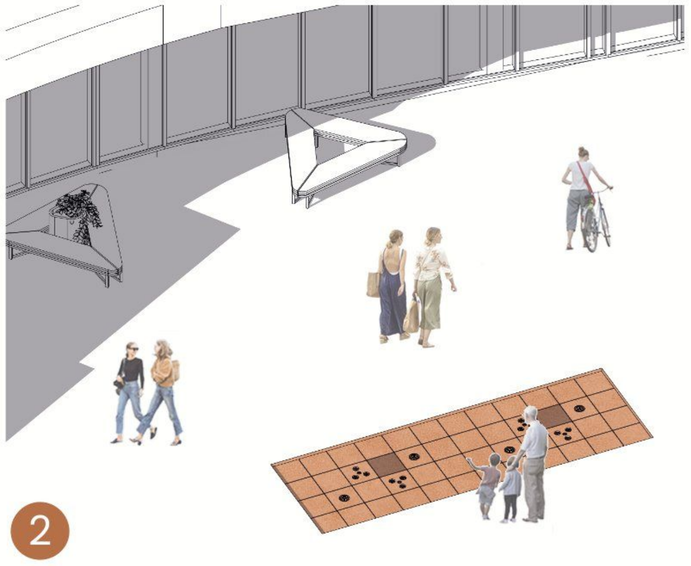
M 1:1300

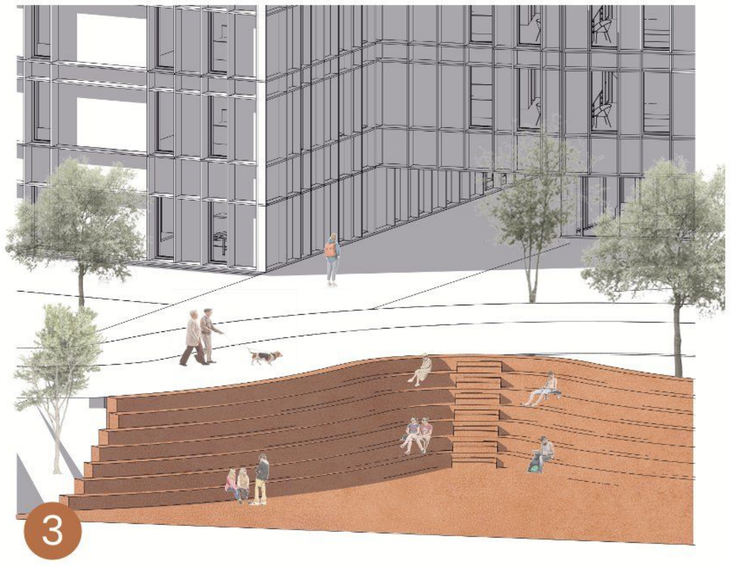
0 15 65m

traffic solution

public space site plan


1

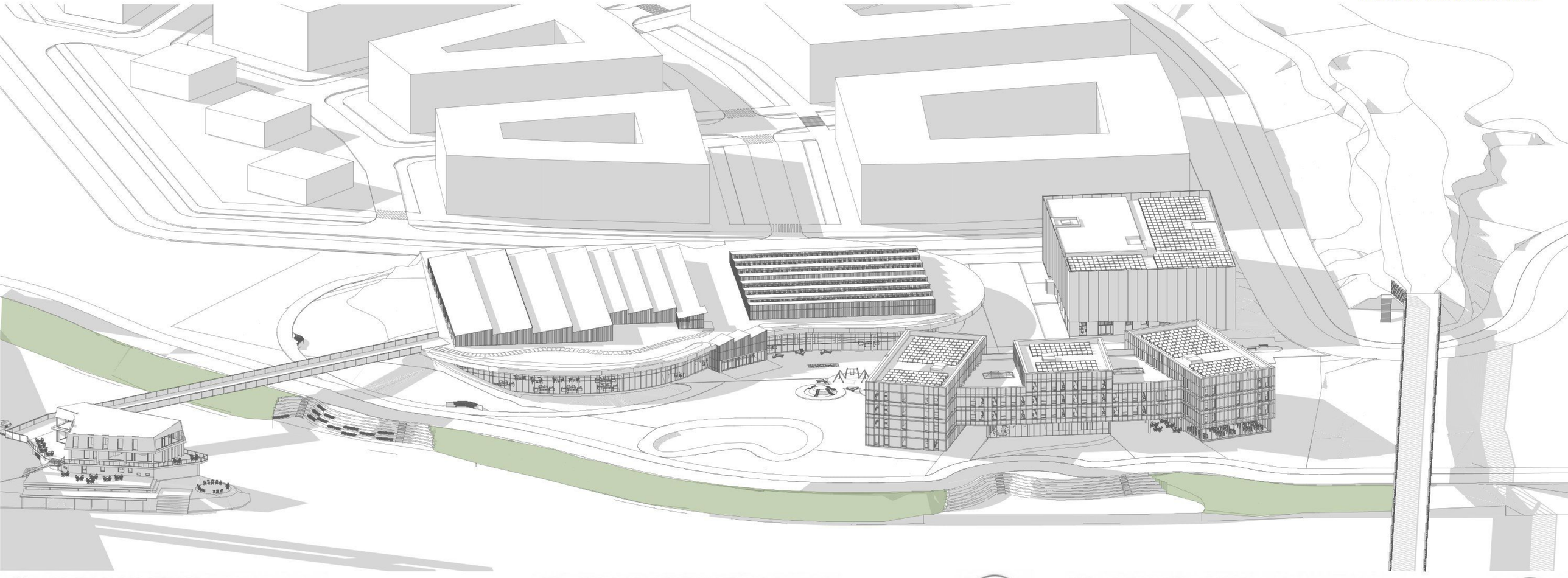

2


3


4

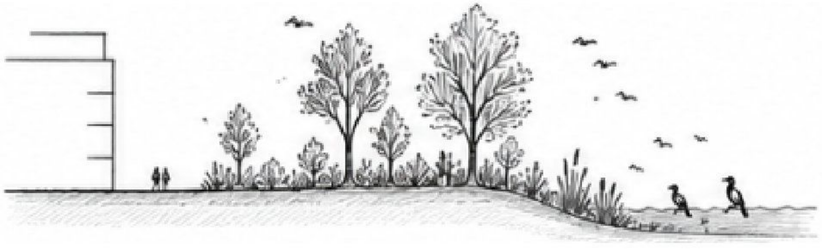

5


6



01 ECOLOGICAL BUFFER

A continuous green buffer protects the river edge and creates a transition between the campus and the protected habitat.

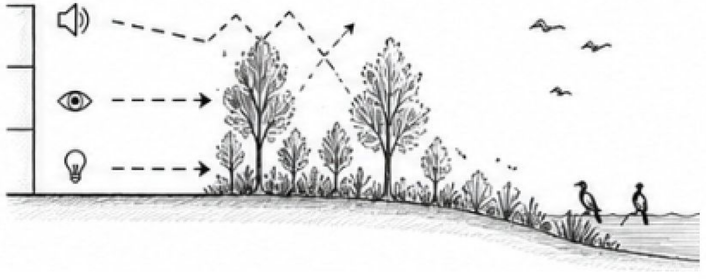


M 1:750

0 10 40m

02 DISTURBANCE REDUCTION

Vegetation, terrain and distance reduce noise, visual disturbance and direct light impact towards the river.



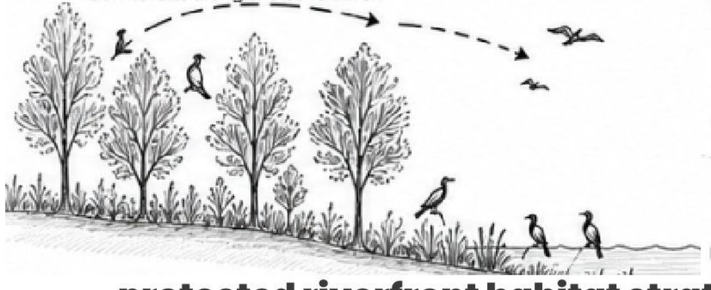
REDUCE NOISE

LIMIT VISUAL DISTURBANCE

CONTROL LIGHT POLLUTION

03 HABITAT SUPPORT

Native vegetation and calm riverfront zones support roosting, feeding and movement of the Pygmy Cormorant along the Sava River.



NATIVE VEGETATION

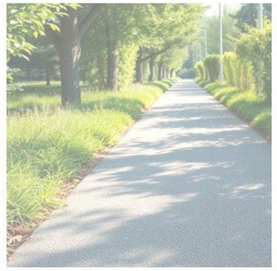
ROOSTING TREES

ECOLOGICAL CORRIDOR

protected riverfront habitat strategy

PAVED AREAS

In the design of the paved areas, I focused on connecting functionality, aesthetics and comfortable movement of people through the space. I included various types of surfaces, such as smooth pedestrian paths, paved areas and more natural-looking materials that better relate to the surrounding greenery. It was important to me that the paved areas feel clear and legible, allow easy movement and at the same time contribute to the pleasant character of the whole place.






EQUIPMENT AND STREET FURNITURE

In the design of the equipment and street furniture, I included elements that support staying, resting and everyday use of the public space. These include benches, resting places, small play or recreational elements and other equipment that increases visitors' comfort. When choosing the furniture, I made sure that it would not feel disruptive, but would instead unify the space, complement it and create a pleasant background for different groups of users.






LIGHTING

In the section dedicated to lighting, I focused on elements that ensure safety, orientation and the overall atmosphere of the space in the evening hours. I included lighting of circulation routes as well as additional light elements that can highlight selected places or architectural details. The aim was to design lighting that is functional, subtle and at the same time supports a pleasant impression of the space after dark.





ATMOSPHERE

When designing the atmosphere of the space, I focused on the overall feeling that the place evokes. I was inspired by a calm, natural and harmonious environment where greenery, subtle materials, light and resting elements are connected. It was important to me to create a space that feels pleasant, relaxed and at the same time modern, so that people feel comfortable there and want to spend time in it.



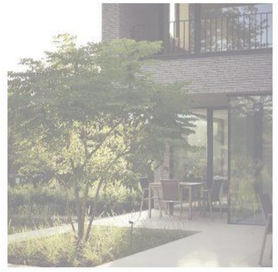



DECIDUOUS TREES

I incorporated deciduous trees into my design. These are typical for Belgrade and include London plane, linden, English oak, willow and poplar. These trees are suitable for the city mainly because they tolerate the local climate, summer heat and urban environment well. They often grow in parks, along streets or near the river. In autumn they shed their leaves, which is why they are called deciduous.





EVERGREEN TREES

I incorporated evergreen trees into my design. These are typical for Belgrade and include black pine, Serbian spruce, cedar, southern magnolia and cherry laurel. These trees remain green throughout the year because their needles or leaves do not all fall at once in autumn. In Belgrade, they are planted mainly in parks and ornamental parts of the city, where they provide greenery even in winter. They are also important because they improve the appearance of the city throughout the whole year.






SHRUBS

Common shrubs in Belgrade include barberry, cotoneaster, snowberry, lilac and spiraea. Shrubs are often planted in parks, gardens and along pavements because they take up less space than trees while also beautifying the city. Many of them have colourful flowers or fruits, making them decorative. They are also practical because they are easy to maintain.






LOW GRASSES AND HERBACEOUS PLANTS

The group of low grasses and herbaceous plants includes, for example, blue fescue, dwarf ornamental grass, sedge, lavender and woodland sage. I chose these plants because they look neat and decorative, are often used in parks and ornamental flower beds, and do not usually grow as wild plants by themselves. At the same time, they are suitable for the urban environment because they complement trees and shrubs well and enhance the public space.






The design of the flood protection measures is based on the natural character of the riverfront area and on the need to combine protection against rising water levels with the everyday use of the public space. The solution is therefore not based on a single hard barrier, but on a system of terrain height adjustments, recreational edges and safety zones that allow the area to respond to changing water levels. During normal operation, the space functions as an open recreational and leisure landscape, while during increased water load, individual parts of the area are activated as protective and retention elements.

The basic principle of the design is working with terrain modelling and a gradual height transition from the riverbank towards the built-up area. The lowest parts in contact with the water are designed as controlled floodable areas that can temporarily absorb an increased volume of water without significantly disrupting the operation of the entire site. These parts of the area are not perceived as problematic, but as an integral part of the landscape concept. As a result, the risk of flooding is addressed naturally within the spatial organisation of the design itself.

An important element is the definition of a safe flood zone, which clearly distinguishes between areas intended for temporary flooding and parts that must remain protected in order to preserve the functionality of the site. The design therefore works with the principle of controlled flooding of less sensitive areas while protecting the main circulation links, entrances to buildings and key operations. This increases the resilience of the entire area and at the same time minimises the need for technically aggressive interventions that would disturb the quality of the public space.

The proposed terrain steps, recreational edges and modelled slopes fulfil several functions at the same time. In normal conditions, they serve as places for sitting, movement, staying near the water and direct contact with the landscape. During more extreme hydrological conditions, however, they function as slowing and protective elements that break down the energy of the water and define the boundary of safe use. The importance of the design therefore lies precisely in the multi-layered character of the individual measures - the technical function is naturally combined here with a high-quality public space.

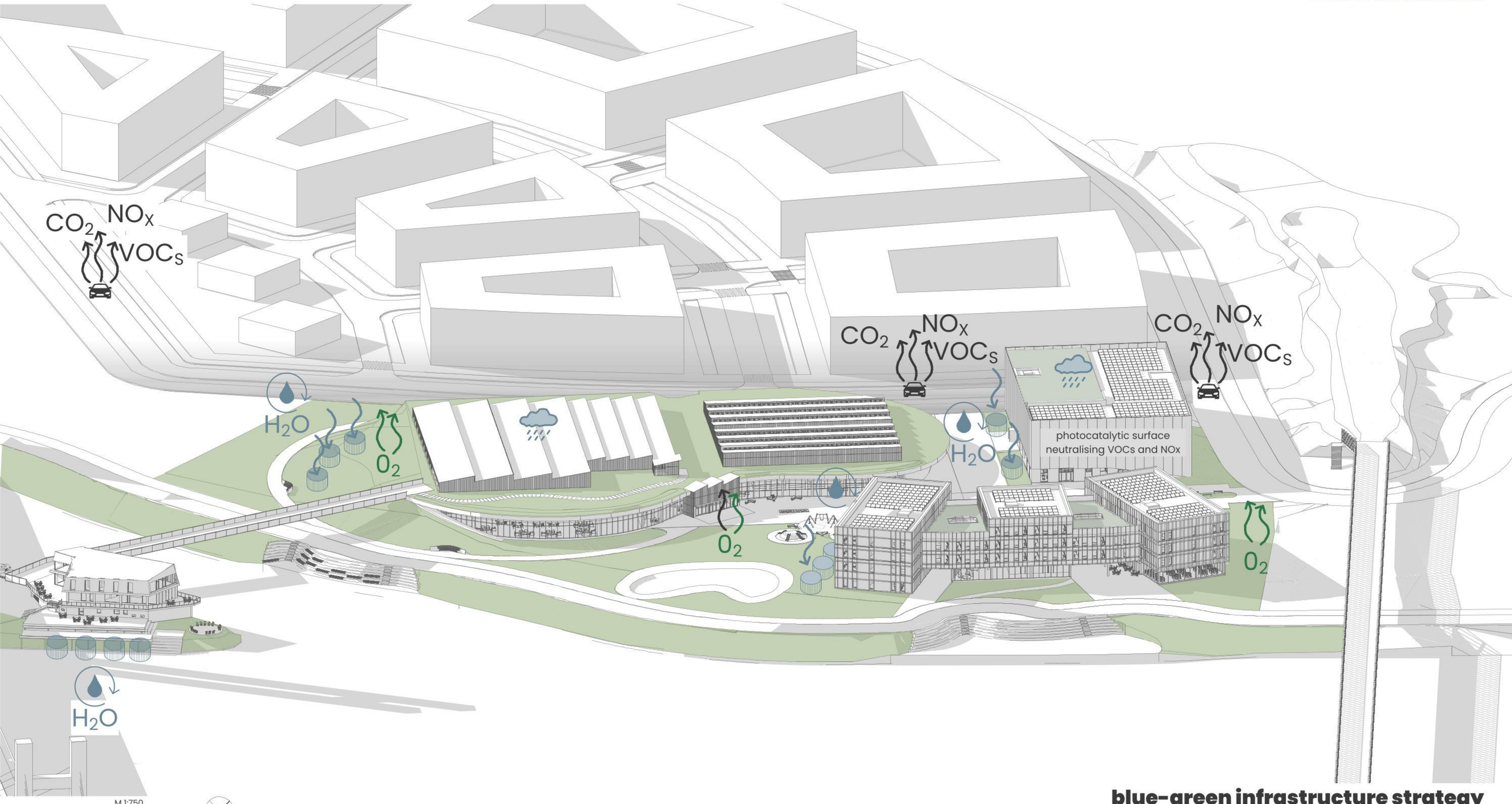
A major strength of the designed area is that the flood protection measures are not inserted into the design afterwards, but become its natural part. The landscape, urban and architectural solutions work together as one system, where the protection of the area is integrated into the composition of paths, recreational areas, greenery and the connection to the water edge. As a result, the measures do not feel like a technical barrier, but as a logical part of the riverfront environment that supports the identity of the place and increases its quality.

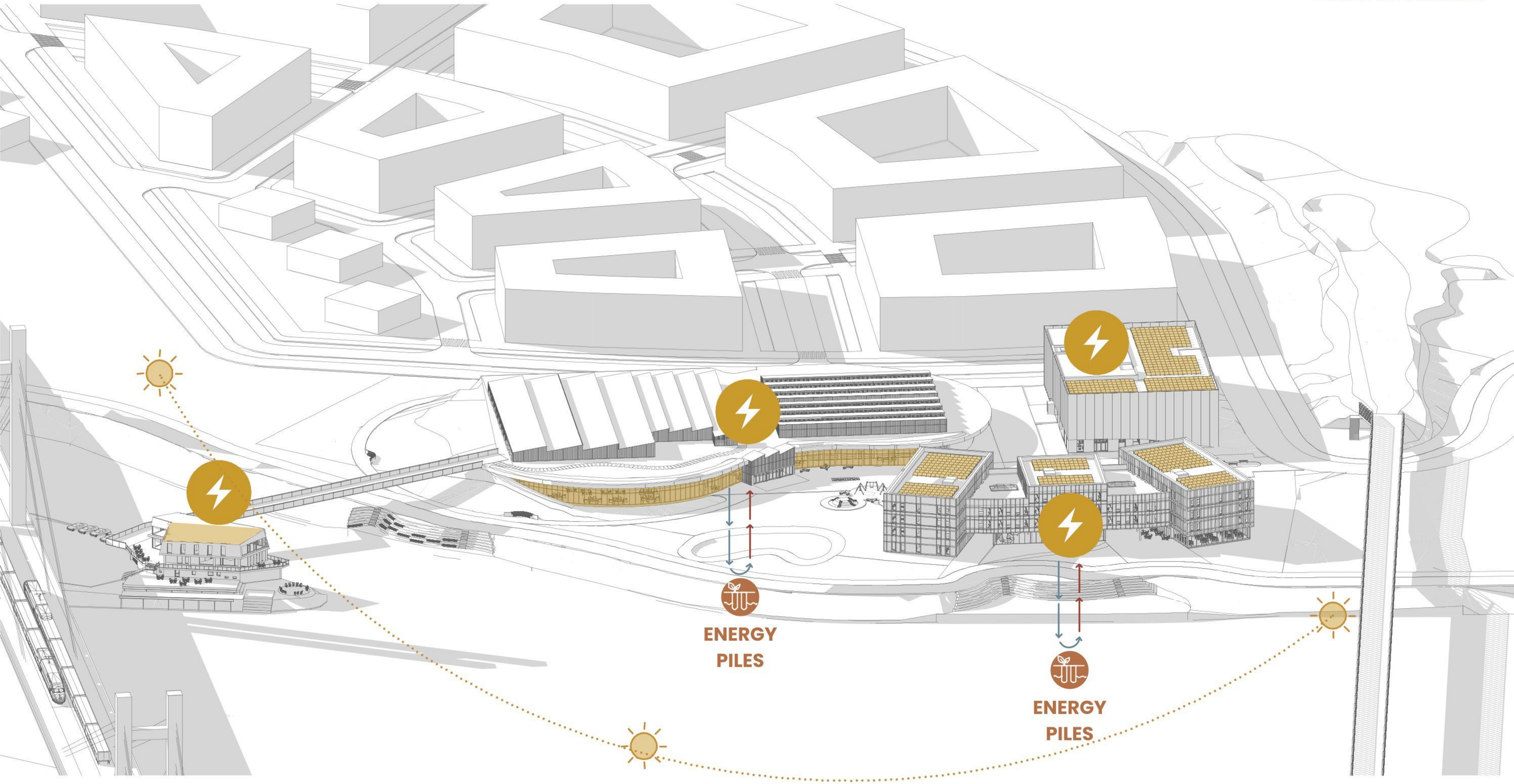
At the same time, the solution contributes to the overall climate resilience of the area. Working with permeable and vegetated surfaces, terrain modelling and the possibility of short-term water retention helps mitigate the effects of heavy rainfall as well as overheating of the environment. The area is therefore not designed only as protection against a single flood event, but as an adaptable landscape whole capable of responding to a wider range of climate fluctuations. This approach increases the long-term sustainability of the design and confirms its contemporary, environmentally sensitive character.

From an urban planning perspective, the design is also valuable because it preserves attractive contact with the water and does not try to eliminate it completely. Instead of separating the city from the river, it creates a controlled transition between the water edge and the built-up area. This allows the locality to retain its recreational and social potential without giving up safety. It is precisely this balance between openness, spatial quality and protection against risks that is one of the greatest values of the entire solution.

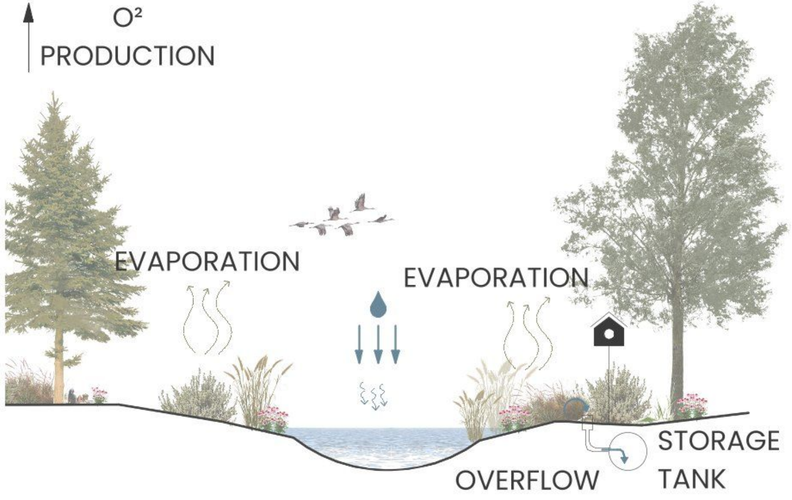
The proposed system of flood protection measures therefore represents a complex and spatially sensitive solution that connects safety, landscape quality and everyday user comfort. The area is designed as resilient, legible and flexible, capable of functioning both in normal conditions and during exceptional water levels. The result is an environment that does not perceive water only as a threat, but also as an important spatial and identity-forming element of the whole design.

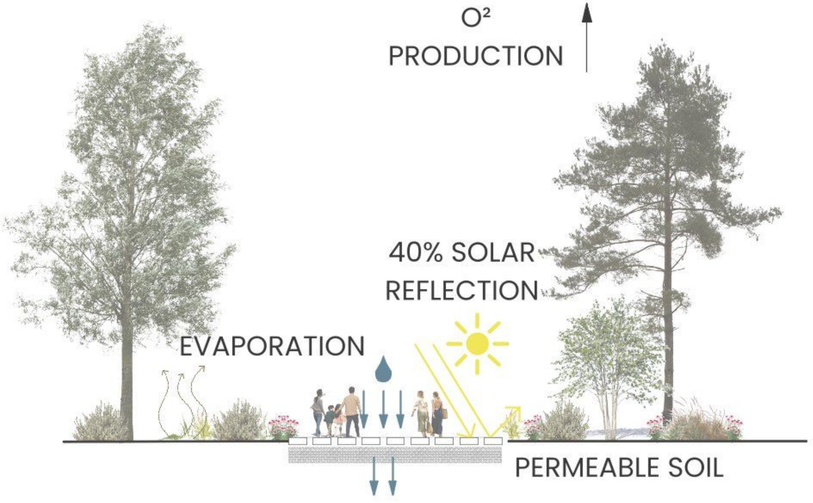
RIVERFRONT LANDSCAPE | PUBLIC SPACE | WATER RETENTION | RESILIENT DESIGN | TERRAIN MODELING THE RIVER | CONTROLLED FLOODING | ADAPTIVE LANDSCAPE | ENVIRONMENTAL STABILITY

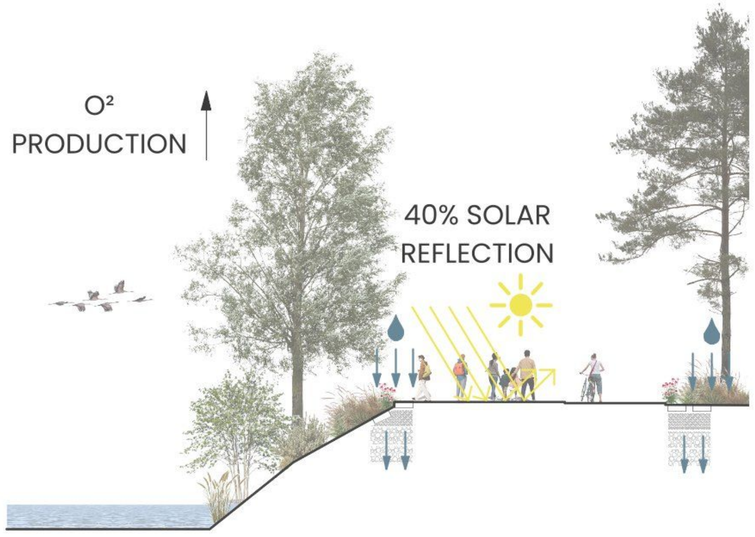

CO_2
NO_X
VOC_S
H_2O
O_2
CO_2
NO_X
VOC_S
photocatalytic surface
neutralising VOCs and NOx
H_2O
CO_2
NO_X
VOC_S
O_2
O_2
H_2O
M 1:750
0
10
40m



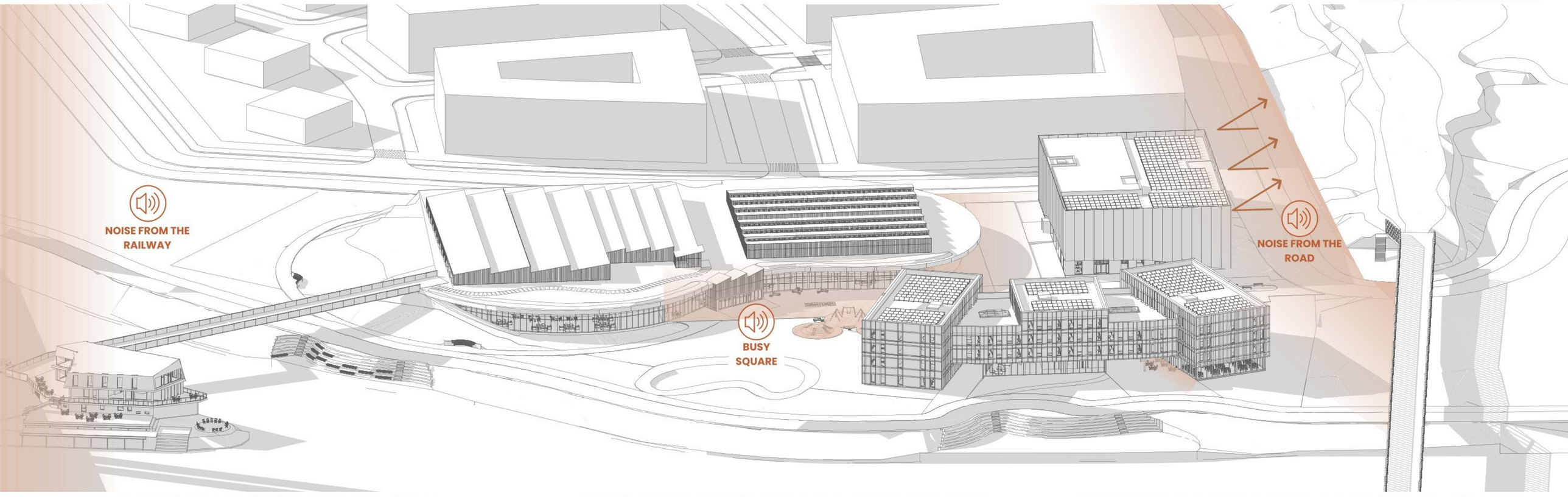
renewable energy use strategy







microclimate and water management diagrams



ACOUSTIC ZONING OF THE AREA

The operational and urban layout of the site is designed with an emphasis on the gradual acoustic division of the space according to the intensity of individual functions. Noisier functions, such as the sports hall, outdoor sports grounds, access roads and parking capacities, are concentrated in the part of the site with a higher tolerance for noise load. These areas are followed by a transitional zone of the public ground floor, recreational routes and entrance spaces, which functions as an acoustic intermediate layer between the active and quiet parts of the site. The accommodation buildings and valuable recreational landscape areas are located in more protected parts towards the water and greenery, where a higher level of acoustic comfort is ensured. The design therefore does not create only a functional division of the site, but also builds a legible hierarchy of environments according to the level of noise load and the requirements for user comfort.

BUILDING VOLUMES AS A PROTECTIVE ACOUSTIC FILTER

The placement of the individual buildings in the area fulfils not only an operational and compositional role, but also functions as an active tool of acoustic protection. Larger buildings, especially the sports hall and related operational structures, are positioned so that they capture and partially shield noise coming from more traffic-loaded directions and more intensive public areas at the edge of the site. This creates a more protected inner space of the site, where recreational activities, leisure functions and accommodation with a higher environmental quality can develop. The massing also makes it possible to direct the movement of visitors and the main operational flows so that noise does not accumulate in the most sensitive parts of the area. The buildings are therefore not understood only as separate structures, but as part of a broader spatial filter that co-creates a favourable microclimate and acoustic stability of the entire site.

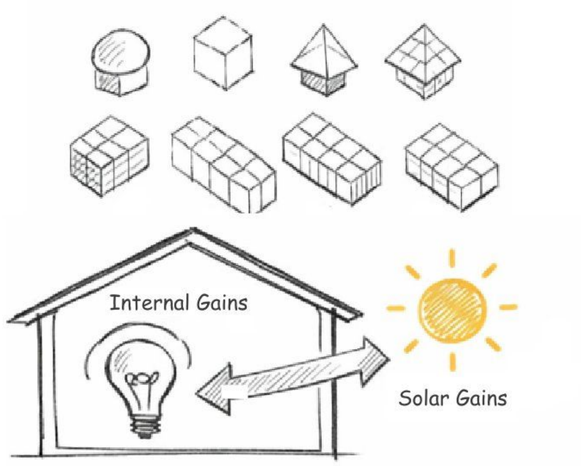
PRINCIPLE OF SPATIAL ACOUSTICS OF THE BUILDING

The acoustic quality of the indoor environment is solved through a combination of layout, material and construction measures that limit the spread of noise, excessive reverberation and sound transmission between individual functions. In buildings with a higher concentration of movement and sports activities, it is important to work with sound-absorbing surfaces, acoustic ceilings and perforated claddings that help diffuse and absorb sound reflections. For quieter functions, such as accommodation or support facilities, emphasis is placed on increased sound insulation of the building envelope, protection of the interior from outdoor noise and sound filtering through multilayered façade constructions. Spatial acoustics is therefore not treated as an additional technical element, but as a natural part of the architectural design that supports the legibility of the space, the thermal and psychological comfort of users and the overall quality of the indoor environment.

M 1:750

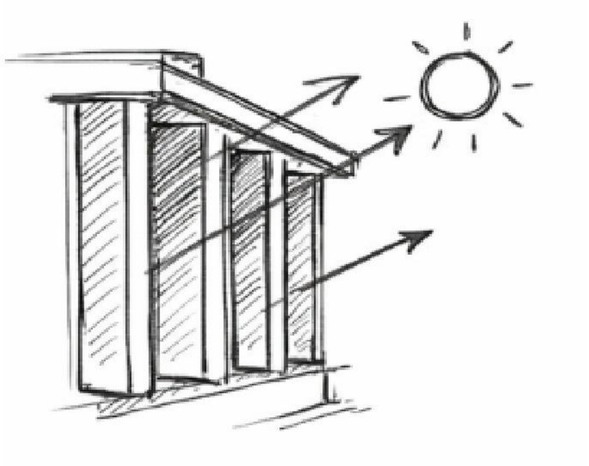
0 10 40m

COMPACT MASSING SOLUTION



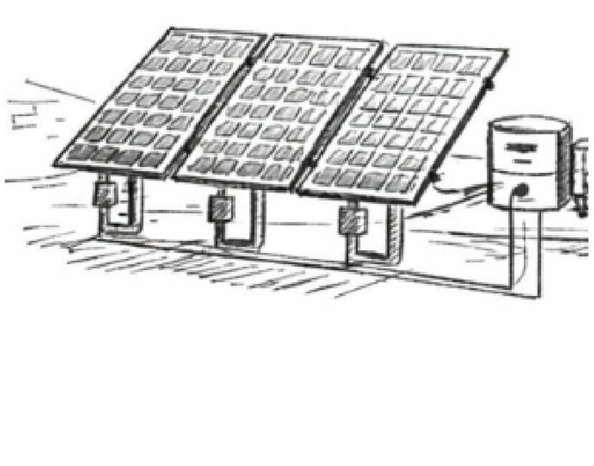
The compact arrangement of the buildings is based on the effort to minimise energy losses while at the same time creating a logically functioning whole with clear operational connections. The design works with the orientation of the building volumes towards the cardinal directions in order to make the best possible use of passive solar gains in winter and, at the same time, limit unwanted overheating in the summer months.
The mutual arrangement of the buildings supports the efficient use of the built-up area, reduces the demands on the building envelope and contributes to the more economical operation of the entire site. The compact solution also allows public, recreational and technical parts of the design to be better organised and creates a comprehensible spatial structure.

PROTECTION AGAINST OVERHEATING



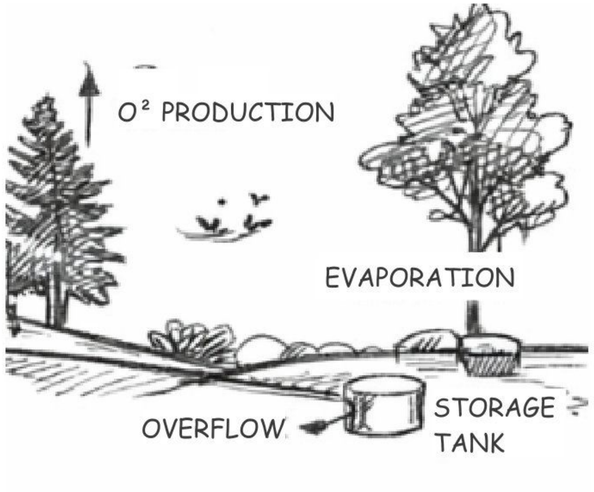
Protection against overheating is based on a combination of passive architectural measures that contribute to increased summer thermal comfort and reduce the need for active cooling. The design uses shading, façade orientation, perforated facade layers and vegetation elements that help filter solar radiation and improve the microclimatic conditions around the buildings.
The shaping of the buildings, the depth of the facades and the work with open and protected spaces also play an important role, helping to reduce heat accumulation in the interior. The aim is to create a more stable indoor environment that will be comfortable for users even during periods of high summer temperatures.

RENEWABLE ENERGY SOURCES



The roof areas are considered an active part of the design's energy strategy. The placement of photovoltaic panels on suitably oriented roofs makes it possible to use renewable energy directly on site and reduce the dependence of the complex on external electricity sources.
Energy production on the building contributes to greater operational self-sufficiency and supports the environmentally responsible character of the design. At the same time, this principle is advantageous in terms of the efficient use of otherwise passive roof surfaces, which thus become a functional part of the building's technical infrastructure.

WATER RETENTION AND EVAPORATION



Rainwater management is designed so that the greatest possible amount of water remains directly within the site and can be further used in the natural water cycle. The design works with retention and infiltration principles, green roofs, permeable surfaces and landscape modifications that make it possible to retain water, slow down its runoff and support its gradual evaporation.
This approach helps not only to reduce the load on the sewerage network, but also to cool the environment, increase air humidity and improve the microclimate during summer periods. Water is therefore not understood as a waste component, but as an important resource that actively shapes the quality of the environment.

visualisation

visualisation

visualisation


visualisation

03 ATHLETES' ACCOMMODATION

SOCIALISATION

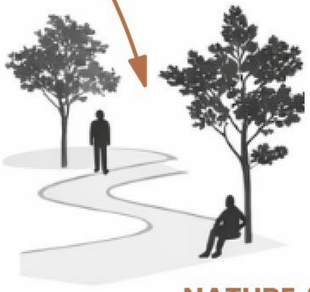
Garden, events, conferences

PRIVACY AND REST

Comfortable rooms, quiet zones

SUSTAINABILITY

Environmentally friendly operation, energy from nature



NATURE AND LANDSCAPE

Views, walks, peace and fresh air

ACTIVITIES AND EXPERIENCES

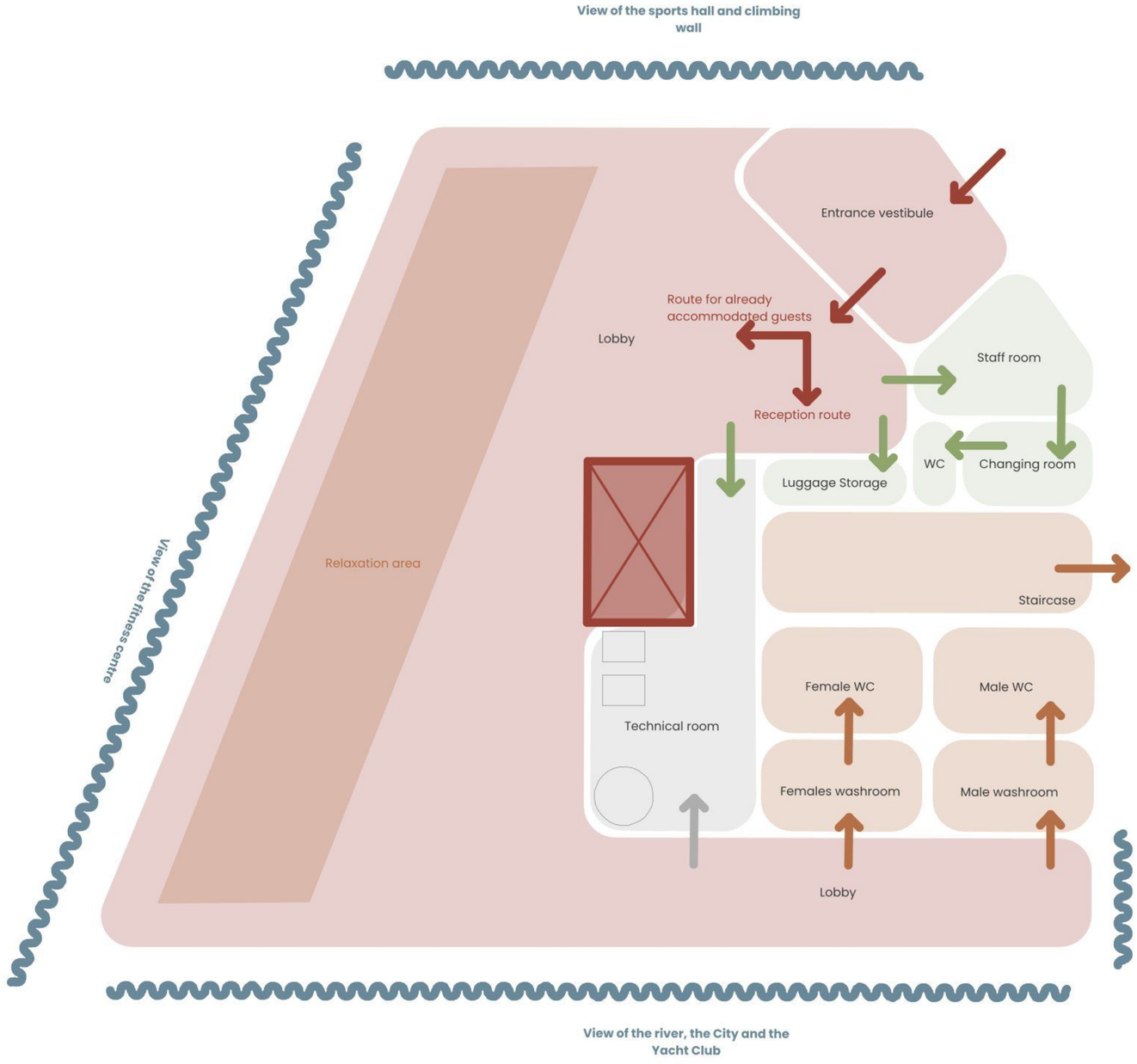
Cycling, hiking

SPORT AND FITNESS

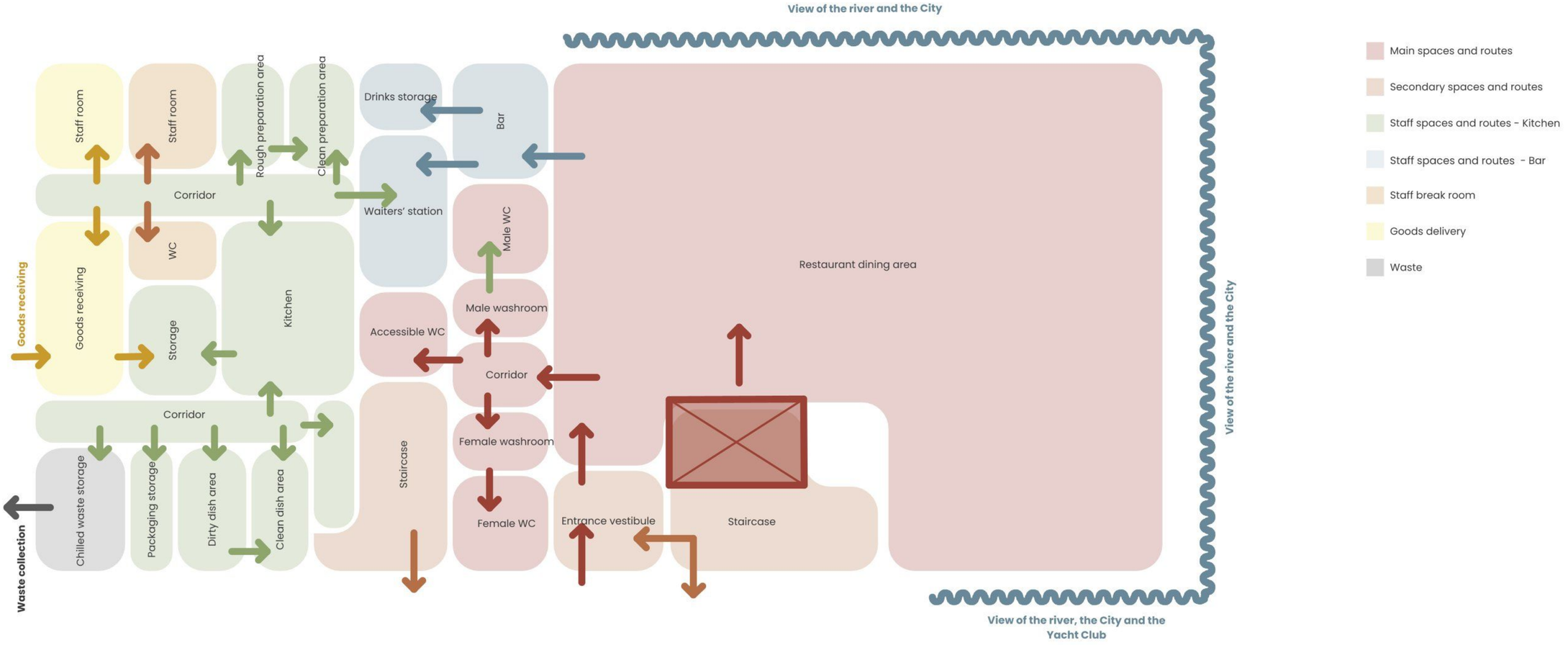
Active holiday

RESTAURANT

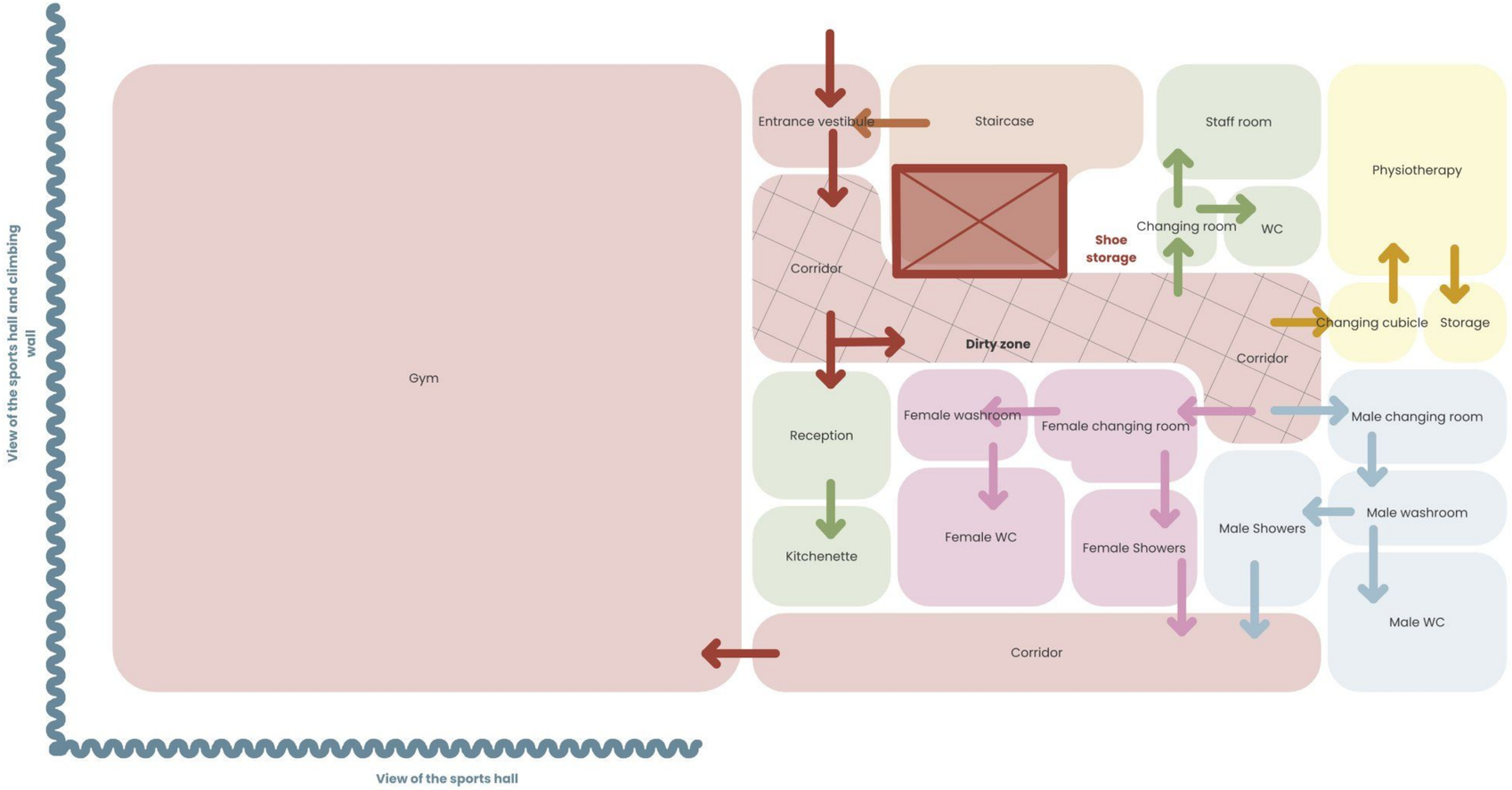
Restaurant, breakfast



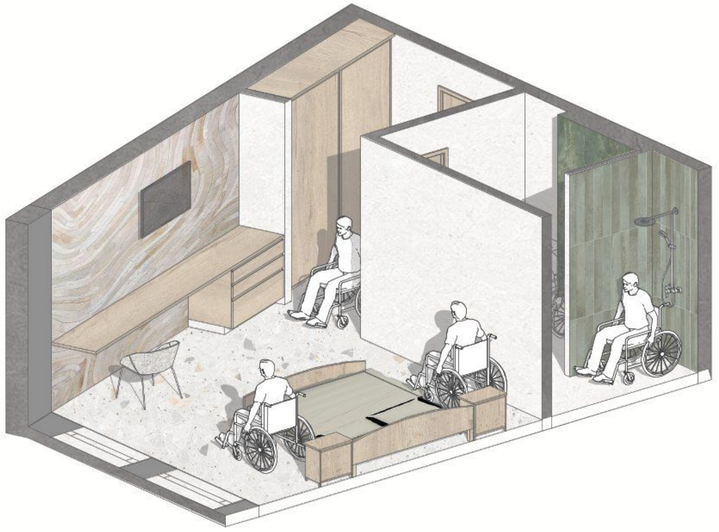
reception operational diagram



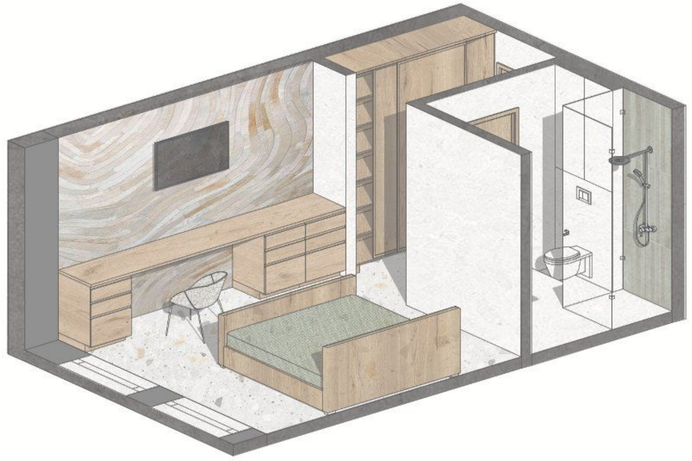
restaurant operational diagram



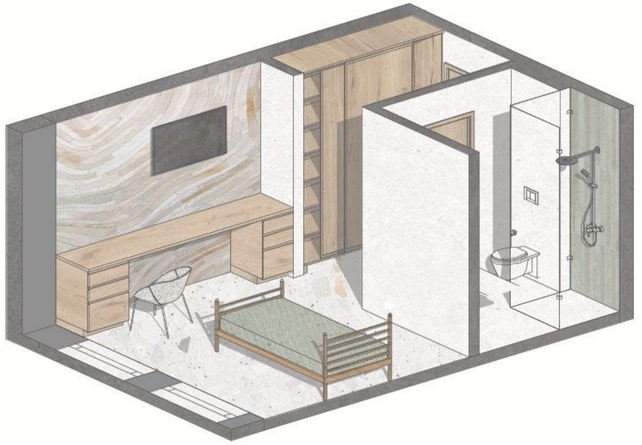
fitness operational diagram



ACCESSIBLE ROOM
8 pcs

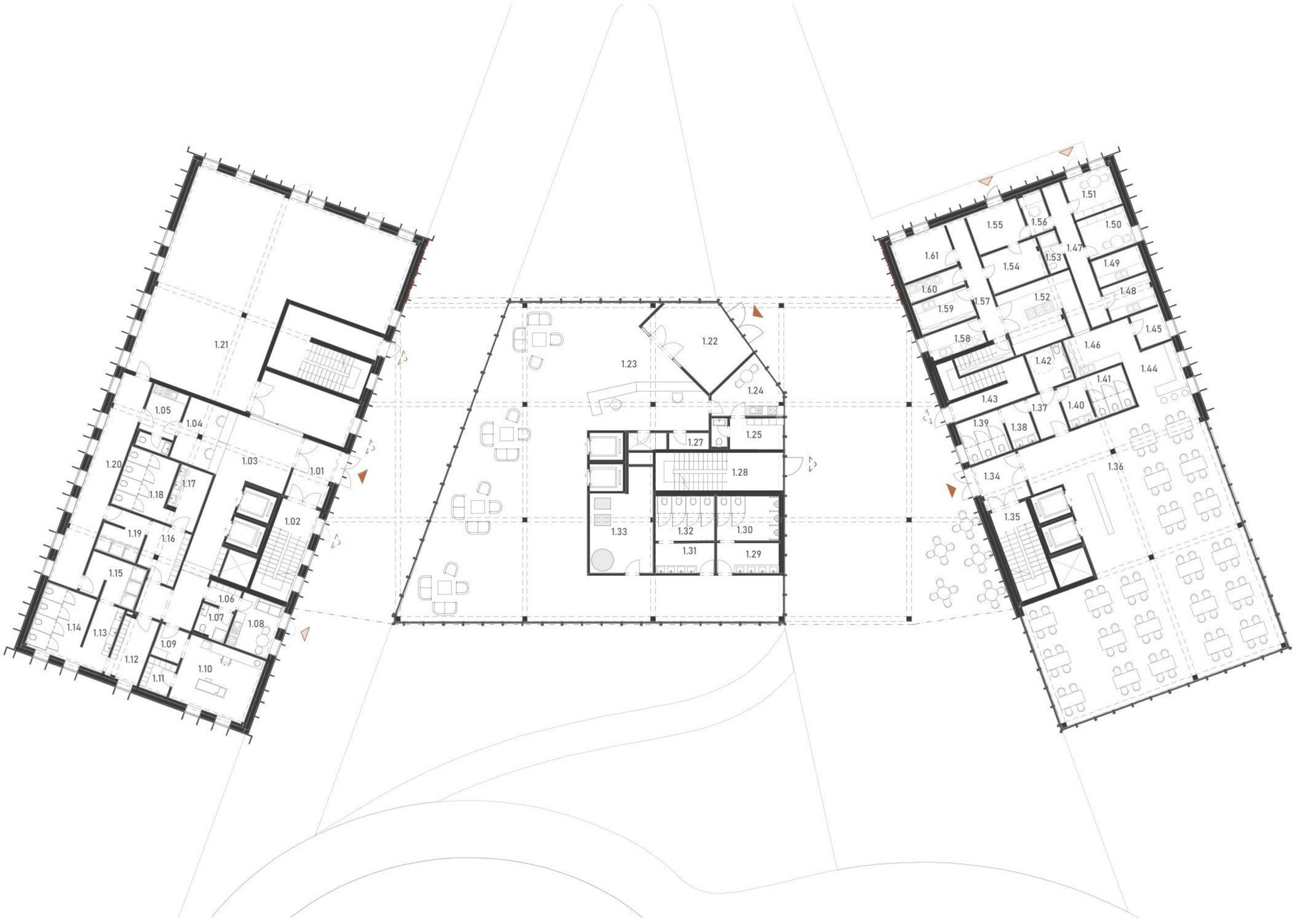


DOUBLE ROOM
59 pcs



SINGLE ROOM
47 pcs

room visualisation

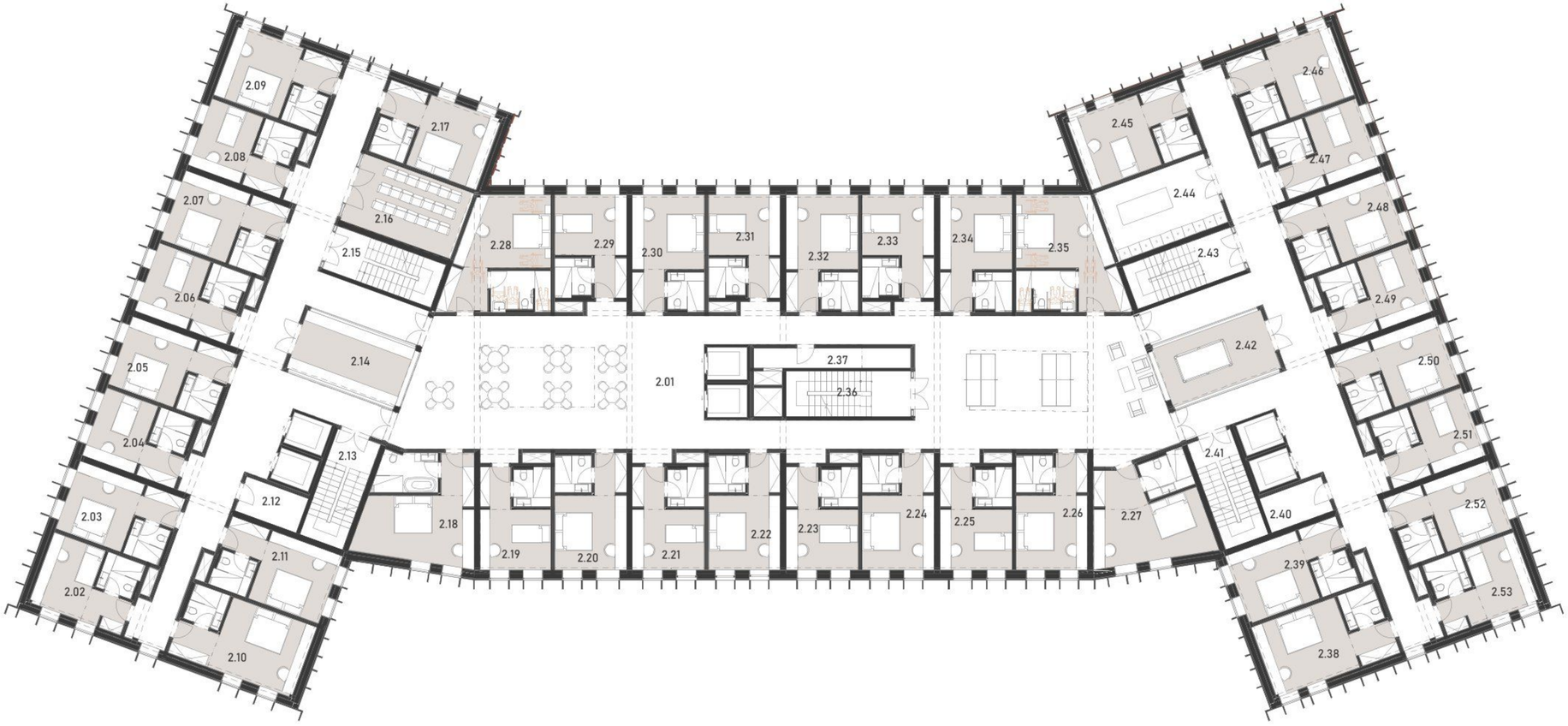


M 1:200

0 2 12m

Room schedule – 1st Floor			
Zone category	No.	Room name	Area (m2)
Access and circulation areas			
	1.02	Staircase	23,02
	1.22	Entrance vestibule	21,01
	1.23	Lobby	239,15
	1.24	Staff room	10,86
	1.25	Changing room	6,23
	1.26	WC	1,91
	1.27	Luggage Storage	3,77
	1.28	Staircase	22,81
	1.29	Male washroom	7,47
	1.30	Male WC	10,75
	1.31	Females washroom	8,42
	1.32	Female WC	9,83
	1.33	Technical room	19,50
	1.35	Staircase	22,55
	1.43	Staircase	15,39
			422,66 m²
Fitness			
	1.01	Entrance vestibule	7,42
	1.03	Corridor	38,51
	1.04	Reception	9,40
	1.05	Kitchenette	7,38
	1.06	Changing room	2,57
	1.07	WC	4,00
	1.08	Staff room	10,05
	1.09	Changing cubicle	3,99
	1.10	Physiotherapy	20,07
	1.11	Storage	3,56
	1.12	Male changing room	9,05
	1.13	Male washroom	7,42
	1.14	Male WC	13,28
	1.15	Male Showers	9,54
	1.16	Female changing room	10,34
	1.17	Female washroom	5,70
	1.18	Female WC	12,32
	1.19	Female Showers	7,78
	1.20	Corridor	23,92
	1.21	Gym	209,08
			415,40 m²
Restaurant			
	1.34	Entrance vestibule	9,42
	1.36	Restaurant dining area	209,95
	1.37	Corridor	5,03
	1.38	Female washroom	4,51
	1.39	Female WC	7,52
	1.40	Male washroom	4,51
	1.41	Male WC	6,94
	1.42	Accessible WC	6,56
	1.44	Bar	9,76
	1.45	Drinks storage	4,47
	1.46	Waiters' station	11,10
	1.47	Corridor	10,89
	1.48	Clean preparation area	5,67
	1.49	Rough preparation area	5,32
	1.50	Staff room	7,50
	1.51	Staff room	7,50
	1.52	Kitchen	18,59
	1.53	WC	4,16
	1.54	Storage	9,12
	1.55	Goods receiving	8,28
	1.56	Office	3,73
	1.57	Corridor	9,33
	1.58	Clean dish area	5,67
	1.59	Dirty dish area	6,82
	1.60	Packaging storage	4,19
	1.61	Chilled waste storage	8,93
			395,48 m²

1st floor plan

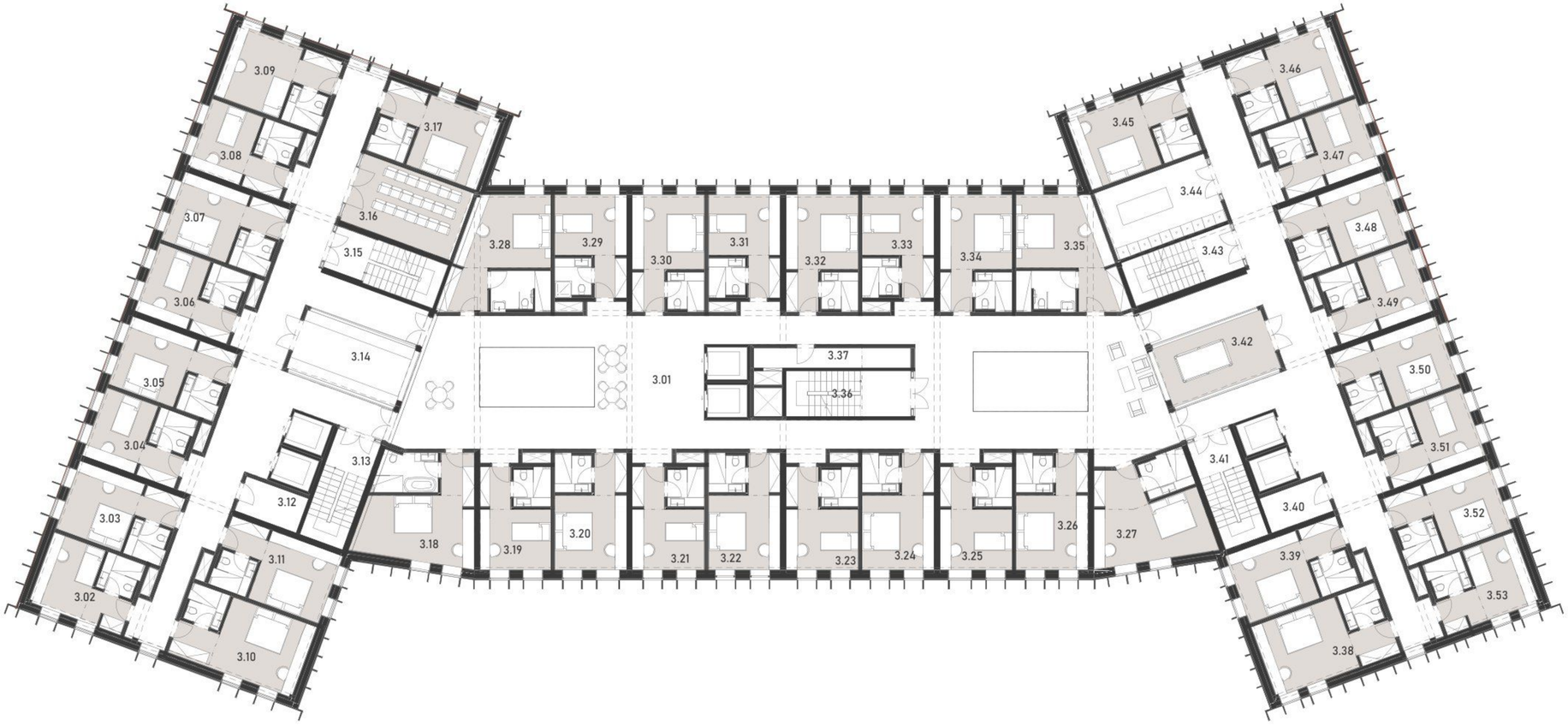


M 1:200

0 2 12m

Room schedule – 2nd floor			
Zone category	No.	Room name	Area (m2)
Access and circulation areas			
	2.01	Corridor	488,11
	2.13	Staircase	14,19
	2.15	Staircase	14,52
	2.36	Staircase	15,76
	2.41	Staircase	14,19
	2.43	Staircase	14,52
			561,29 m²
Athletes´accommodation			
	2.02	Single room	14,76
	2.03	Double room	17,50
	2.04	Single room	14,65
	2.05	Double room	17,50
	2.06	Single room	14,65
	2.07	Double room	17,45
	2.08	Single room	14,65
	2.09	Double room	18,38
	2.10	Double room	21,95
	2.11	Double room	18,64
	2.14	Kitchenette	17,87
	2.16	Projection room	22,61
	2.17	Double room	19,53
	2.18	Accessible room	24,90
	2.19	Single room	15,39
	2.20	Double room	18,75
	2.21	Single room	15,79
	2.22	Double room	18,64
	2.23	Single room	15,79
	2.24	Double room	18,64
	2.25	Single room	15,79
	2.26	Double room	18,64
	2.27	Accessible room	24,37
	2.28	Accessible room	22,80
	2.29	Single room	15,79
	2.30	Double room	18,64
	2.31	Single room	15,79
	2.32	Double room	18,64
	2.33	Single room	15,79
	2.34	Double room	18,64
	2.35	Accessible room	23,25
	2.38	Double room	22,43
	2.39	Double room	18,64
	2.42	Game room	19,80
	2.45	Single room	18,94
	2.46	Single room	18,35
	2.47	Single room	14,78
	2.48	Double room	17,50
	2.49	Single room	14,68
	2.50	Double room	17,50
	2.51	Single room	14,65
	2.52	Double room	17,50
	2.53	Single room	15,45
			776,46 m²
Storage and technical facilities			
	2.12	Storage	6,58
	2.37	Storage	8,68
	2.40	Storage	6,58
	2.44	Laundry room	22,61
			44,45 m²

2nd floor plan



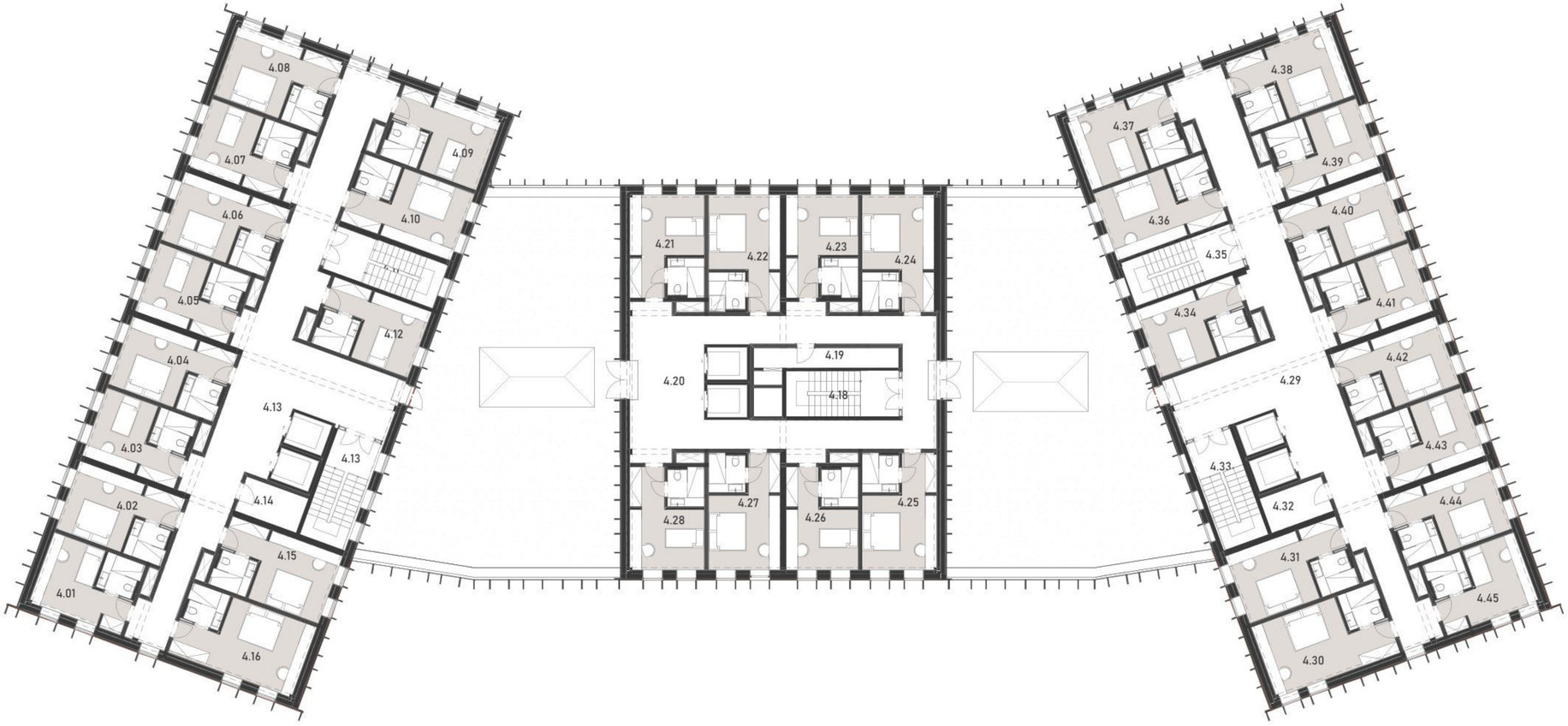
M 1:200

0 2 12m

Room schedule – 3rd floor

Zone category	No.	Room name	Area (m2)
Access and circulation areas			
	3.01	Corridor	482,20
	3.13	Staircase	14,19
	3.14	Kitchenette	19,80
	3.15	Staircase	14,52
	3.36	Staircase	15,76
	3.41	Staircase	14,19
	3.43	Staircase	14,52
			575,18 m²
Athletes´accommodation			
	3.02	Single room	14,12
	3.03	Double room	17,50
	3.04	Single room	14,65
	3.05	Double room	17,50
	3.06	Single room	14,65
	3.07	Double room	17,50
	3.08	Single room	14,65
	3.09	Single room	18,32
	3.10	Double room	22,43
	3.11	Double room	18,64
	3.16	Projection room	22,61
	3.17	Double room	19,41
	3.18	Accessible room	24,90
	3.19	Single room	15,41
	3.20	Double room	18,64
	3.21	Single room	15,88
	3.22	Double room	18,64
	3.23	Single room	15,79
	3.24	Double room	18,64
	3.25	Single room	15,79
	3.26	Double room	18,64
	3.27	Accessible room	24,37
	3.28	Accessible room	22,80
	3.29	Single room	15,79
	3.30	Double room	18,64
	3.31	Single room	15,79
	3.32	Double room	18,64
	3.33	Single room	15,79
	3.34	Double room	18,64
	3.35	Accessible room	23,25
	3.38	Double room	22,43
	3.39	Double room	18,64
	3.42	Game room	19,80
	3.45	Double room	19,40
	3.46	Double room	18,29
	3.47	Single room	14,66
	3.48	Double room	17,50
	3.49	Single room	14,65
	3.50	Double room	17,50
	3.51	Single room	14,65
	3.52	Double room	17,50
	3.53	Single room	14,73
			757,84 m²
Storage and technical facilities			
	3.12	Storage	6,58
	3.37	Storage	8,68
	3.40	Storage	6,58
	3.44	Laundry room	22,61
			44,45 m²

3rd floor plan

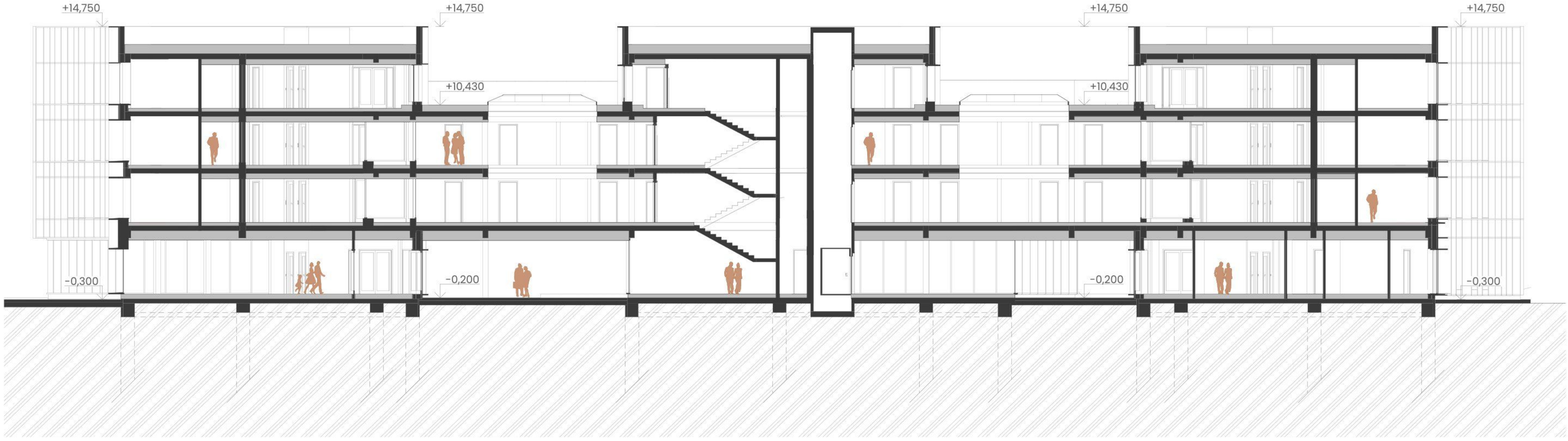


M 1:200

0 2 12m

Room schedule –4th floor			
Zone category	No.	Room name	Area (m2)
Access and circulation areas			
	4.11	Staircase	14,52
	4.13	Corridor	113,38
	4.13	Staircase	14,59
	4.18	Staircase	14,20
	4.20	Corridor	86,88
	4.29	Corridor	113,19
	4.33	Staircase	14,34
	4.35	Staircase	14,52
			385,62 m²
Athletes´accommodation			
	4.01	Single room	14,12
	4.02	Double room	17,50
	4.03	Single room	14,66
	4.04	Double room	17,52
	4.05	Single room	14,65
	4.06	Double room	17,50
	4.07	Single room	14,65
	4.08	Double room	18,40
	4.09	Single room	16,48
	4.10	Double room	18,40
	4.12	Single room	15,75
	4.15	Double room	18,64
	4.16	Double room	22,43
	4.21	Single room	16,18
	4.22	Double room	18,64
	4.23	Single room	15,79
	4.24	Double room	18,63
	4.25	Double room	19,40
	4.26	Single room	15,79
	4.27	Double room	18,64
	4.28	Single room	16,46
	4.30	Double room	21,95
	4.31	Double room	18,64
	4.34	Single room	15,75
	4.36	Double room	18,38
	4.37	Single room	15,99
	4.38	Double room	18,28
	4.39	Single room	14,65
	4.40	Double room	17,50
	4.41	Single room	14,76
	4.42	Double room	17,50
	4.43	Single room	14,76
	4.44	Double room	17,50
	4.45	Single room	14,73
			580,64 m²
Storage and technical facilities			
	4.14	Storage	6,58
	4.19	Storage	8,00
	4.32	Storage	6,58
			21,16 m²
			987,42 m²

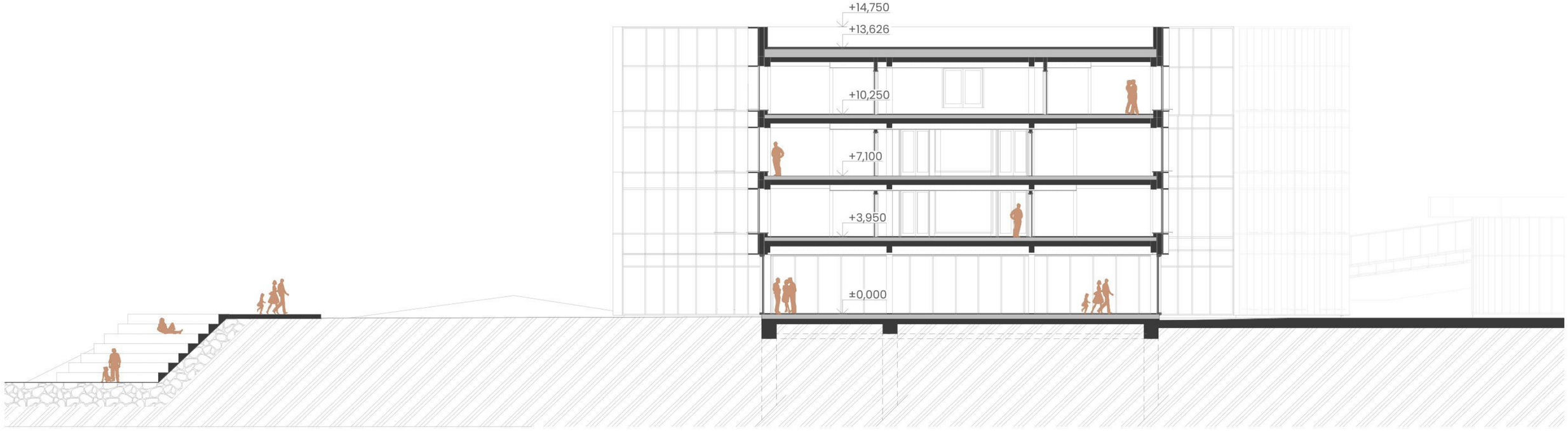
4th floor plan



M 1:200

0 2 12m

longitudinal section of the building



M 1:200

0 2 12m

cross section of the building

NORTH-WEST ELEVATION

SOUTH-EAST ELEVATION

M 1:300

0 5 15m

SOUTH-EAST ELEVATION

NORTH-WEST ELEVATION

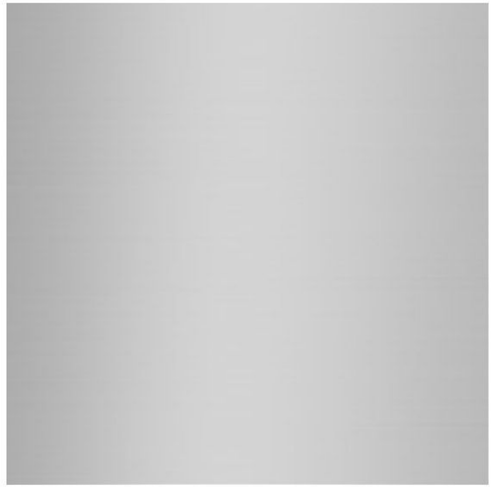
M 1:300

0 5 15m

Timber Facade – Large-Format Panels

Timber shading elements

Sheet metal elements



Glazing

Steel elements of the lightweight building envelope

Recycled Materials

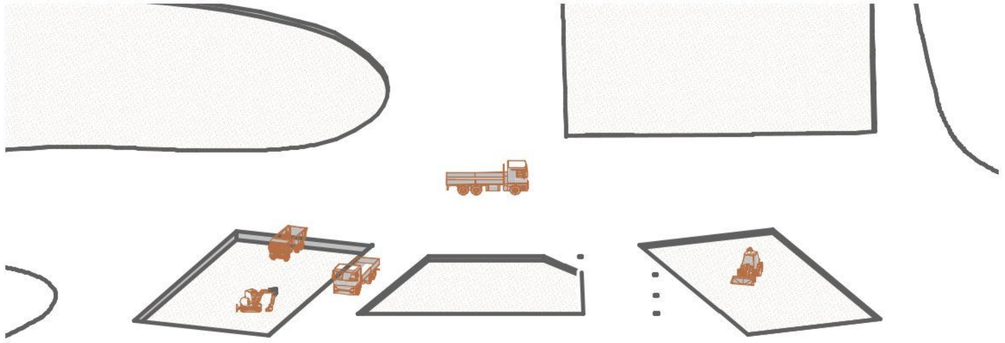
visualisation

hotel corridor visualisation

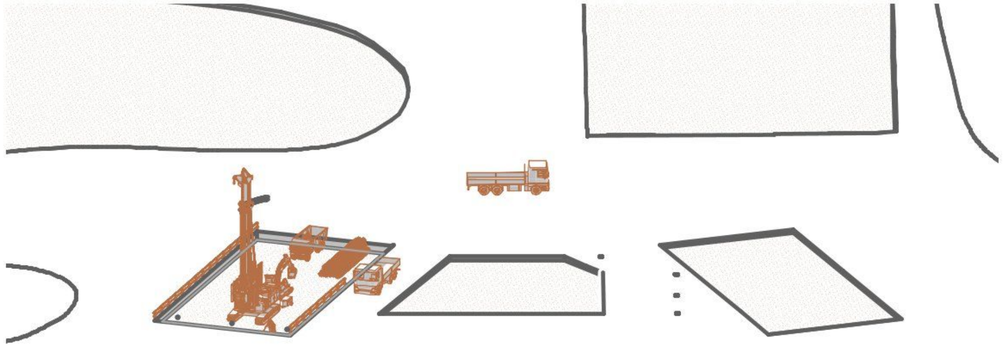
restaurant visualisation

reception visualisation

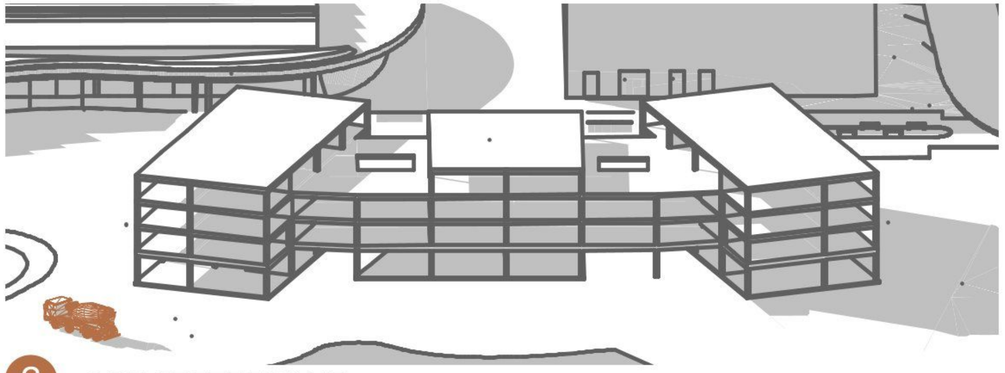
03 ACCOMMODATION TECHNICAL PART



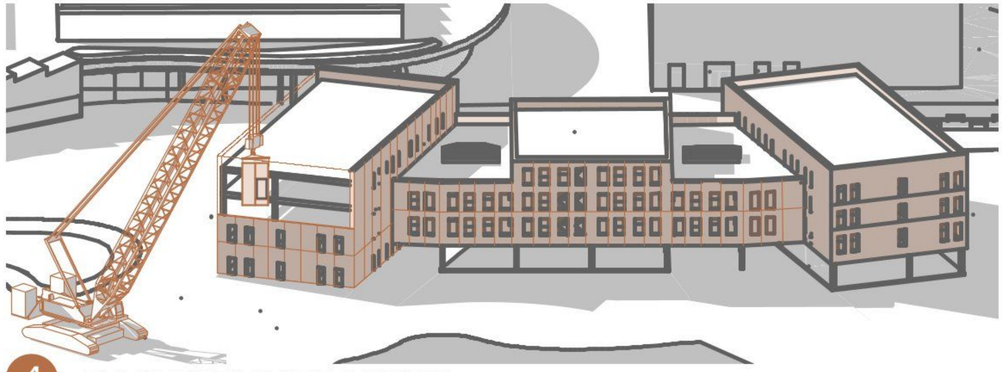
1 EXCAVATION WORKS



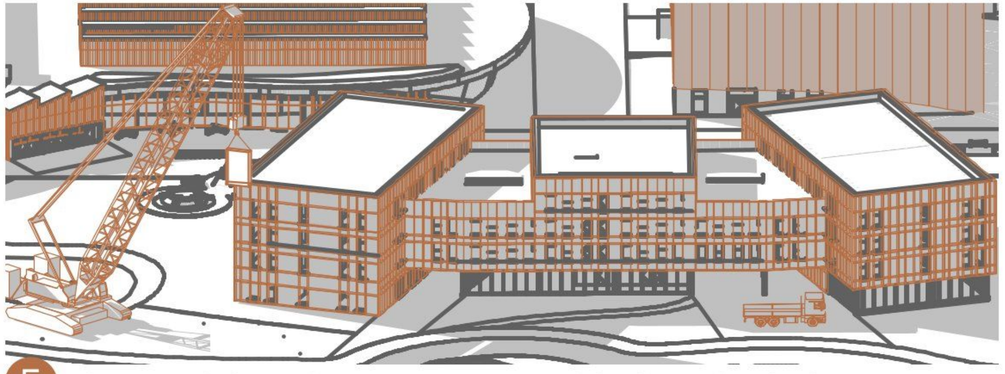
2 FOUNDATION OF BUILDINGS ON PILES



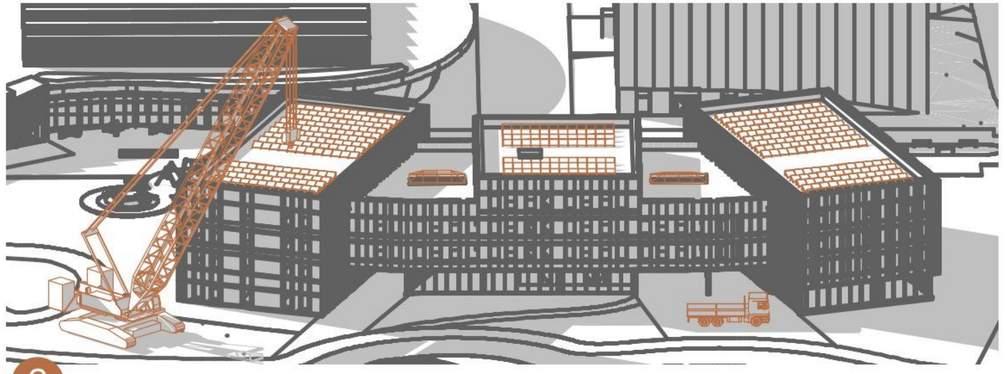
3 CONCRETE FRAME



4 ENVILOP FACADE PANELS

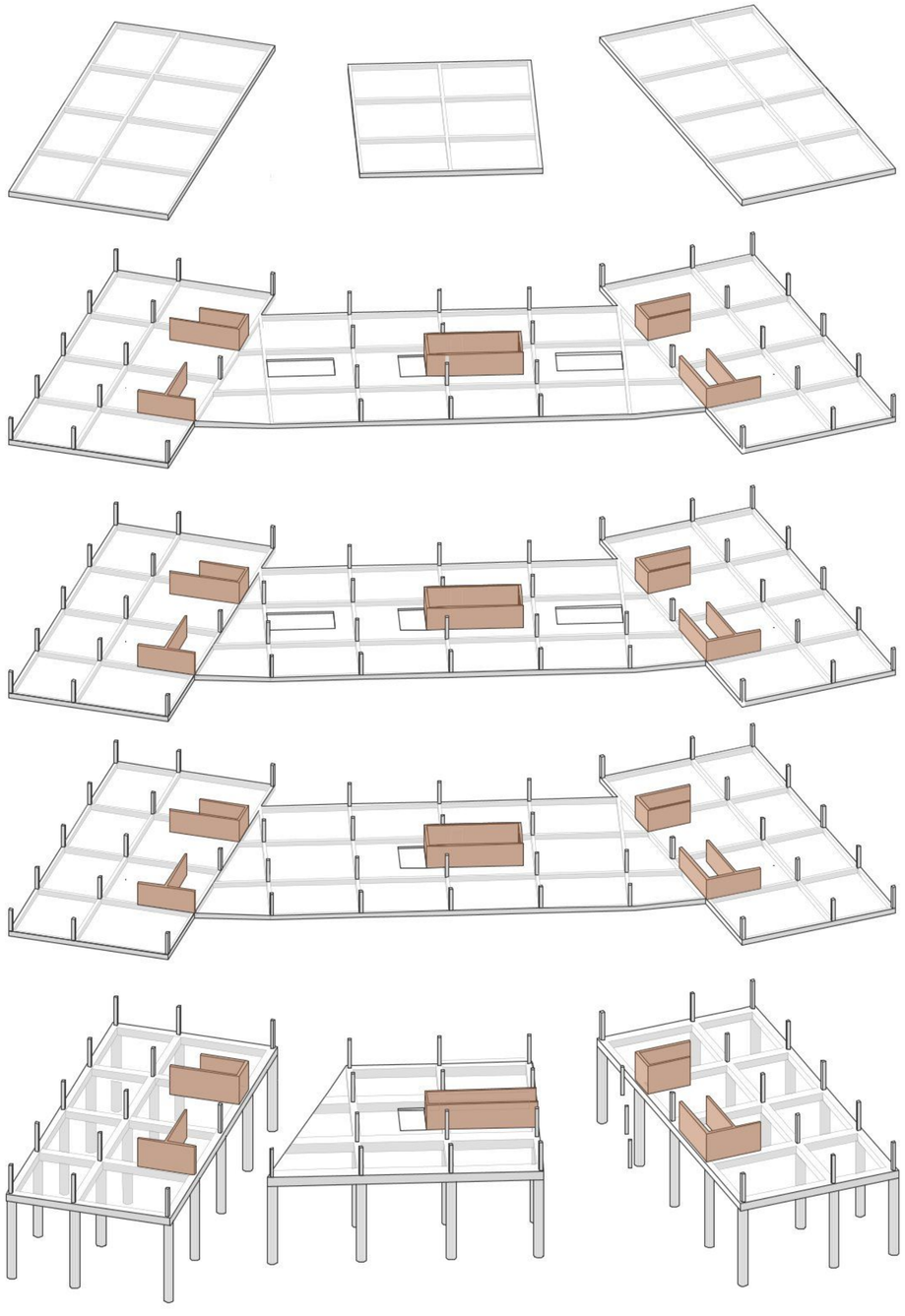


5 SHADING STRUCTURE AND INFILL CONSTRUCTIONS



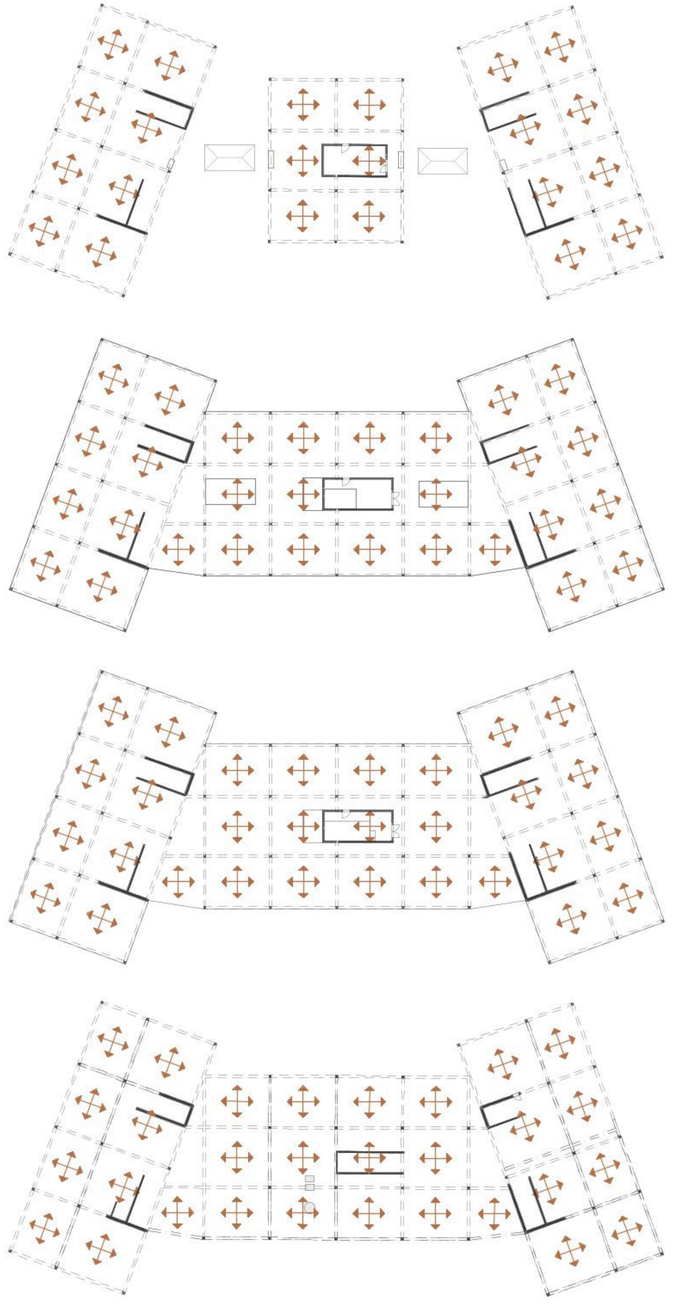
6 FINISHING WORKS

3D construction diagram



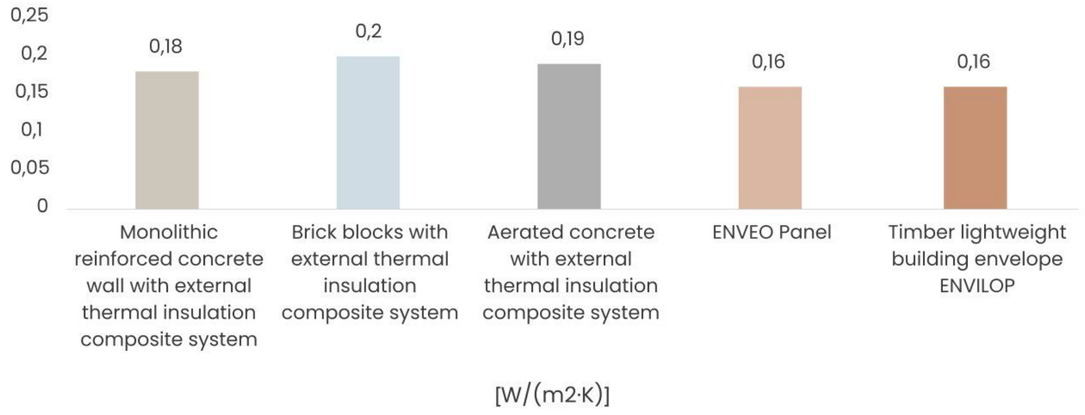
M 1:500

0 8,5 25m

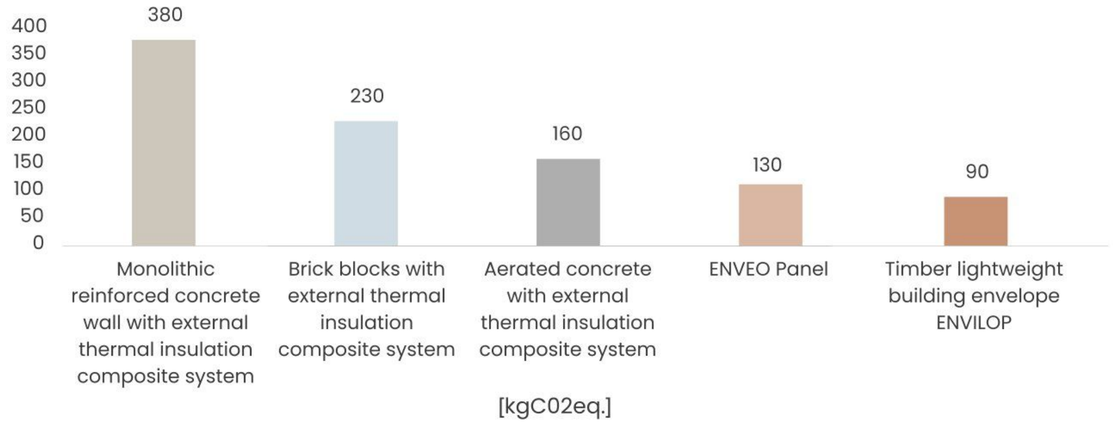


structural diagram of the building

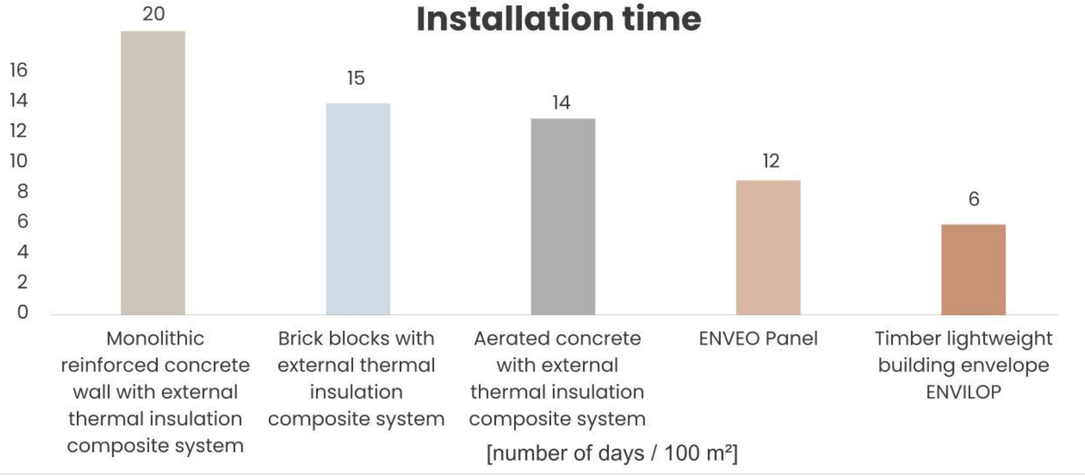
Heat transfer coefficient / U - value



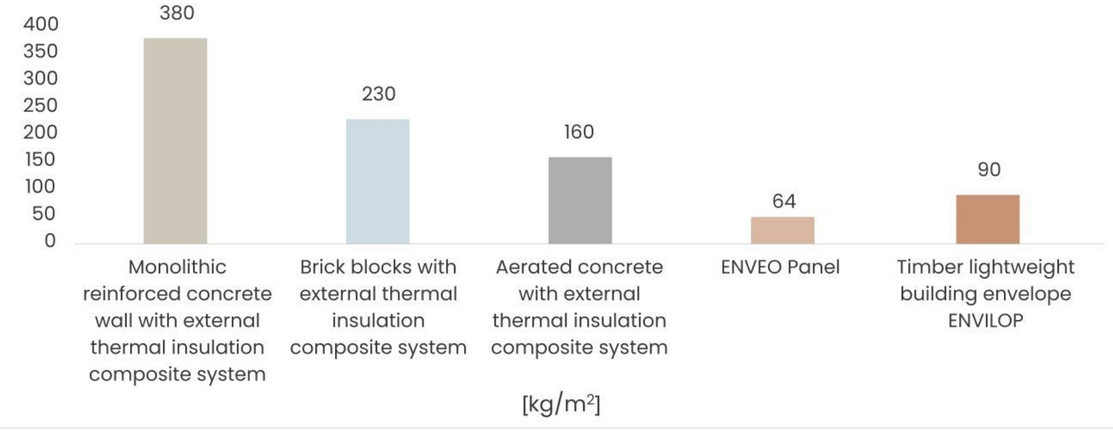
Global Warming Potential - GWP



Installation time



Surface mass



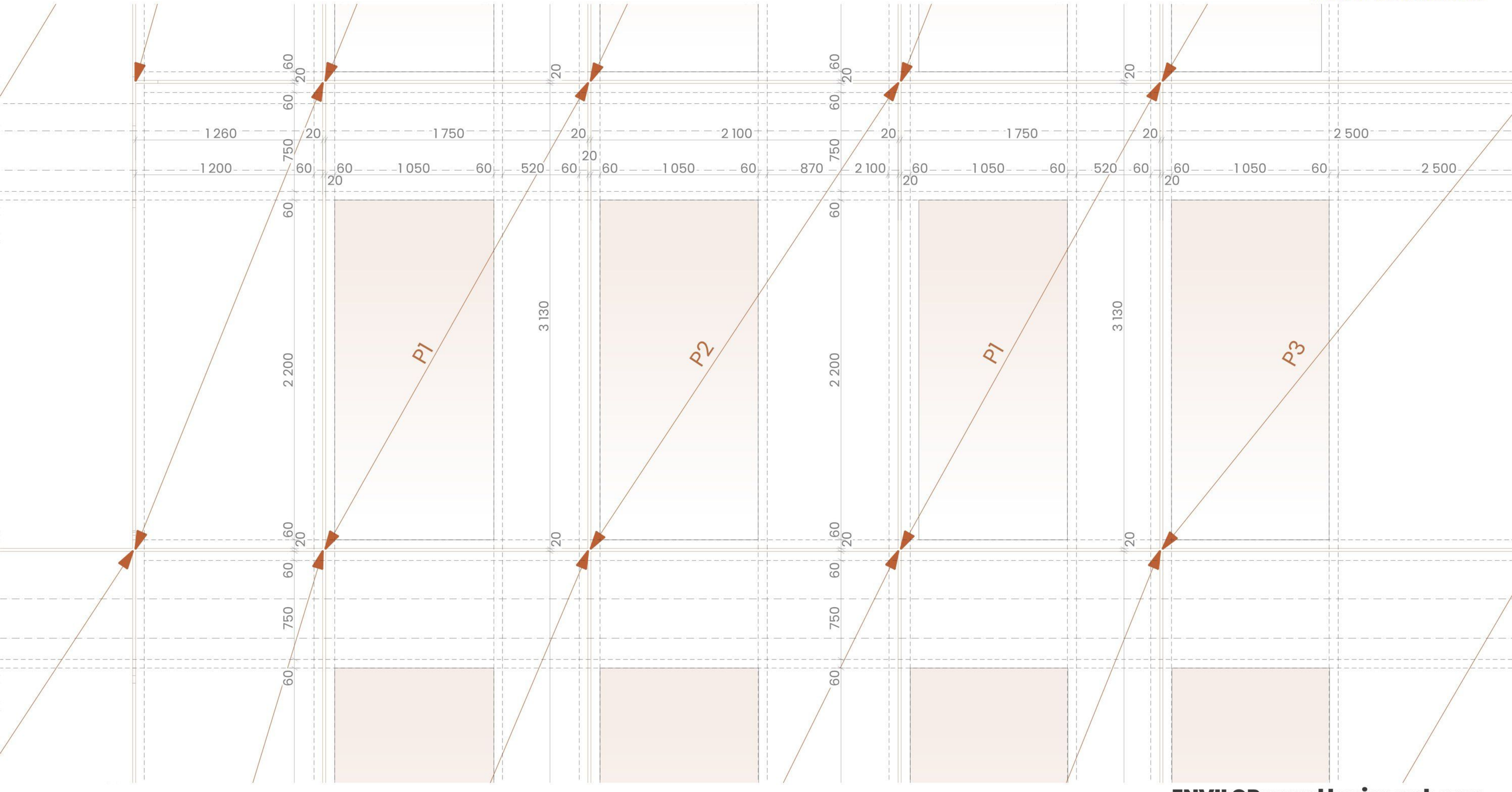
Note on the Comparison

The values of the heat transfer coefficient, weight and global warming potential were determined using a combination of available manufacturers' technical data sheets, especially Saint-Gobain systems ENVEO / ENVILOP, Isover EPS 70F and Weber ETICS, general Environmental Product Declaration databases, and expert estimates based on typical external wall assemblies.

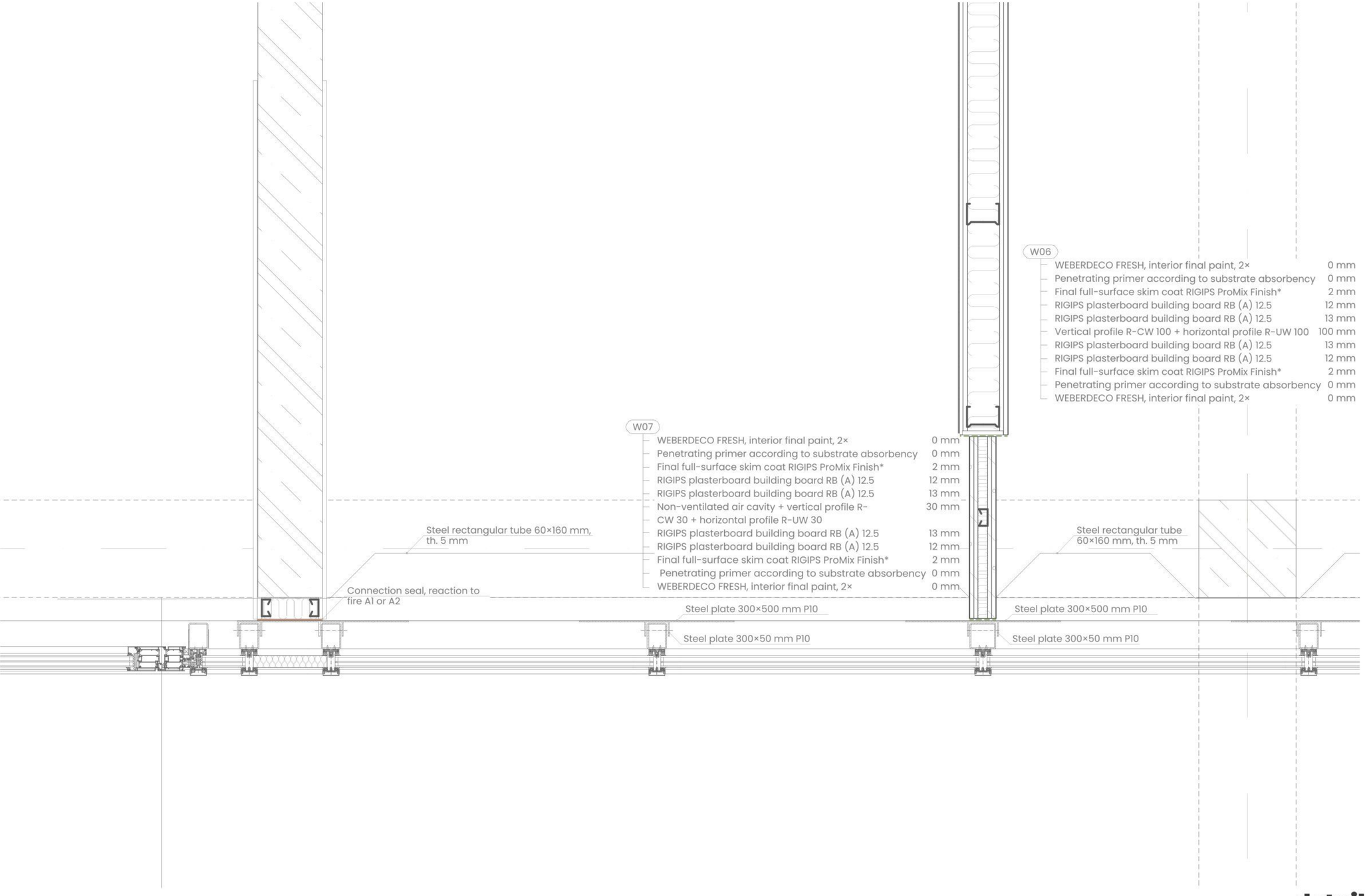
Where exact data for a specific system as a whole were not available, for example for the ENVEO panel with an external thermal insulation composite system, the value was determined as the sum of the individual layers, including the load-bearing structure, board materials, insulation and ETICS, using representative emission factors and approximate surface weights.

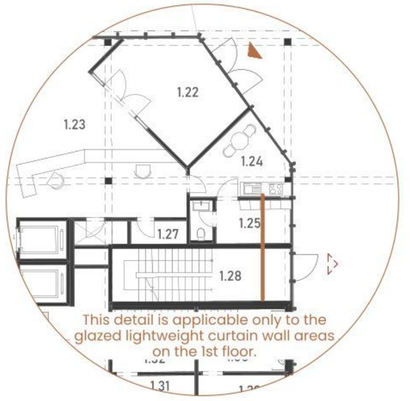
The Global Warming Potential is considered for stages A1–A3, meaning the product manufacturing stage. The installation speed was defined as an indicative labour demand in days per 100 m², based on the technological complexity of the individual systems and standard construction practice. It also includes technological breaks, such as concrete curing or ETICS layer drying.

For systems where not all parameters were clearly defined, such as the exact insulation thickness or layer composition, standard design values were used, for example approximately 160–200 mm of EPS. The results should therefore be understood as comparative rather than absolute.



ENVILOP panel laying scheme





rigips SAINT-GOBAIN

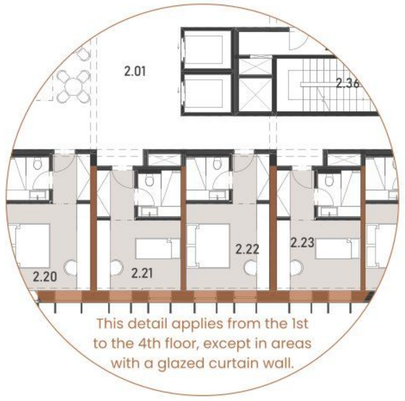
isover SAINT-GOBAIN

weber SAINT-GOBAIN

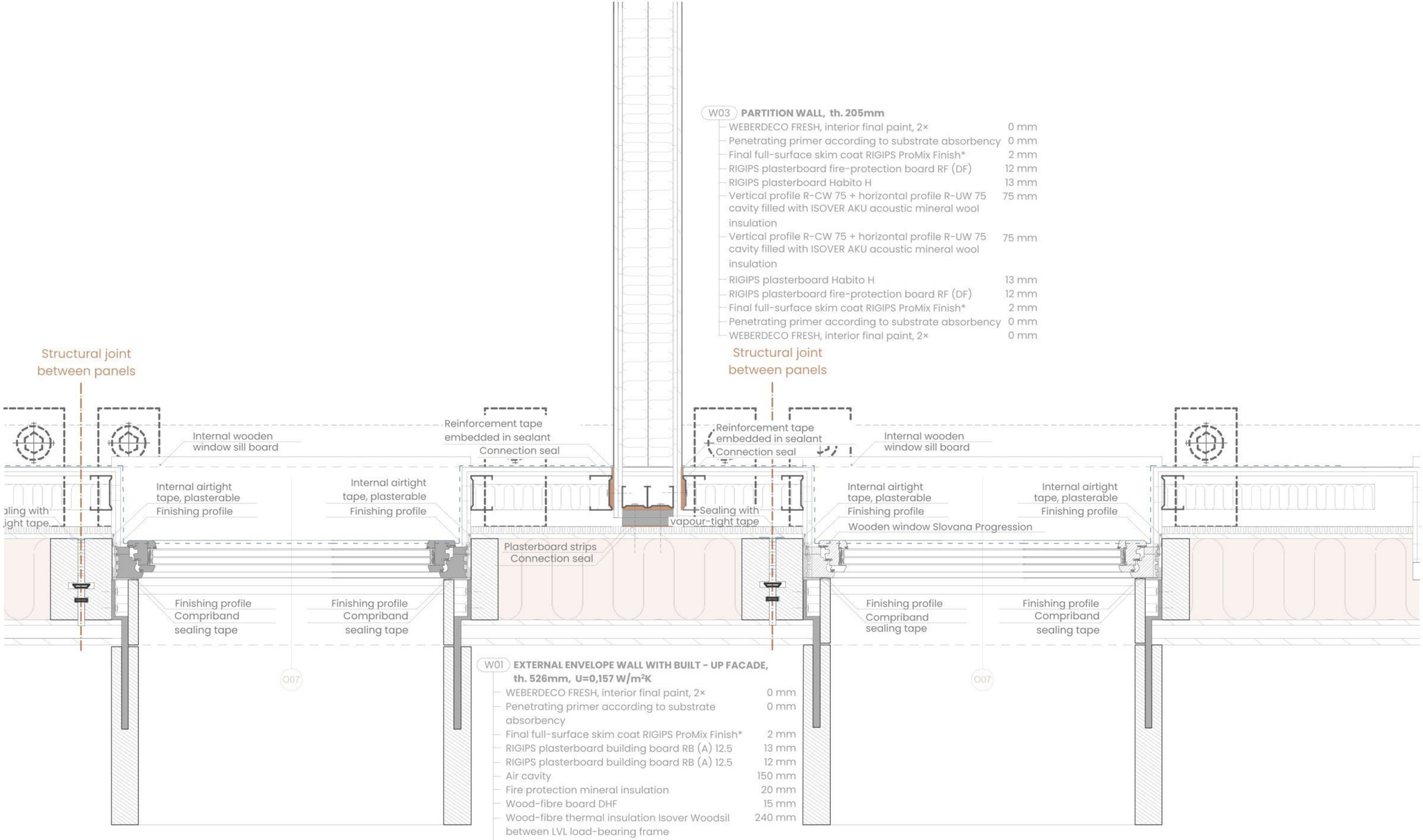
ecophon SAINT-GOBAIN

British Gypsum SAINT-GOBAIN

detail of curtain wall connection



This detail applies from the 1st to the 4th floor, except in areas with a glazed curtain wall.



W03 **PARTITION WALL, th. 205mm**

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard fire-protection board RF (DF)	12 mm
RIGIPS plasterboard Habito H	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard fire-protection board RF (DF)	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W01 **EXTERNAL ENVELOPE WALL WITH BUILT - UP FACADE, th. 526mm, U=0,157 W/m²K**

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
Air cavity	150 mm
Fire protection mineral insulation	20 mm
Wood-fibre board DHF	15 mm
Wood-fibre thermal insulation Isover Woodsil between LVL load-bearing frame	240 mm
Wood-fibre board OSB 4, joints taped with air-stop tape	15 mm
Load-bearing lining structure, spacer for ventilated cavity, KVH NSi battens 60×40 mm	40 mm
Wood fibreboard panels	19 mm

M 1:10

0 0,1 0,6m

rigips SAINT-GOBAIN

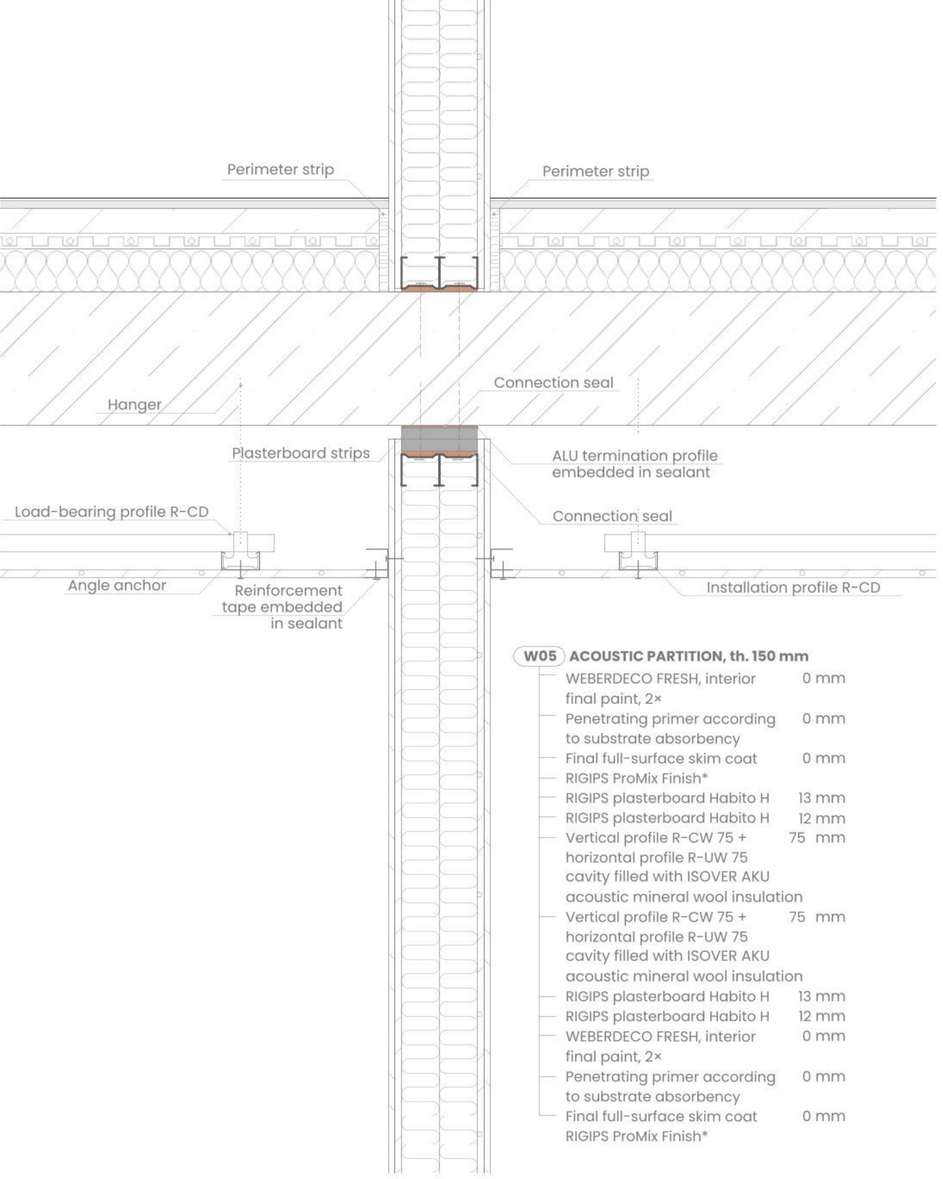
isover SAINT-GOBAIN

weber SAINT-GOBAIN

ecophon SAINT-GOBAIN

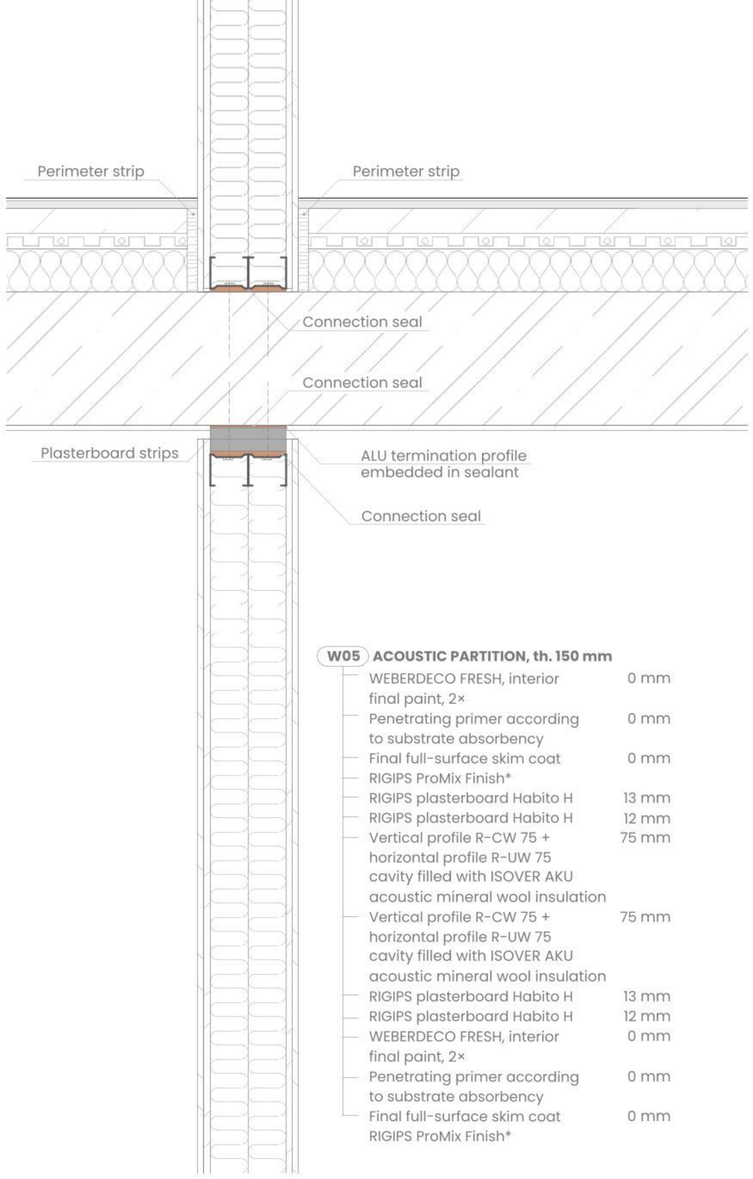
British Gypsum SAINT-GOBAIN

detail of wooden curtain wall ENVILOP



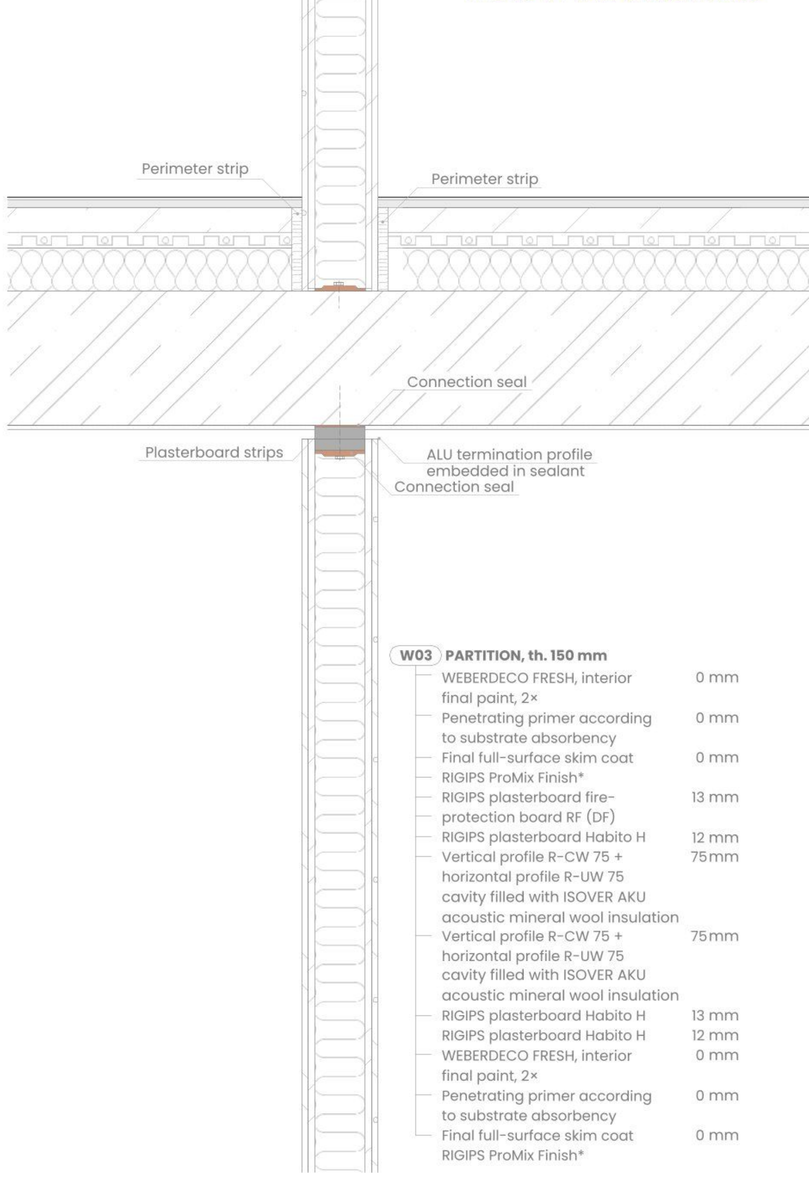
W05 ACOUSTIC PARTITION, th. 150 mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm



W05 ACOUSTIC PARTITION, th. 150 mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75 mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm



W03 PARTITION, th. 150 mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm
RIGIPS plasterboard fire-protection board RF (DF)	13 mm
RIGIPS plasterboard Habito H	12 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75mm
Vertical profile R-CW 75 + horizontal profile R-UW 75 cavity filled with ISOVER AKU acoustic mineral wool insulation	75mm
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	0 mm

rigips SAINT-GOBAIN

ISOVER SAINT-GOBAIN

weber SAINT-GOBAIN

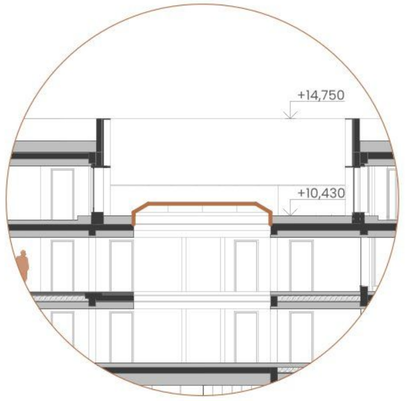
ecophon SAINT-GOBAIN

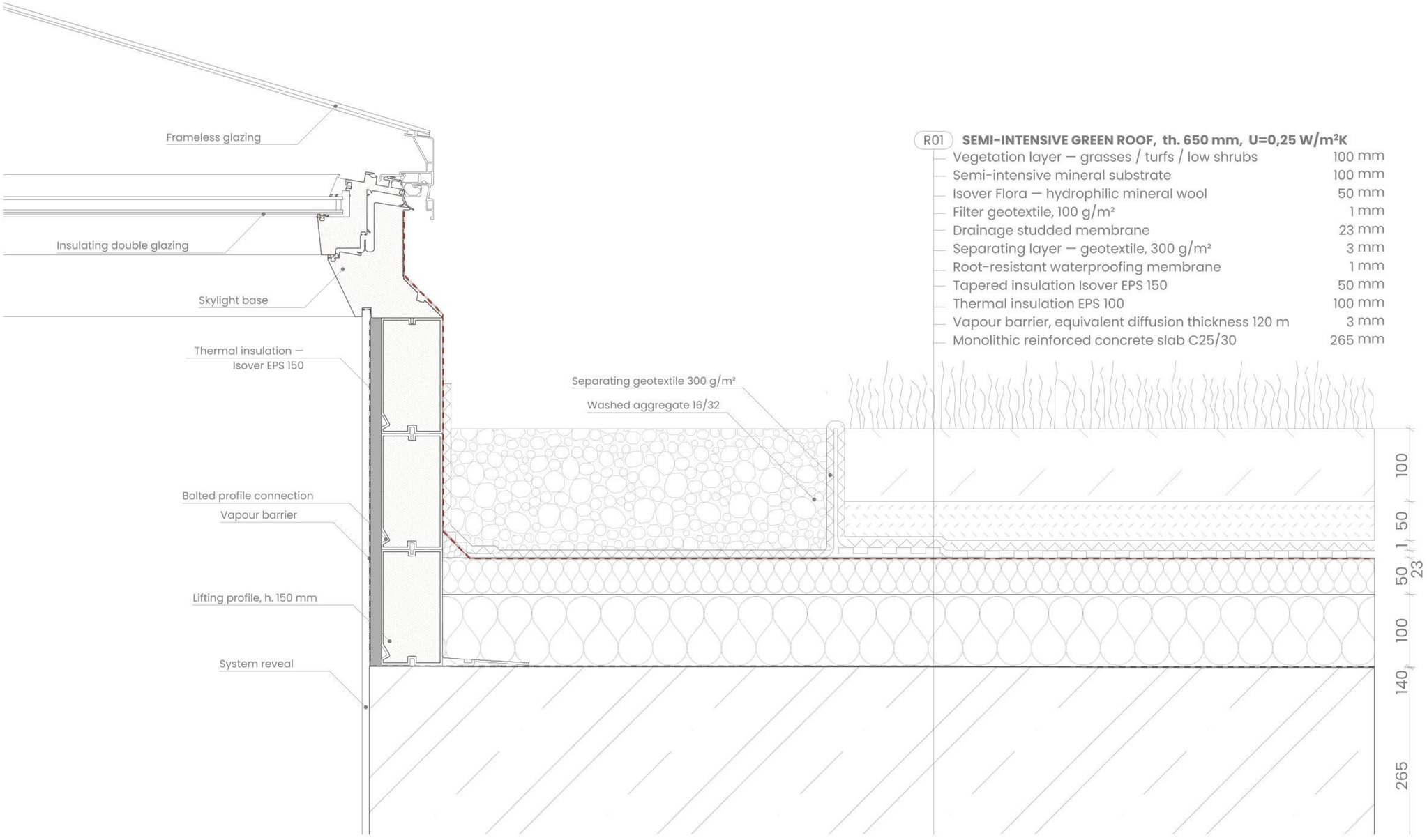
British Gypsum SAINT-GOBAIN

M 1:10

0 0,1 0,6m

detail of inter-apartment partitions





R01 **SEMI-INTENSIVE GREEN ROOF, th. 650 mm, U=0,25 W/m²K**

Vegetation layer — grasses / turfs / low shrubs	100 mm
Semi-intensive mineral substrate	100 mm
Isover Flora — hydrophilic mineral wool	50 mm
Filter geotextile, 100 g/m²	1 mm
Drainage studded membrane	23 mm
Separating layer — geotextile, 300 g/m²	3 mm
Root-resistant waterproofing membrane	1 mm
Tapered insulation Isover EPS 150	50 mm
Thermal insulation EPS 100	100 mm
Vapour barrier, equivalent diffusion thickness 120 m	3 mm
Monolithic reinforced concrete slab C25/30	265 mm

M 1:5

0 0,05 0,165m

rigips SAINT-GOBAIN

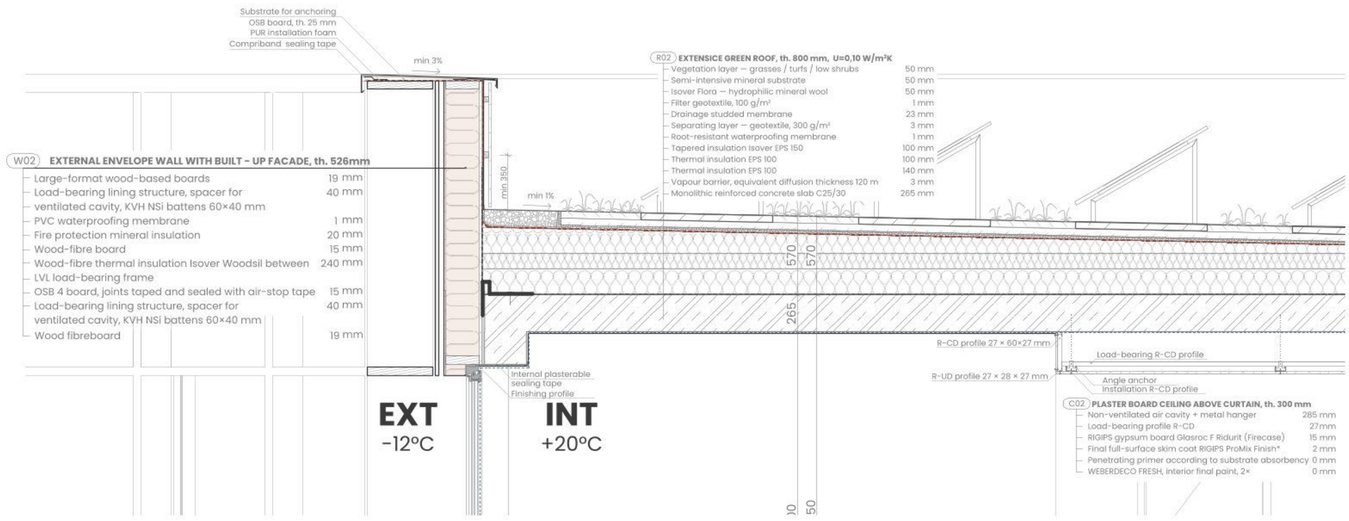
isover SAINT-GOBAIN

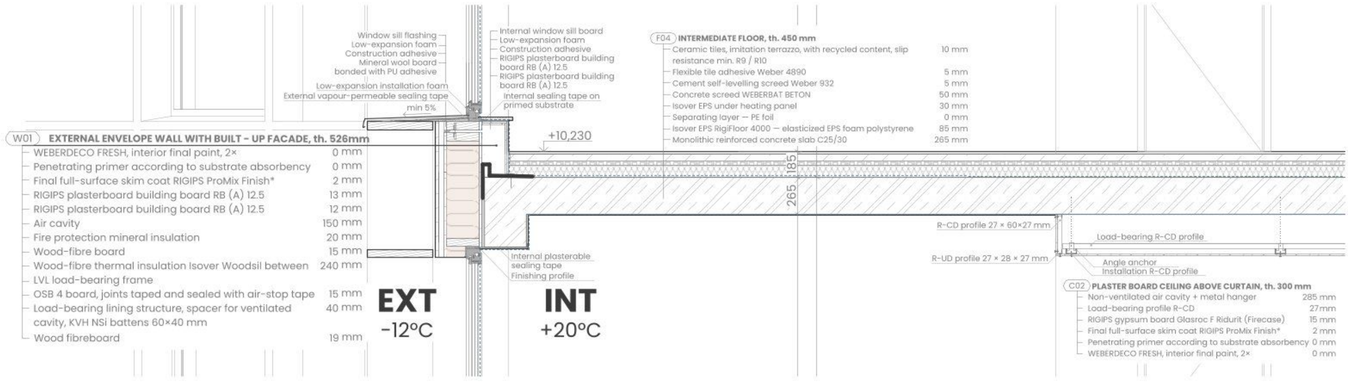
weber SAINT-GOBAIN

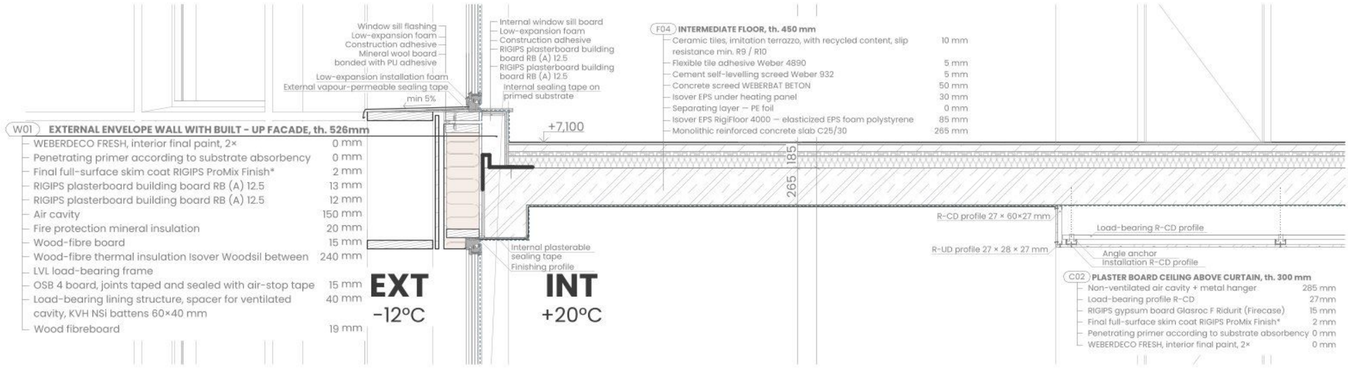
ecophon SAINT-GOBAIN

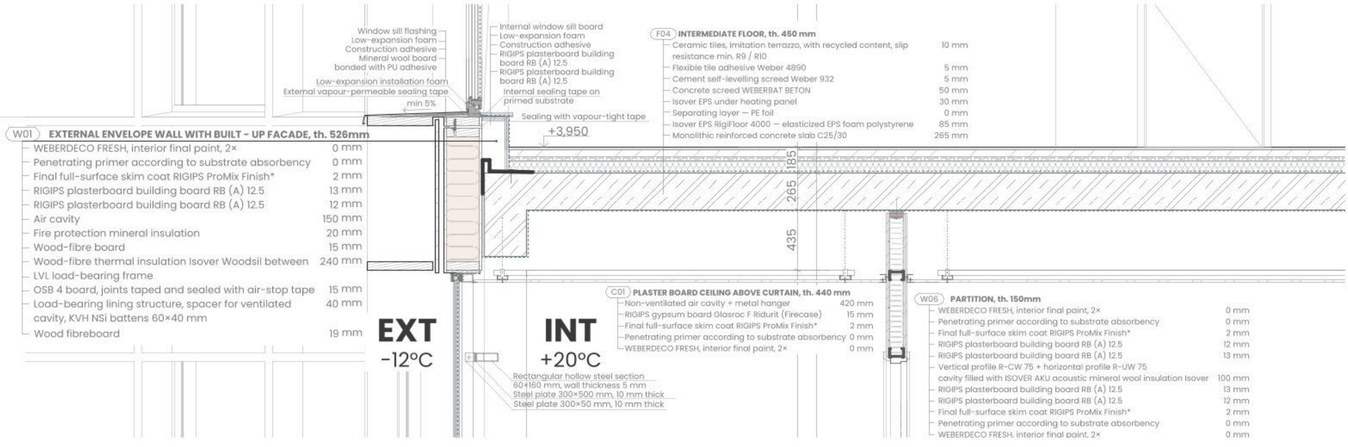
British Gypsum SAINT-GOBAIN

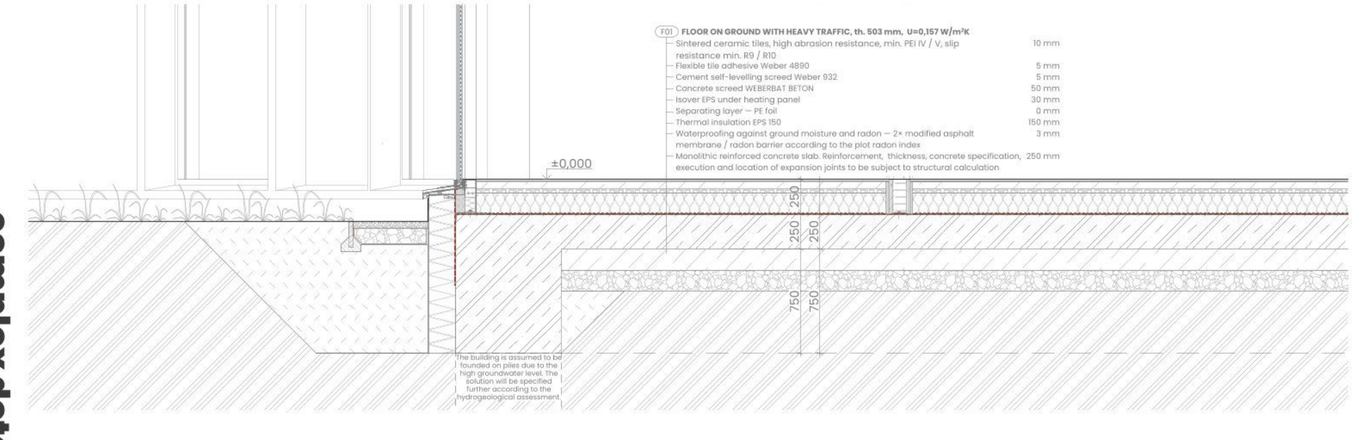
detail of roof skylight



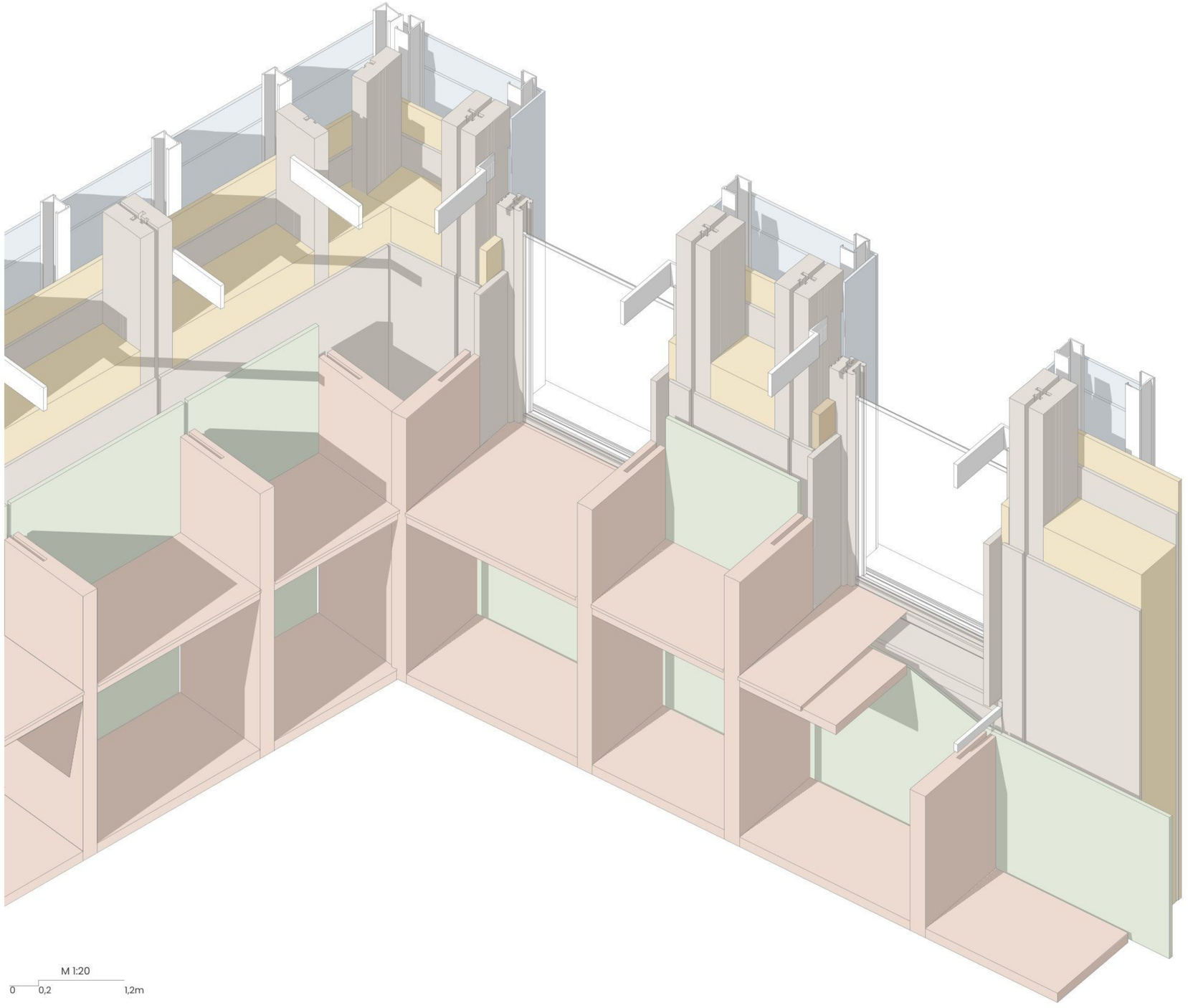


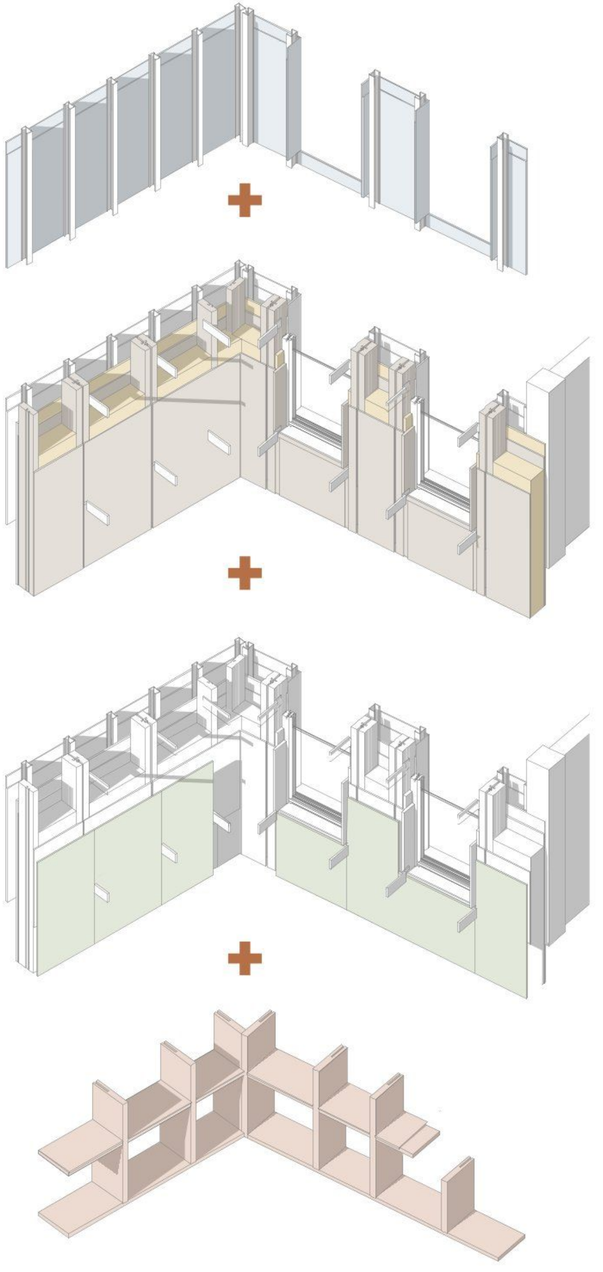






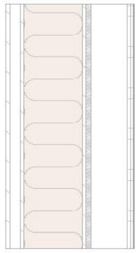
0 0,2 M 1:20 1,2m





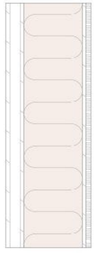
3D detail

W01 EXTERNAL ENVELOPE WALL WITH BUILT - UP FACADE, th. 526mm, U=0,157 W/m²K



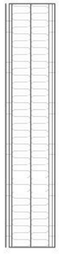
WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
Air cavity	150 mm
Isover UNI	20 mm
Wood-fibre board	15 mm
Wood-fibre thermal insulation Isover Woodsil between LVL load-bearing frame	240 mm
OSB 4 board, joints taped and sealed with air-stop tape	15 mm
Load-bearing lining structure, spacer for ventilated cavity, KVH NSi battens 60×40 mm	40 mm
Wood fibreboard	19 mm

W02 EXTERNAL ENVELOPE WALL, th. 350mm, U=0,157 W/m²K



Isover UNI	20 mm
Wood-fibre board	15 mm
Wood-fibre thermal insulation Isover Woodsil between LVL load-bearing frame	240 mm
OSB 4 board, joints taped and sealed with air-stop tape	15 mm
Load-bearing lining structure, spacer for ventilated cavity, KVH NSi battens 60×40 mm	40 mm
Wood fibreboard	19 mm

W03 PARTITION WALL, th. 205mm



WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RF (DF)	12 mm
RIGIPS plasterboard Habito H	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75	75 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
Vertical profile R-CW 75 + horizontal profile R-UW 75	75 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard building board RF (DF)	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W04 REINFORCED WALL, th. 205mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Fine levelling render webermur rudin fine	3 mm
Adhesion bridge weber kontak	0 mm
Reinforced concrete C25/30	200 mm
Adhesion bridge weber kontak	0 mm
Fine levelling render webermur rudin fine	3 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

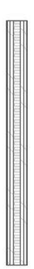
W05 ACOUSTIC PARTITION, th. 150mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard Habito H	12 mm
RIGIPS plasterboard Habito H	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75	100 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W06 PARTITION, th. 150mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75	100 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W07 NARROWED PARTITION AT THE INTERNAL HVAC UNIT, th. 80mm



WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS Gypsum plasterboard RBI (H2) Activ'Air	12 mm
RIGIPS Gypsum plasterboard RBI (H2) Activ'Air	13 mm
Vertical profile R-CW 30 + horizontal profile R-UW 30	30 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS Gypsum plasterboard RBI (H2) Activ'Air	13 mm
RIGIPS Gypsum plasterboard RBI (H2) Activ'Air	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W08 INSTALLATION SERVICE WALL, th. 150mm

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
Unventilated air cavity + vertical profile R-CW 75 + horizontal profile R-UW 75	125 mm

* In the case of drywall partitions, ceiling systems and whole-room linings with RIGIPS ProMix Finish trowelling compound in quality Q4, after sanding and priming a double final interior coating is to be applied — water-dilutable, vapour-permeable, suitable for plasterboard substrates. RIGIPS recommends ProMix Finish for final jointing and full-surface Q4 finishing as the finest final surface treatment; at the same time, it recommends a vapour-permeable, water-dilutable interior paint.

M 1:20

0 0,2 1,2m

F01 **FLOOR ON GROUND WITH HEAVY TRAFFIC, th. 503 mm, U=0,157 W/m²K**

Sintered ceramic tiles, high abrasion resistance, min. PEI IV / V, slip resistance min. R9 / R10	10 mm
Flexible tile adhesive Weber 4890	5 mm
Cement self-levelling screed Weber 932	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Thermal insulation EPS 150	150 mm
Waterproofing against ground moisture and radon — 2× modified asphalt membrane / radon barrier according to the plot radon index	3 mm
Monolithic reinforced concrete slab. Reinforcement, thickness, concrete specification, execution and location of expansion joints to be subject to structural calculation	250 mm

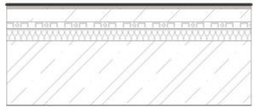
F02 **FLOOR ON GROUND, th. 503 mm, U=0,157 W/m²K**

Ceramic tiles, imitation terrazzo, with recycled content, slip resistance min. R9 / R10	10 mm
Flexible tile adhesive Weber 4890	5 mm
Cement self-levelling screed Weber 932	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Thermal insulation EPS 150	150 mm
Waterproofing against ground moisture and radon — 2× modified asphalt membrane / radon barrier according to the plot radon index	3 mm
Monolithic reinforced concrete slab. Reinforcement, thickness, concrete specification, execution and location of expansion joints to be subject to structural calculation	250 mm

F03 **FLOOR ON GROUND FITNESS, th. 503 mm, U=0,157 W/m²K**

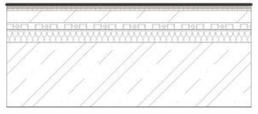
Sports vinyl floor covering / rubber flooring for high traffic	10 mm
WEBER weberfloor 4160 , cement self-levelling compound	10 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Thermal insulation EPS 150	150 mm
Waterproofing against ground moisture and radon — 2× modified asphalt membrane / radon barrier according to the plot radon index	3 mm
Monolithic reinforced concrete slab. Reinforcement, thickness, concrete specification, execution and location of expansion joints to be subject to structural calculation	250 mm

F04 **INTERMEDIATE FLOOR, th. 450 mm**



Ceramic tiles, imitation terrazzo, with recycled content, slip resistance min. R9 / R10	10 mm
Flexible tile adhesive Weber 4890	5 mm
Cement self-levelling screed Weber 932	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Isover TDPT	50 mm
Monolithic reinforced concrete slab C25/30	265 mm

F05 **INTERMEDIATE FLOOR - BATHROOM, th. 450 mm,**

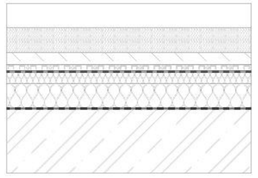


Ceramic tiles, slip resistance min. R9 / R10, suitable for wet areas	10 mm
WEBER weberfor profiflex, flexible tile adhesive C2TE S1	5 mm
WEBER webertec 822, waterproofing screed under tiles	5 mm
WEBER weberfloor 4160, cement self-levelling compound	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Isover TDPT	50 mm
Monolithic reinforced concrete slab C25/30	265 mm

M 1:20

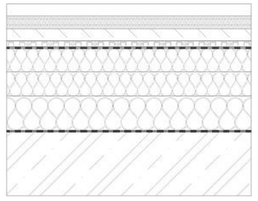
0 0,2 1,2m

R01 SEMI-INTENSIVE GREEN ROOF, th. 650 mm, U=0,25 W/m²K



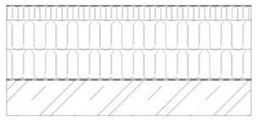
Vegetation layer — grasses / turfs / low shrubs	100 mm
Semi-intensive mineral substrate	100 mm
Isover Flora — hydrophilic mineral wool	50 mm
Filter geotextile, 100 g/m²	1 mm
Drainage studded membrane	23 mm
Separating layer — geotextile, 300 g/m²	3 mm
Root-resistant waterproofing membrane	1 mm
Tapered insulation Isover EPS 150	50 mm
Thermal insulation EPS 100	100 mm
Vapour barrier, equivalent diffusion thickness 120 m	3 mm
Monolithic reinforced concrete slab C25/30	265 mm

R02 EXTENSIVE GREEN ROOF, th. 800 mm, U=0,10 W/m²K



Vegetation layer — grasses / turfs / low shrubs	50 mm
Semi-intensive mineral substrate	50 mm
Isover Flora — hydrophilic mineral wool	50 mm
Filter geotextile, 100 g/m²	1 mm
Drainage studded membrane	23 mm
Separating layer — geotextile, 300 g/m²	3 mm
Root-resistant waterproofing membrane	1 mm
Tapered insulation Isover EPS 150	100 mm
Thermal insulation EPS 100	100 mm
Thermal insulation EPS 100	140 mm
Vapour barrier, equivalent diffusion thickness 120 m	3 mm
Monolithic reinforced concrete slab C25/30	265 mm

R03 ROOF ABOVE ELEVATOR ACCES, th. 450 mm, U=0,12 W/m²K



Waterproofing membrane	2 mm
Thermal insulation Isover S	60 mm
Thermal insulation Isover T	120 mm
Thermal insulation Isover T	120 mm
Vapour barrier, equivalent diffusion thickness 120 m	1 mm
Reinforced concrete C25/30	150 mm

C01 PLASTER BOARD CEILING ABOVE CURTAIN, th. 440 mm

- Non-ventilated air cavity + metal hanger
- RIGIPS gypsum board Glasroc F Ridurit (Firecase)
- Final full-surface skim coat RIGIPS ProMix Finish*
- Penetrating primer according to substrate absorbency
- WEBERDECO FRESH, interior final paint, 2×

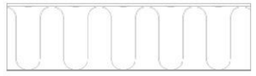
C02 PLASTER BOARD CEILING ABOVE CURTAIN, th. 300 mm

- Non-ventilated air cavity + metal hanger
- Load-bearing profile R-CD
- RIGIPS gypsum board Glasroc F Ridurit (Firecase)
- Final full-surface skim coat RIGIPS ProMix Finish*
- Penetrating primer according to substrate absorbency
- WEBERDECO FRESH, interior final paint, 2×

C03 PERFORATED CEILING WITH CEILING COOLING, th. 440 mm

- Non-ventilated air cavity + metal hanger
- Load-bearing profile R-CD
- Heating/cooling system with structure
- RIGIPS Rigiton Climafit R 8-15-20 Super

C04 THERMALLY INSULATED CEILING, th. 350 mm, U= 0,08 W/m



- WEBER adhesive and base coat mortar
- ISOVER TF Profi — stone mineral wool
- Base layer with embedded reinforcing mesh
- Final thin-layer silicone / silicate-silicone render WEBER

rigips SAINT-GOBAIN

ISOVER SAINT-GOBAIN

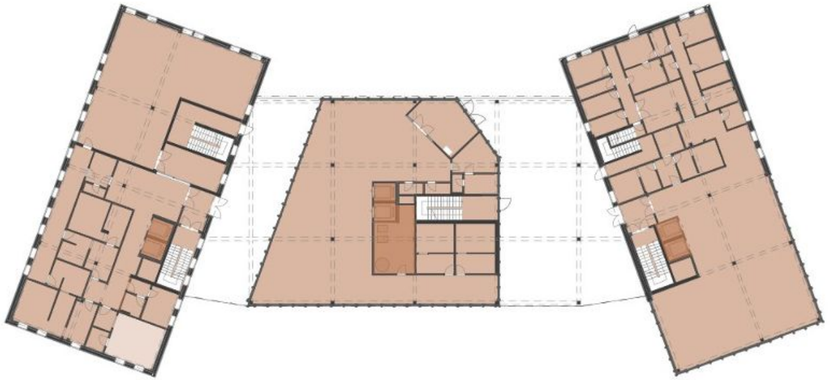
weber SAINT-GOBAIN

ecophon SAINT-GOBAIN

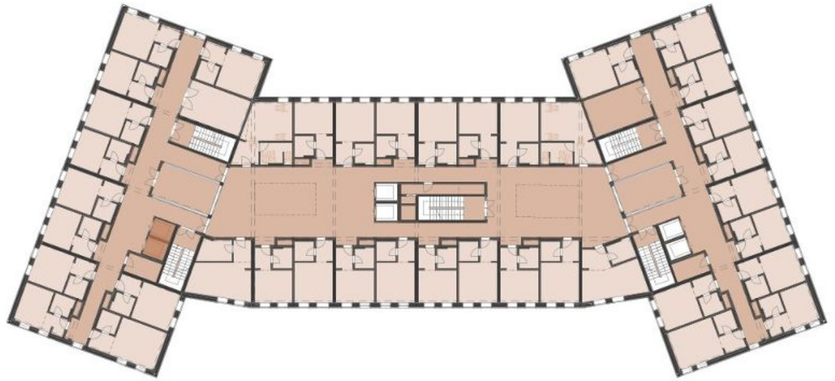
British Gypsum SAINT-GOBAIN

M 1:20

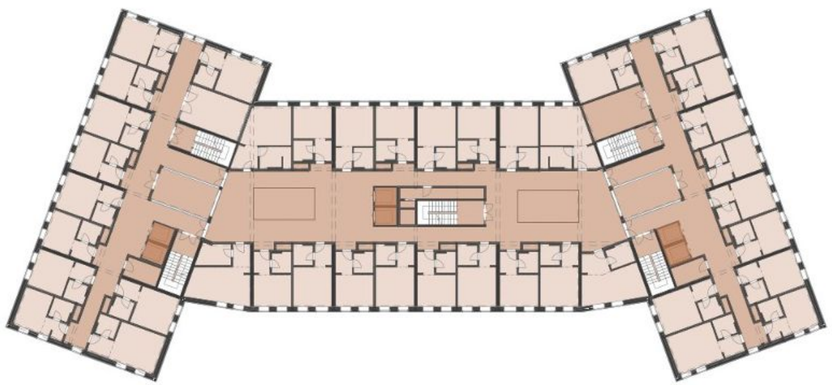
0 0,2 1,2m



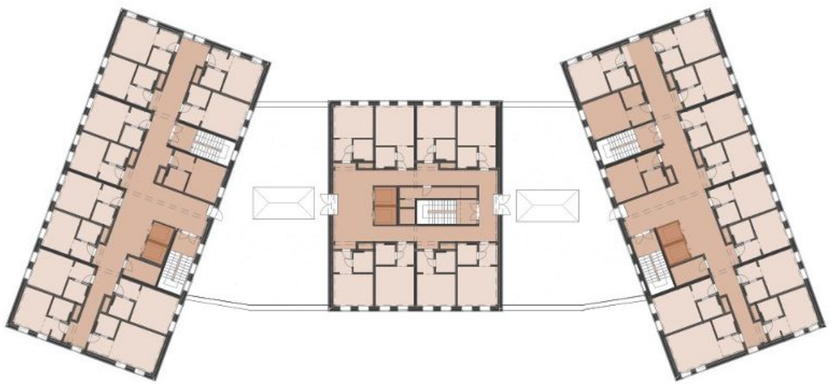
1st floor plan



2nd floor plan



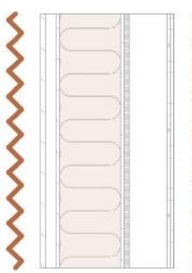
3rd floor plan



4th floor plan

Requirements according to ČSN 73 0532-02/2010

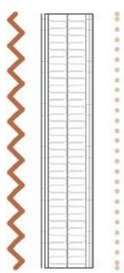
Noisy space (sound source room)	Sound Insulation Requirements [dB] Walls R'_w	Floors/ceilings R'_w
Temporary accommodation facility – bedroom area of guest rooms		
Rooms of other guests	47	52
Shared spaces	45	52
Restaurants and establishments operating until 10:00 p.m.	57	57
Restaurants and establishments operating after 10:00 p.m.	62	62



W01

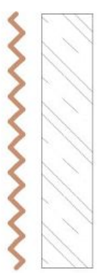
Airborne sound insulation of the construction:
Panels with windows:
R_w=40 dB

Solid panels:
R_w=57 dB



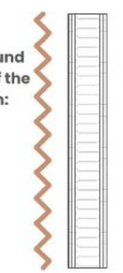
W03

Airborne sound insulation of the construction:
R_w=74 dB



W04

Airborne sound insulation of the construction:
R_w=57 dB

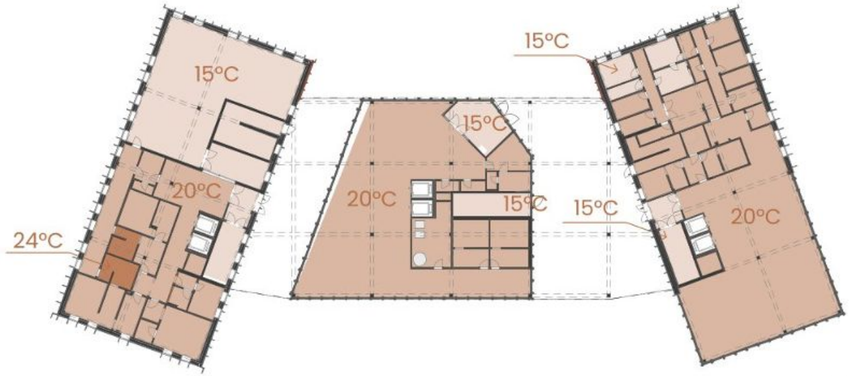


W05

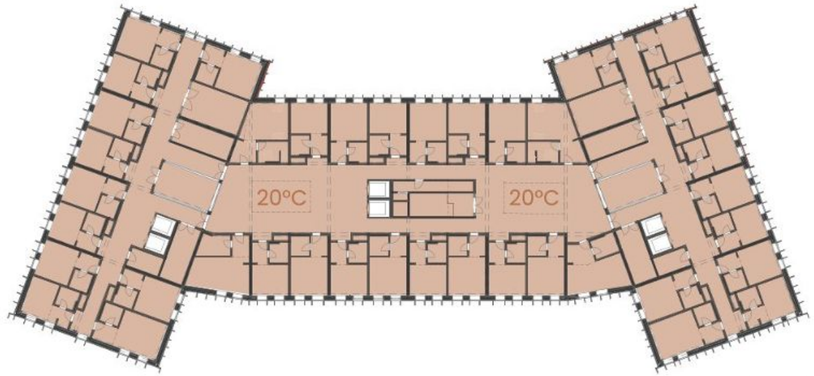
Airborne sound insulation of the construction:
R_w=59 dB

M 1:500

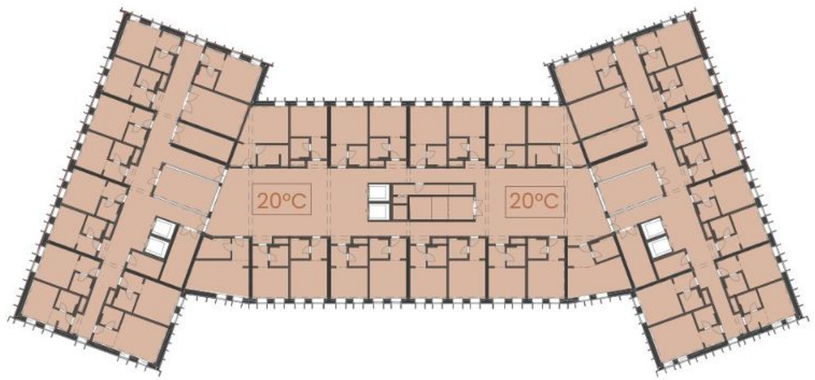
0 5 15m



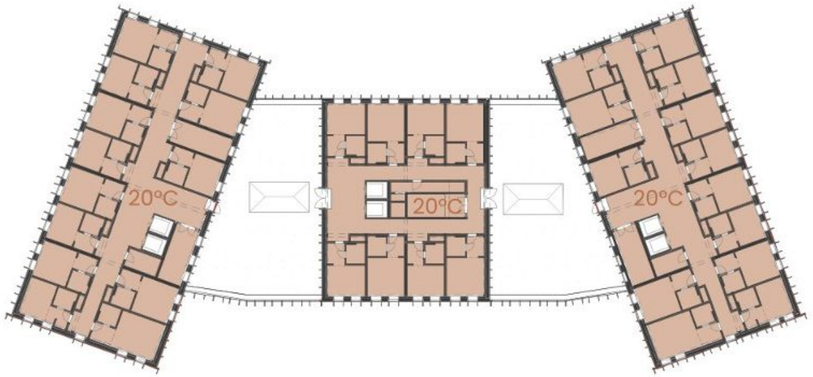
1st floor plan



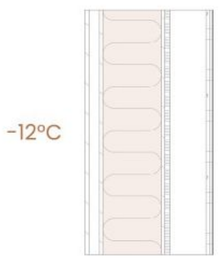
2nd floor plan



3rd 1st floor plan



4th 1st floor plan



W01

Thermal performance parameters of the construction:
U=0.157 W/m²K
Heat transfer coefficient declared by the ENVILOP panel manufacturer

W02

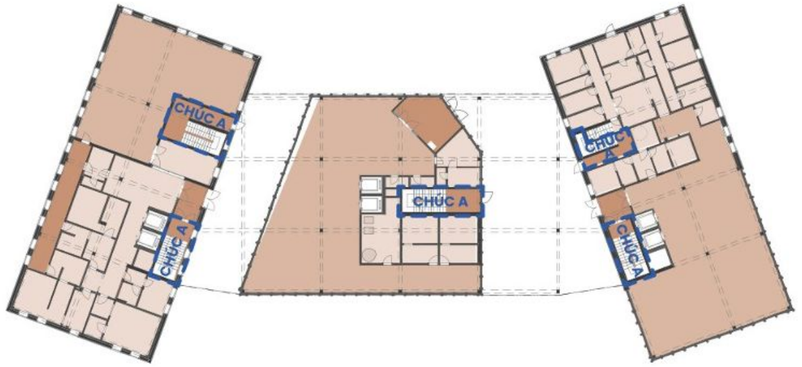
Thermal performance parameters of the construction:
U=0.157 W/m²K
Heat transfer coefficient declared by the ENVILOP panel manufacturer

W03

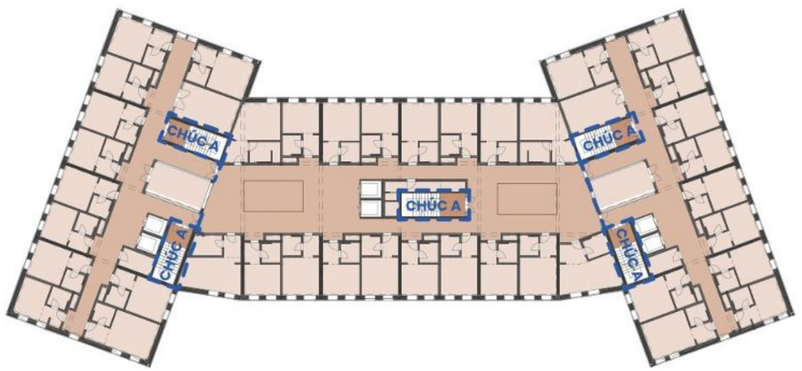
Thermal performance parameters of the construction:
U=0.35 W/m²K

M 1:500

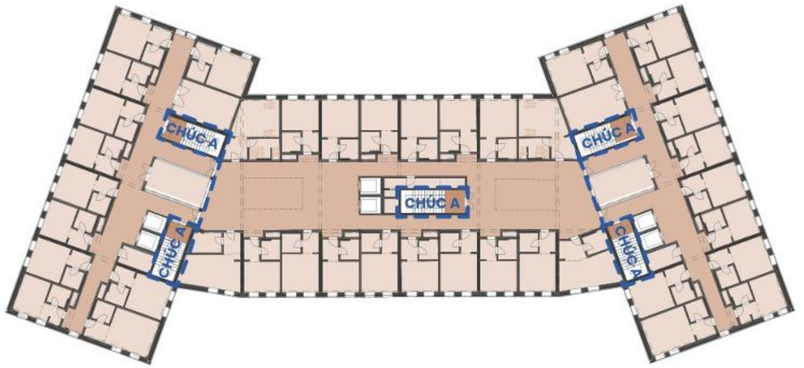
0 5 15m



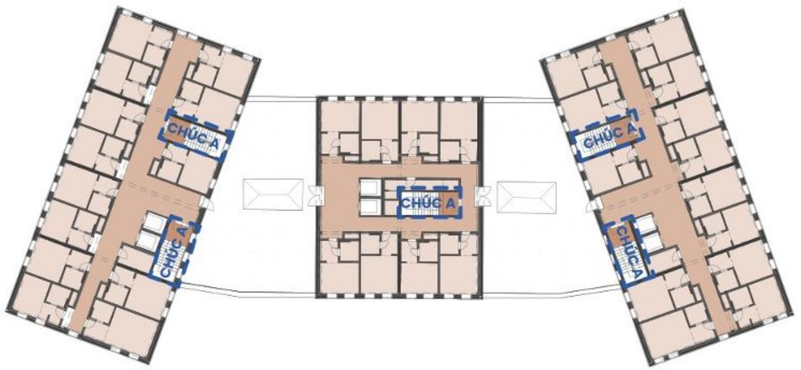
1st floor plan



3rd 1st floor plan

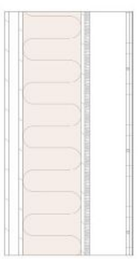


2nd floor plan



4th 1st floor plan

Fire resistance of the external wall



W01

Fire Resistance of the Structure:
EI 60

Fire resistance of walls between fire compartments

W03

Fire Resistance of the Structure:
EI 90

W04

Fire Resistance of the Structure:
REI 180

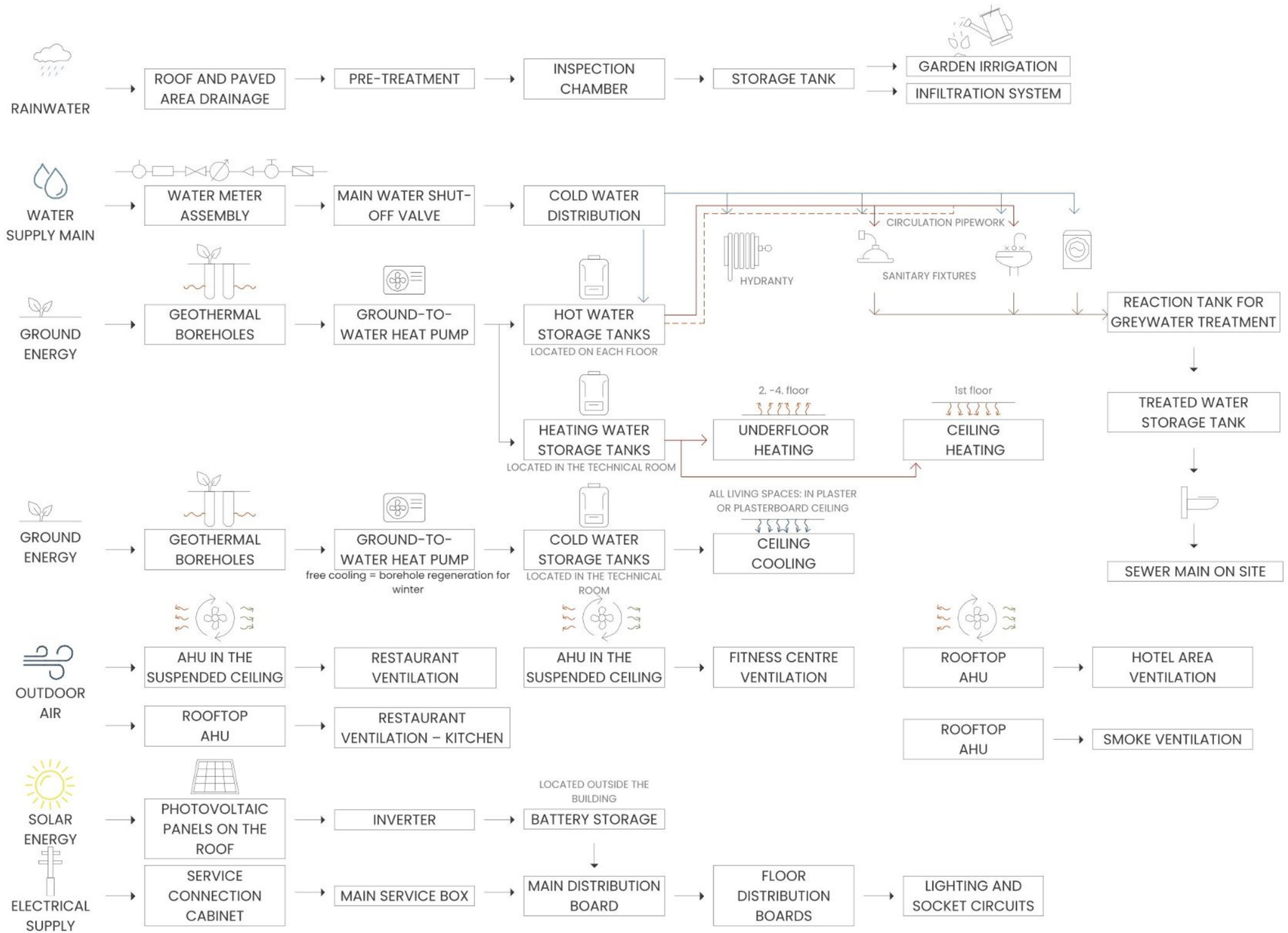
W05

Fire Resistance of the Structure:
EI 120

FIRE SAFETY LEGEND

Each room / accommodation unit is a separate fire compartment.
Corridors, staircases and adjoining shared spaces are designed as separate fire compartments according to the fire safety design.
Fire-separating structures between rooms and shared spaces must provide the required fire resistance according to the fire safety design.
Doors in fire-separating structures must be designed with the required fire resistance where specified.

M 1:500
0 5 15m



PHOTOVOLTAIC PANELS

estimated installed capacity:
at 200 Wp/panel = 86.4 kWp

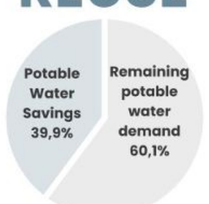
This results in the following indicative annual production:
lower estimate: 86.4 × 1,045 =
approx. 90,300 kWh/year

ENERGY PILES

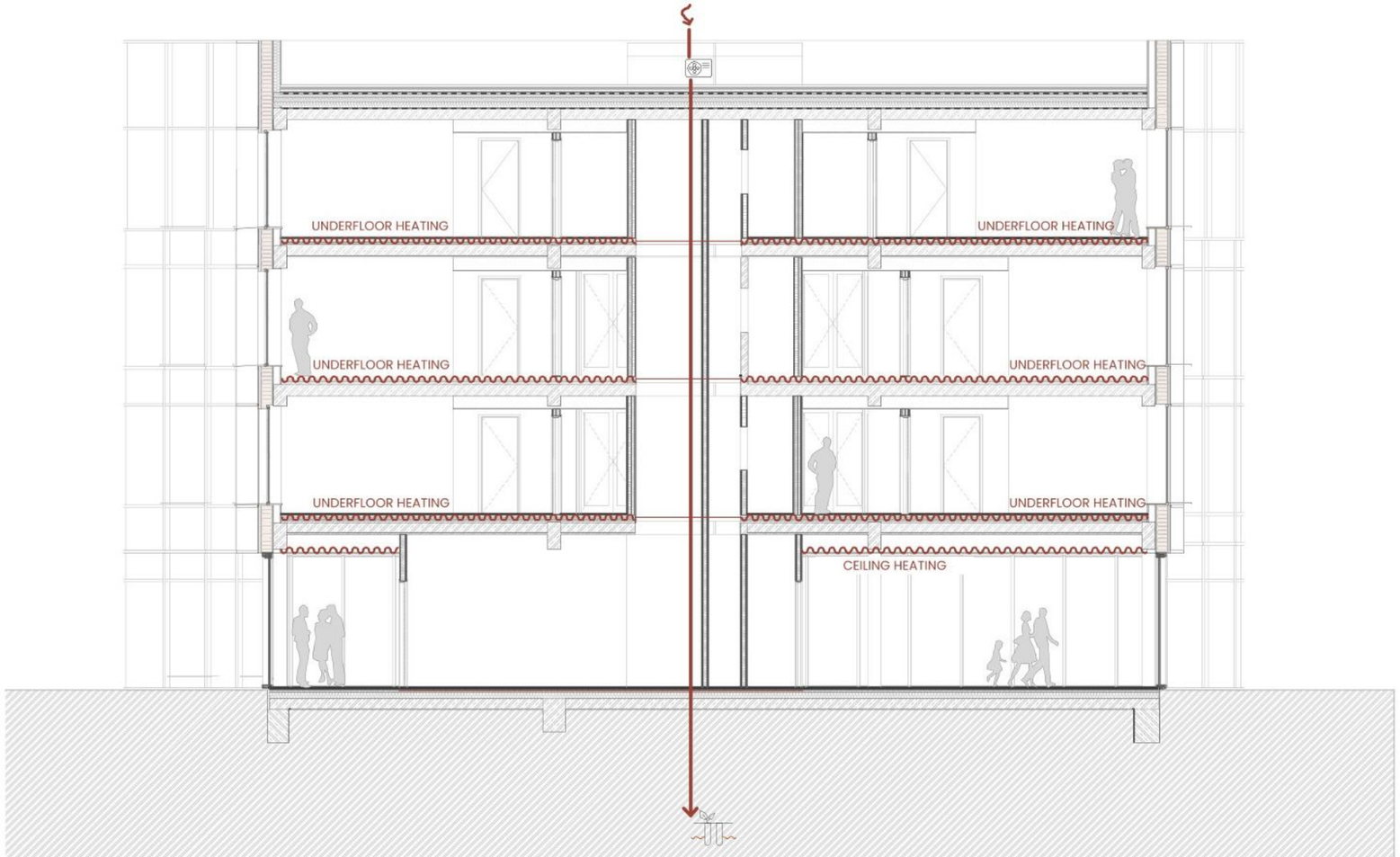
estimated heating/cooling output: 30–50 W/m of pile
assumed active pile length: 12–15 m
estimated output per pile: 0.4–0.7 kW

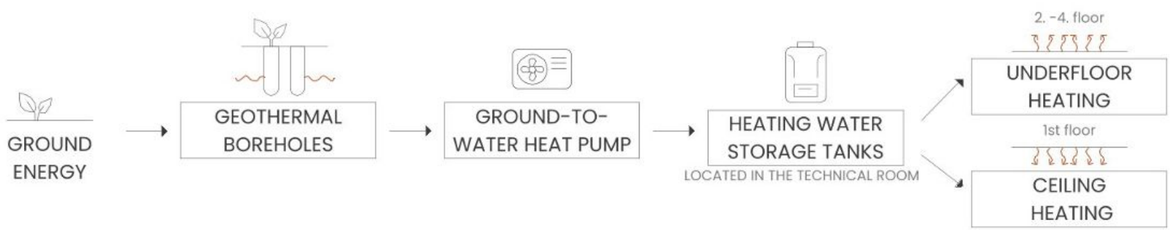
system use: heating in winter / passive cooling in summer
free cooling: borehole regeneration for winter

GREY WATER REUSE



WATER SAVING
Total= 4514 m³/year





M 1:100

0 1 6 m

HEATING CONCEPT

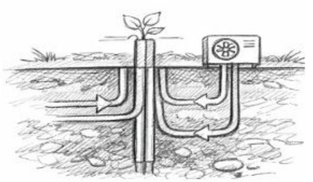
The energy concept of the building is based on the use of ground energy through geothermal boreholes and a ground-to-water heat pump. This system provides the heat source for both space heating and domestic hot water preparation. The chosen principle makes it possible to reduce the operational energy demand of the building, stabilise the indoor environment throughout the year and at the same time design a technical solution with minimal impact on the architectural quality of the interior.

In the accommodation areas, heating is solved as a low-temperature water system integrated into the building structure. Heat is transferred into the interior mainly through ceiling heating, which contributes to an even temperature comfort and limits the need for visible technical elements in the space. At the same time, this principle makes it possible to preserve the ceiling structure as an active part of the energy concept of the building and to use its thermal accumulation capacity. The ceiling structure therefore helps stabilise the indoor climate and contributes to a smoother temperature profile throughout the day.

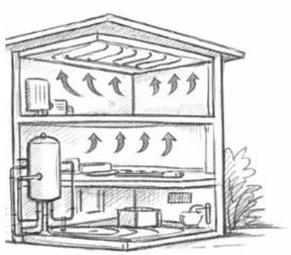
An important advantage of the proposed system is its connection to a low-potential energy source, which reduces operating costs and supports the long-term sustainability of the building. Low-temperature heating also creates favourable conditions for the efficient operation of the heat pump while maintaining a high level of thermal comfort. In selected parts of the building, especially in sanitary facilities or other function-specific rooms, the system may be supplemented with local heating according to the specific requirements of the operation.

Domestic hot water preparation is also part of the energy concept and is connected to the same energy source. This unifies the technical system and reduces the need for separate heat sources within the building. The result is a compact and operationally efficient solution that links the technical logic with the architectural concept of the building.

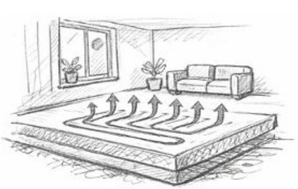
The proposed heating system supports spatial clarity of the interior, reduces the need for suspended ceilings and uses the thermal accumulation of the building structures. The system is therefore not understood merely as technical equipment, but as an integral part of the design, contributing to the quality of the indoor environment as well as to the overall energy strategy of the building.



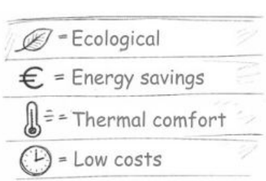
Principle of the heat source



Heat distribution in the building

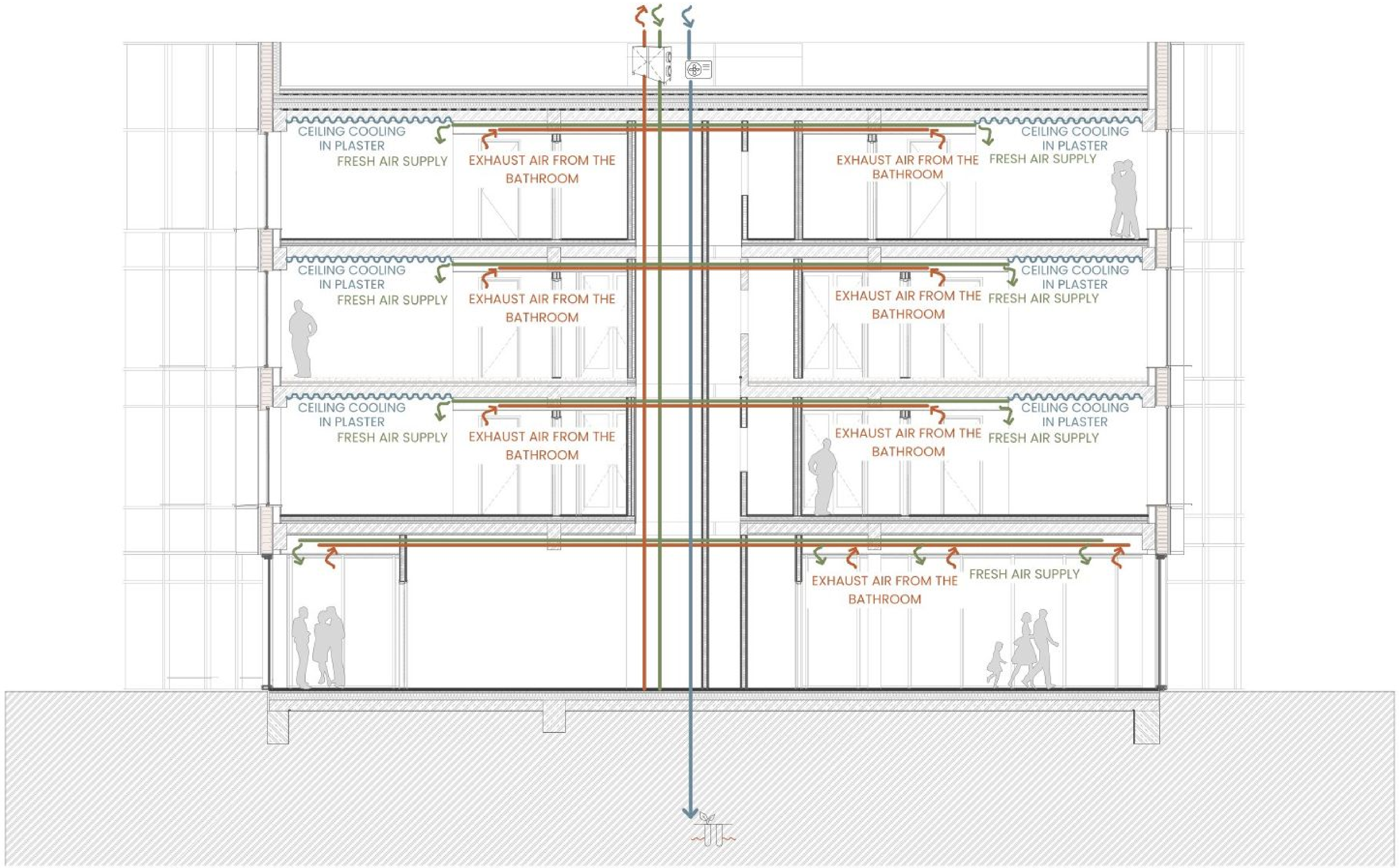


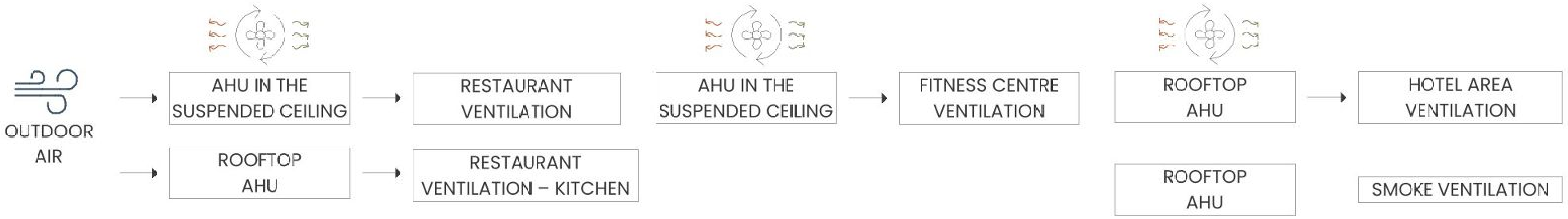
Thermal accumulation in the structure



Benefits of the proposed solution

heating diagram





M 1:100

0 1 6 m

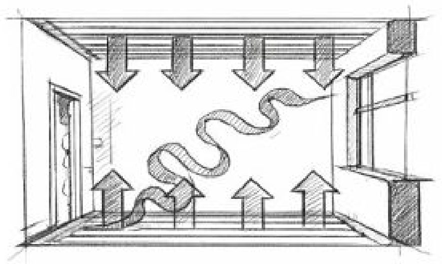
COOLING AND VENTILATION CONCEPT

The cooling and ventilation design is based on the principle of separating the thermal and ventilation functions of the system. Thermal comfort in the residential areas of the building is ensured mainly by ceiling cooling integrated into the thermal storage layer of the building. This principle makes it possible to use geothermal boreholes, which normally serve as a heat source in winter, also during the summer period for cooling and regenerating the boreholes, thereby reducing dependence on large volumes of conditioned air. The result is quieter operation, higher user comfort and a lower need for distribution ductwork.

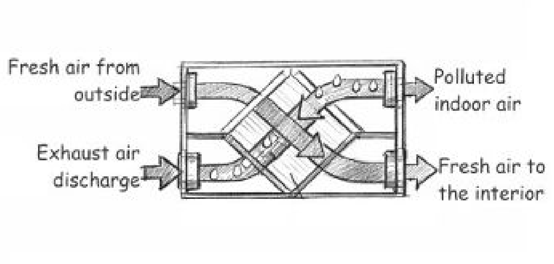
The ceiling structure is understood in the design as an active layer of the building that contributes to the stabilisation of the internal environment. Thanks to the integration of the cooling system into the structure, it is possible to use the accumulation capacity of the ceilings and reduce daily temperature fluctuations. Cooling is transferred mainly by radiant heat exchange, which limits the formation of draughts and improves the quality of the occupied environment in rooms and other quiet areas of the building.

Ventilation is designed as an independent central system with heat recovery, ensuring the supply of fresh air to occupied rooms and the extraction of air from sanitary facilities. In residential units, the air is distributed through simple hygienic air exchange and does not serve as the main carrier of the cooling output. This reduces the demands on the size of the air distribution system and on the space required for technical ducts. In shared and operationally demanding parts of the building, such as restaurants, a fitness centre and other communal areas, ventilation technology is designed according to the relevant higher requirements for air exchange and removal of heat and humidity loads.

An important part of the system is also the treatment of humidity in the supplied air, ensuring safe operation of ceiling cooling. The ventilation system can therefore affect not only indoor air quality, but also the operating stability of the cooling system. The proposed solution combines energy efficiency, high thermal and acoustic comfort and a reduction of visible technical interventions in the interior. The system is therefore understood as an integral part of the architectural design, contributing to the quality of the environment and to the overall sustainability of the building.



Principle of the water-based system



Principle of the air-based system

cooling and ventilation diagram

HOTEL

Required indoor air temperature	q_i	20	[°C]
total number of units	n_b	150	[os]
total number of occupants	n_{os}	200	[os]
ventilation air demand per person	V_1	25	[m^3/(os.hod)]
occupancy factor	p	0,25	[-]
total ventilation air volume	V_f	2037,50	[m^3/hod]
total ventilation air volume	V_f	0,57	[m^3/s]
Maximum Air Velocity		3,00	[m/s]
Duct area for the rntire hotel		0,19	m^2
Duct area per floor		0,05	m^2
Proposed circular duct diameter		0,25	m

Rooftop Heat Recovery AHU ATREA DUPLEX 2500 MultiEco-N

RESTAURANT - DINING AREA

Required indoor air temperature	q_i	20	[°C]
Restaurant area	n_b	270	[os]
total number of occupants	n_{os}	60	[os]
ventilation air demand per person	V_1	25	[m^3/(os.hod)]
occupancy factor	p	0,3	[-]
total ventilation air volume	V_f	1542,00	[m^3/hod]
total ventilation air volume	V_f	0,43	[m/s]
Maximum Air Velocity		5,00	[m/s]
Duct area		0,09	m^2
Proposed circular duct diameter		0,33	m

Ceiling-mounted heat recovery AHU ATREA DUPLEX 550 RS5 2500/1000

RESTAURANT- KITCHEN

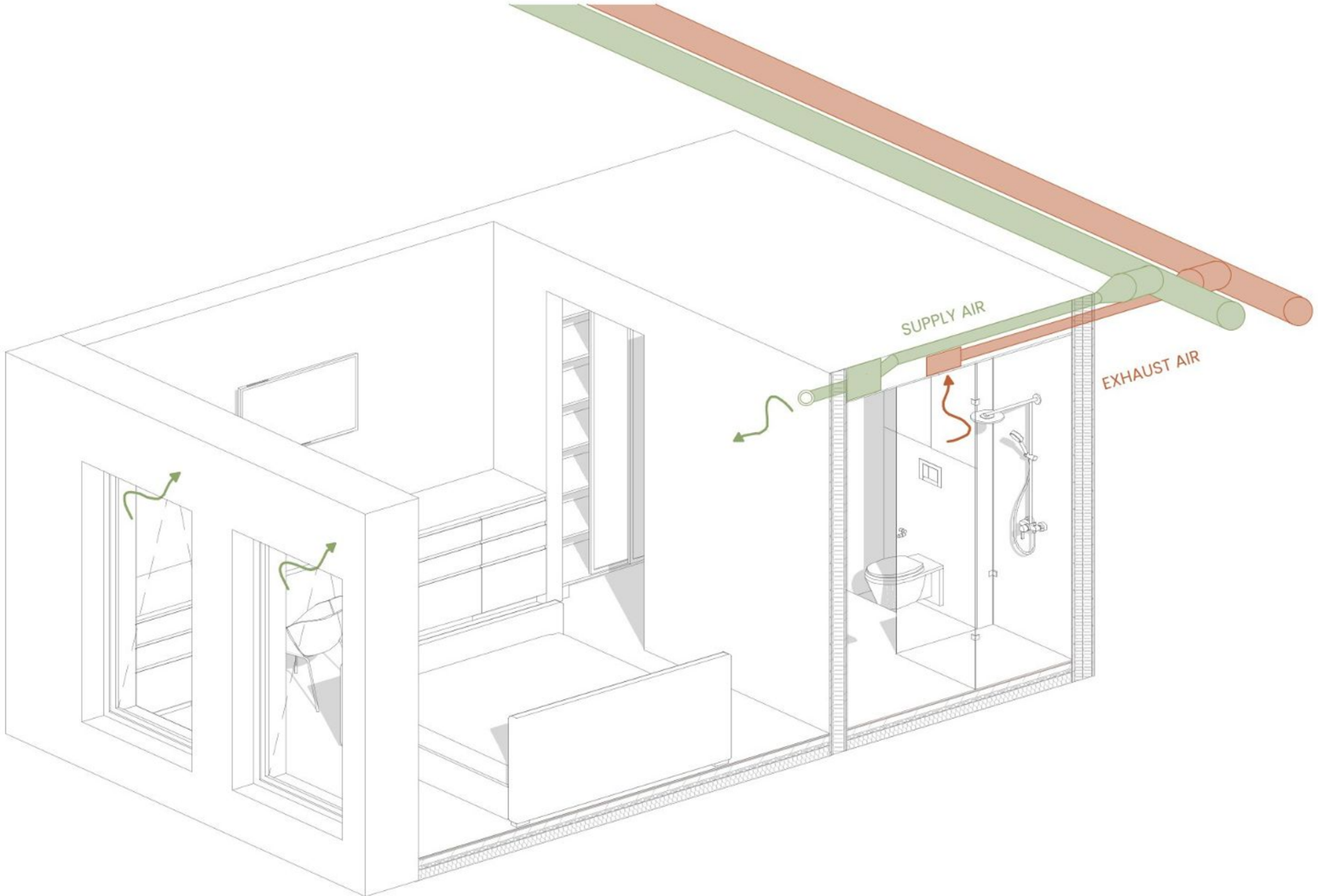
Restaurant - Kitchen	q_i	20	[°C]
Restaurant area	n_b	213	[os]
total number of occupants	n_{os}	5	[os]
ventilation air demand per person	V_1	25	[m^3/(os.hod)]
occupancy factor	p	0,3	[-]
total ventilation air volume	V_f	1615	[m^3/hod]
total ventilation air volume	V_f	0,45	[m^3/s]
Maximum air velocity		7,00	[m/s]
Duct area		0,06	m^2
Proposed circular duct diameter		0,29	m

Ceiling-mounted heat recovery AHU ATREA DUPLEX RS5 3500/2000

FITNESS

Required indoor air temperature	q_i	20	[°C]
Fitness area	n_b	175	[os]
total number of occupants	n_{os}	30	[os]
ventilation air demand per person	V_1	50	[m^3/(os.hod)]
occupancy factor	p	0,3	[-]
total ventilation air volume	V_f	572,50	[m^3/hod]
total ventilation air volume	V_f	0,16	[m/s]
Maximum Air Velocity		7,00	
Duct area		0,02	m^2
Proposed circular duct diameter		0,17	m

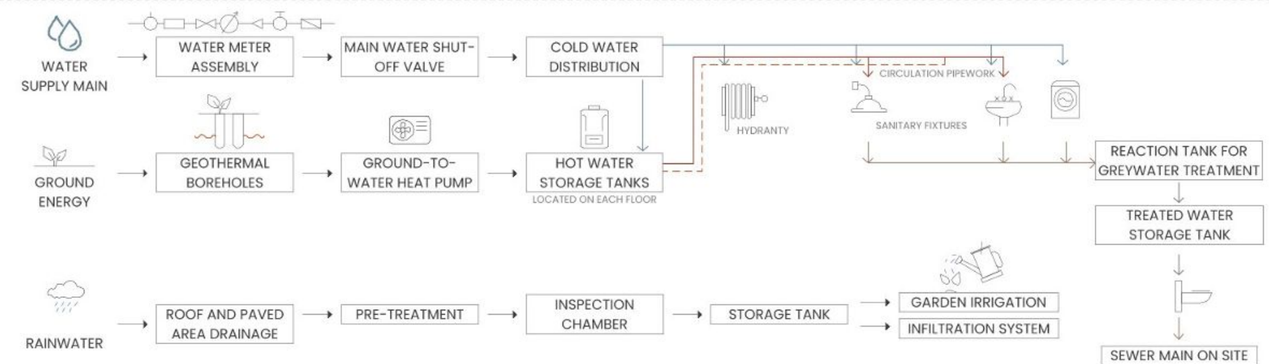
Ceiling-mounted heat recovery AHU ATREA DUPLEX 550 Pro



M 1:50

0 2 12 m

room-level ventilation diagram



M 1:100

0 1 6 m

WATER MANAGEMENT CONCEPT

Reference values for water demand

Hotel area	One Bed/Year [m³]	Total Demand/Year [m³]
Most rooms have a WC and a bathroom with running hot water	45	9000
Restaurant area	**1 Diner and 1 Employee/Year**	**Total Demand/Year [m³]**
Food Preparation, Dishwashing, WC Facilities, Washbasins	8	720
	One Visitor/Year [m³]	**Total Demand/Year [m³]**
Fitness area WC, Washbasins and the Possibility of Showering with Hot Water	20	1600

Total: 11,320 m³/year

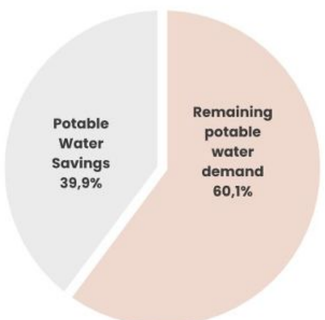
Potable Water Savings Through Greywater Reuse:

Hotel Area
WC flushing: 25–30%
laundry: 10–15%
Together, this represents approximately 35–45% of the hotel's wate consumption.
= 3150 m³/year

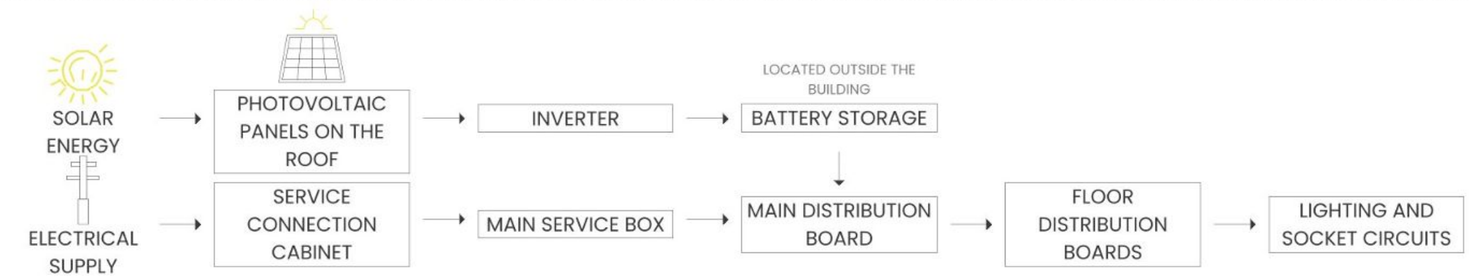
Restaurant
Estimated WC flushing:
15–20 % z 720 m³/year
= 108 m³/year

Fitness
Estimated WC flushing:
15–20 % z 1600 m³/year
= 240 m³/year

Total≈ 4514 m³/year



By using accumulated non-potable water for WC flushing and laundry, the building can replace approximately 4,000 m³ of potable water per year, which represents about 35% of the total annual water consumption. Based on an indicative water and sewerage price of CZK 140.95/m³ in the Czech Republic, this represents savings of approximately CZK 564,000 per year. Under the conditions in Belgrade, where the tariff for "other consumers" is 158.09 RSD/m³ for water and 85.07 RSD/m³ for wastewater discharge, the same volume corresponds to savings of approximately RSD 973,000 per year.



M 1:100

0 1 6 m

ELECTRICAL INSTALLATION CONCEPT

The electrical installation of the building is designed as a combination of connection to the public distribution network and local electricity generation using photovoltaic panels placed on the roof of the building. The generated direct current is converted by an inverter into alternating current and then used for the operation of the building. Part of the system also includes battery storage, which enables short-term accumulation of the generated energy, balancing of operational peaks and a higher level of use of the building's own energy production directly on site.

The proposed system helps reduce the building's dependence on external energy supplies and supports the overall energy concept of the building based on the use of renewable sources. Electricity from the photovoltaic panels can cover part of the building's regular consumption, especially the operation of technical equipment, lighting in shared spaces and part of the socket circuits. In combination with the heat pump, battery storage and an efficient operational regime, the building creates a compact system that increases operational stability and reduces the environmental footprint of the building.

Electricity generated within the building is routed through the main distribution board to the floor distribution boards and then to the individual lighting and socket circuits. The system is designed to enable efficient energy distribution throughout the building, clear management of the technologies and future operational flexibility. The photovoltaic power plant thus becomes an integral part of the building's technical concept and complements the other systems based on renewable energy sources.

Indicative Calculation of Electricity Production

number of panels: 432 pcs
area of one panel: 1 m²
total area: 432 m²

estimated installed capacity:

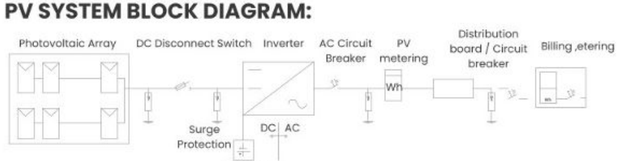
at 200 Wp/panel = 86.4 kWp
at 220 Wp/panel = 95.0 kWp

For Belgrade, the available sources indicate a specific yield of approximately 1,045 to 1,178 kWh/kWp per year. One study for Belgrade states an annual production of 6,269 kWh for a 6 kWp system, which corresponds to approximately 1,045 kWh/kWp/year; another overview based on PVGIS data indicates approximately 1,178 kWh/kWp/year for Belgrade.

This results in the following indicative annual production:

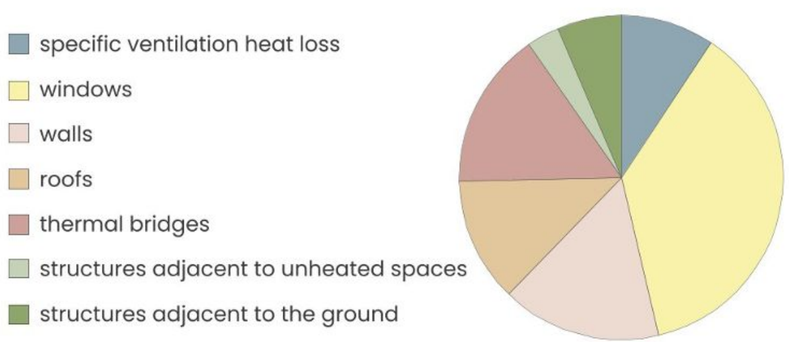
lower estimate: 86.4 × 1,045 = approx. 90,300 kWh/year
higher estimate: 95.0 × 1,178 = approx. 111,900 kWh/year

PV SYSTEM BLOCK DIAGRAM:

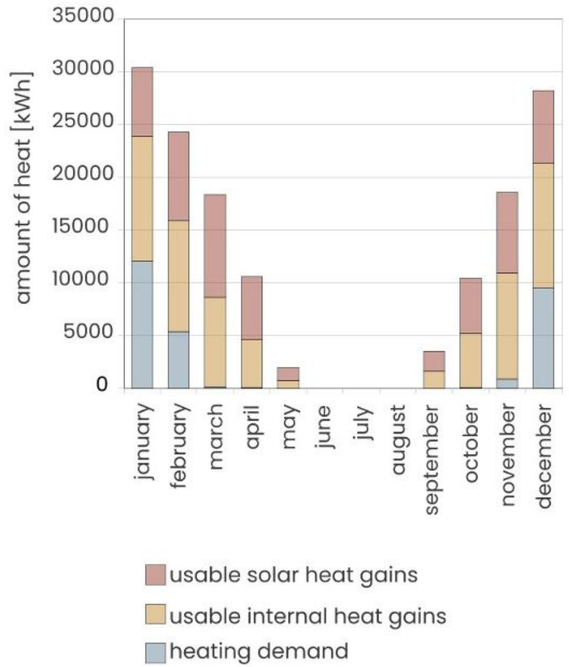


THERMAL BALANCE
Average Heat Transfer Coefficient of the Building: e_A=4,59 kWh/(m²a)
Specific Heating Demand: U_{em}=0,29 W/m²K

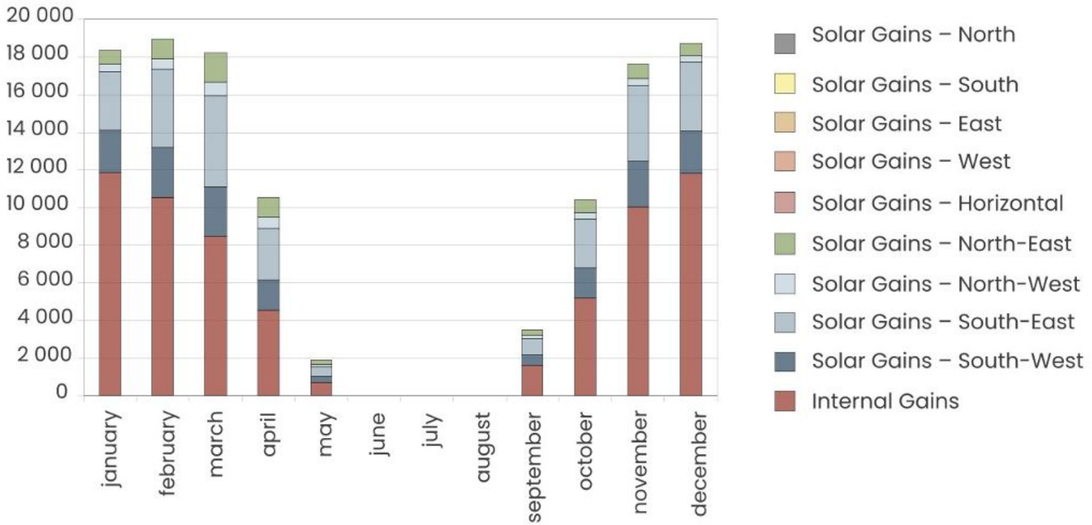
HEAT LOSSES



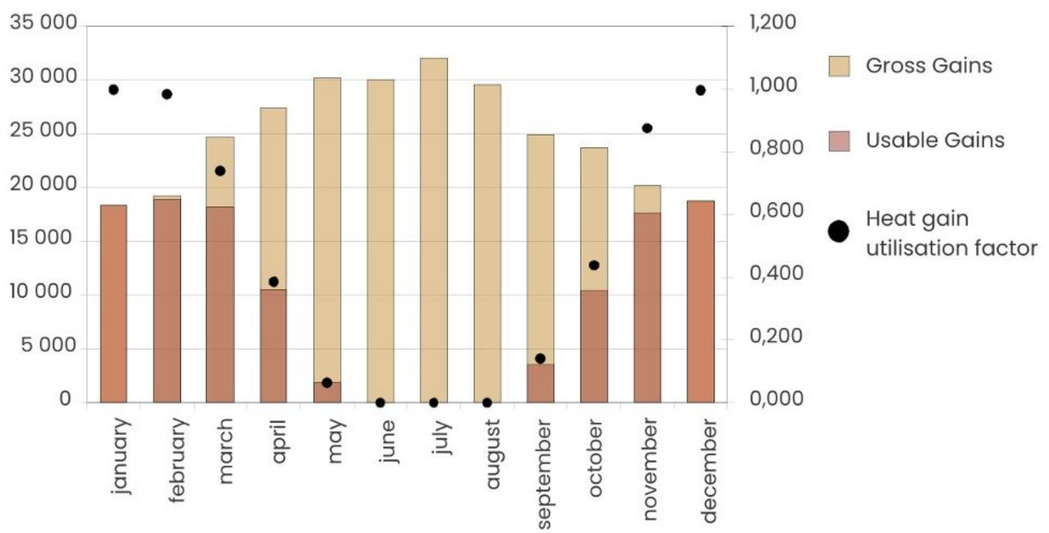
BUILDING HEAT BALANCE

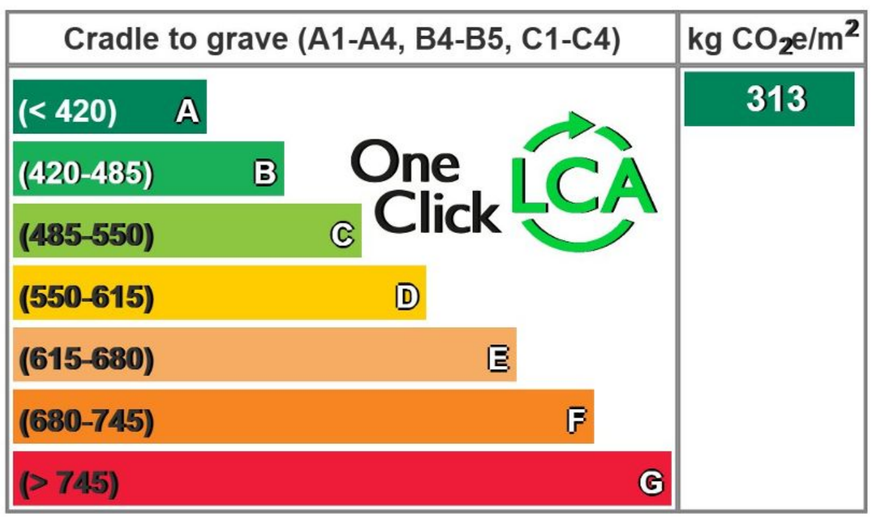


HEAT GAINS

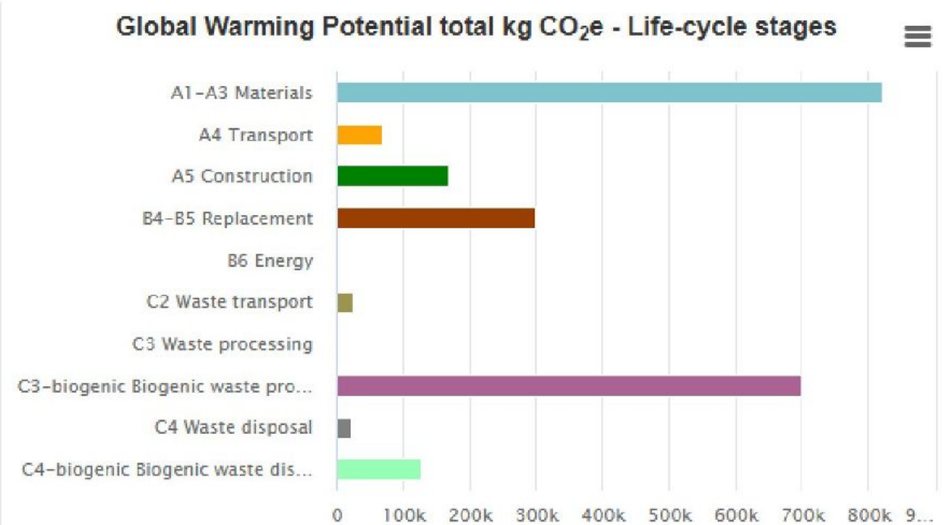


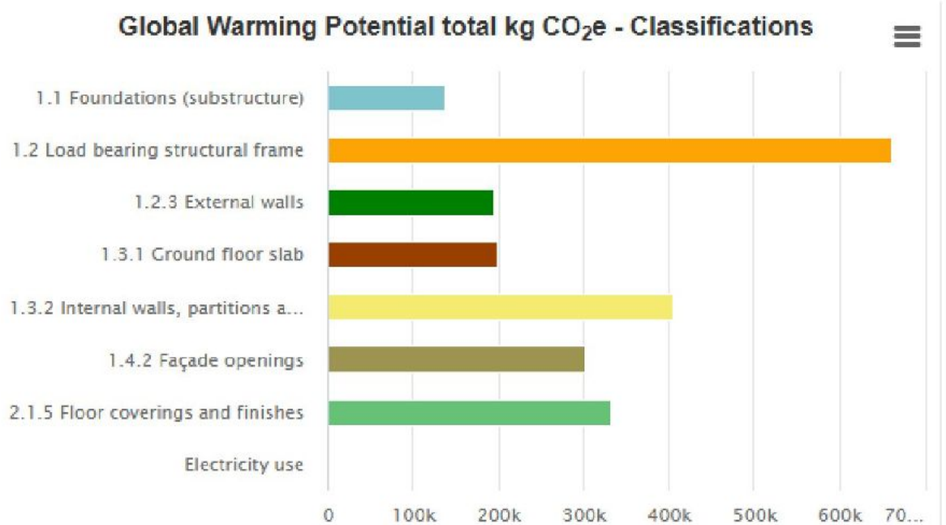
UTILISATION OF HEAT GAINS

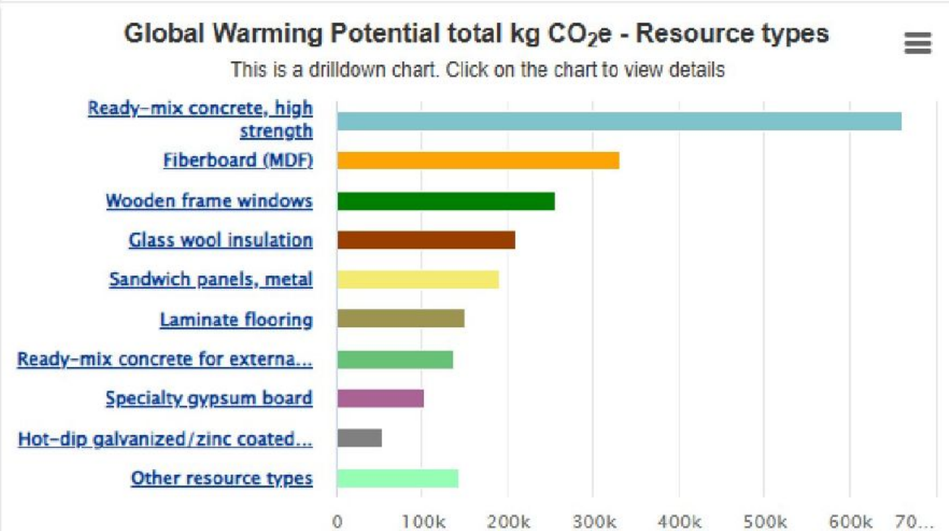


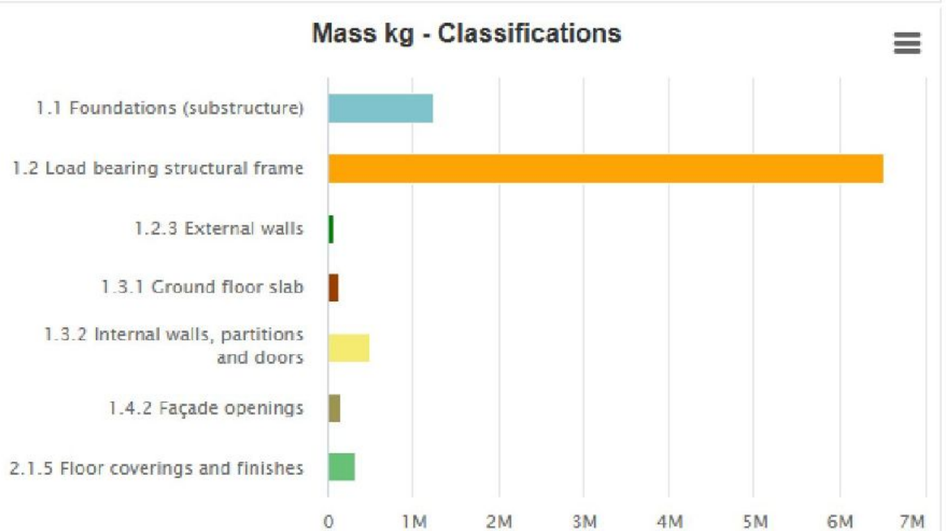


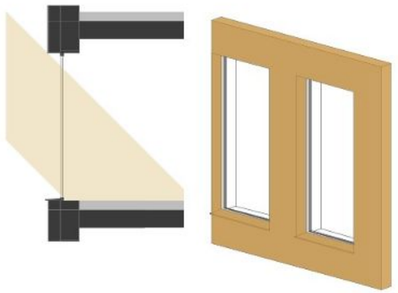
LCA carbon footprint calculation


Global Warming Potential total kg CO_2e - Life-cycle stages
A1–A3 Materials
A4 Transport
A5 Construction
B4–B5 Replacement
B6 Energy
C2 Waste transport
C3 Waste processing
C3–biogenic Biogenic waste pro...
C4 Waste disposal
C4–biogenic Biogenic waste dis...
0
100k
200k
300k
400k
500k
600k
700k
800k
9...

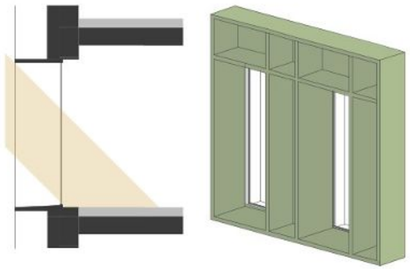

Global Warming Potential total kg CO_2e - Classifications
1.1 Foundations (substructure)
1.2 Load bearing structural frame
1.2.3 External walls
1.3.1 Ground floor slab
1.3.2 Internal walls, partitions a...
1.4.2 Façade openings
2.1.5 Floor coverings and finishes
Electricity use
0
100k
200k
300k
400k
500k
600k
70...


Global Warming Potential total kg CO_2e - Resource types
This is a drilldown chart. Click on the chart to view details
Ready–mix concrete, high strength
Fiberboard (MDF)
Wooden frame windows
Glass wool insulation
Sandwich panels, metal
Laminate flooring
Ready–mix concrete for externa...
Specialty gypsum board
Hot–dip galvanized/zinc coated...
Other resource types
0
100k
200k
300k
400k
500k
600k
70...

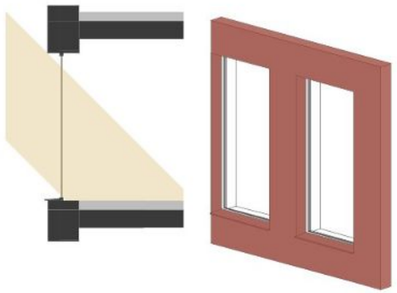

Mass kg - Classifications
1.1 Foundations (substructure)
1.2 Load bearing structural frame
1.2.3 External walls
1.3.1 Ground floor slab
1.3.2 Internal walls, partitions and doors
1.4.2 Façade openings
2.1.5 Floor coverings and finishes
0
1M
2M
3M
4M
5M
6M
7M



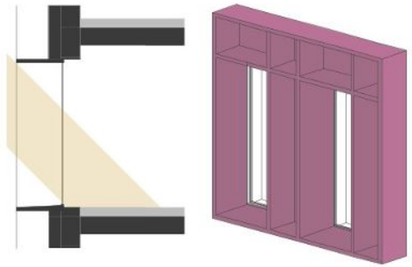
East-Facing Rooms - Without Shading



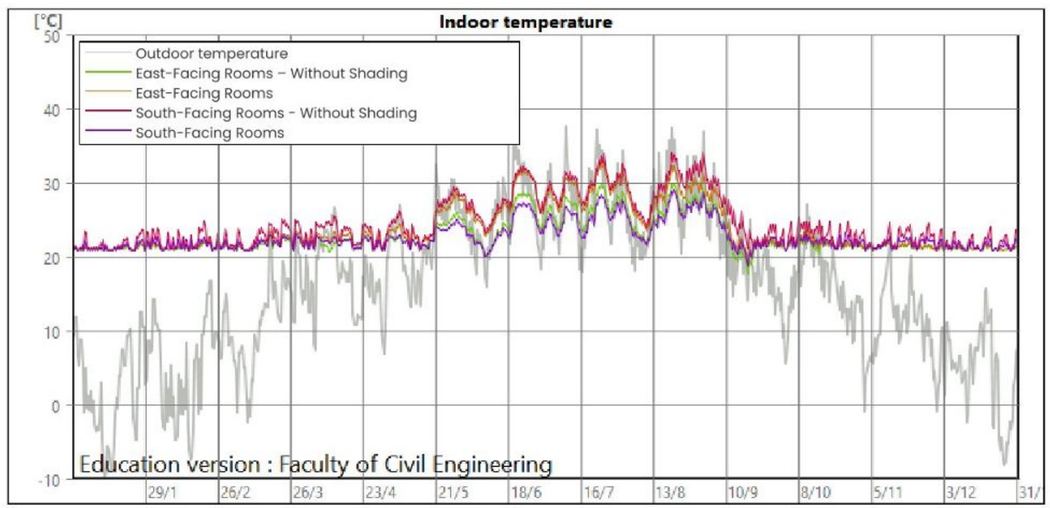
East-Facing Rooms



South-Facing Rooms - Without Shading



South-Facing Rooms



	Hours Ti >T_{max}	Heating demand	Coolind demand
East-Facing Rooms – Without Shading	864 h	178 kWh/m^2	0 kWh/m^2
East-Facing Rooms	1467 h	167 kWh/m^2	0 kWh/m^2
South-Facing Rooms – Without Shading	1605 h	149 kWh/m^2	0 kWh/m^2
South-Facing Rooms	653 h	155 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

GLAZING PARAMETERS

Slavona Progression Windows	
Frame Heat Transfer Coefficient Uf:	0,74 W/m^{2}K
Window Heat Transfer Coefficient Uw: (with Ug 0,5W/m2K)	0,62 W/m^{2}K
Installation Depth:	114 mm
Sound Reduction:	33–48 dB
Number of Seals:	3
Standard Triple Insulating Glazing:	4/18/4/18/4; Ug=0,5W/m^{2}K; g=54%
Insulating Glazing with Solar Gains:	4ECL/18/4/18/ECL4; Ug=0,5W/m^{2}K; g=60%

Daylight Autonomy

< 85%

< 70%

< 60%

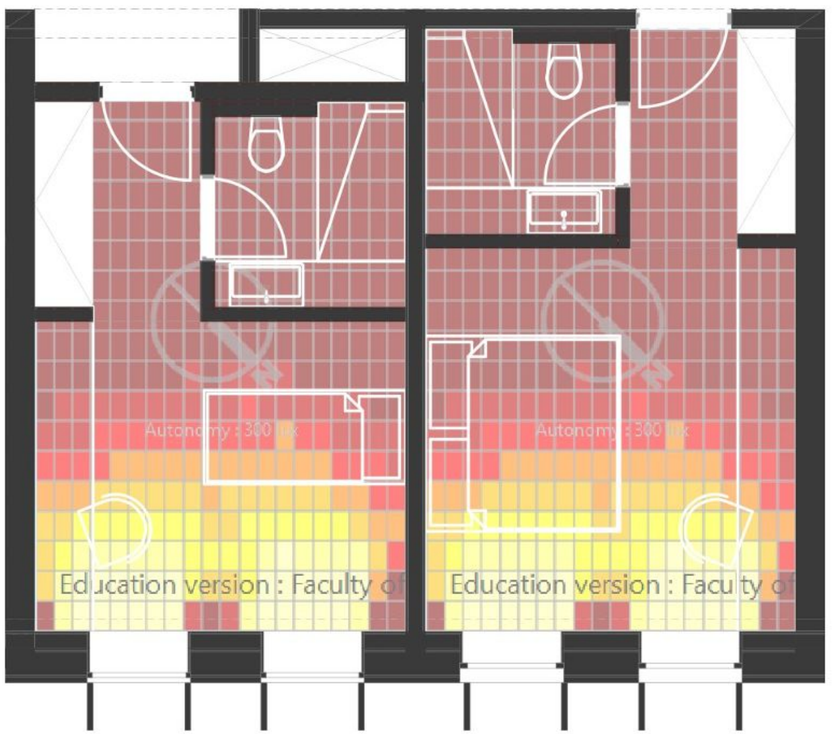
< 50%

< 40%

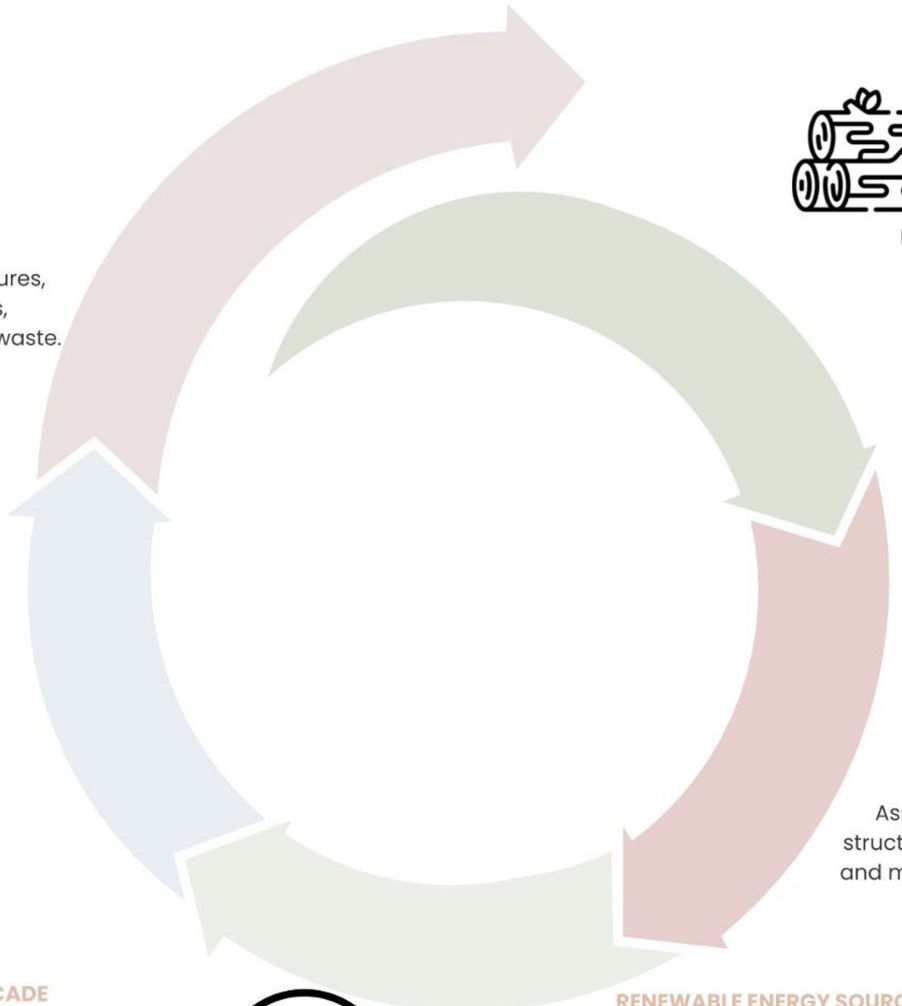
< 30%

< 20%

< 10%



room daylighting assessment



MATERIAL RECYCLING
Recycling of concrete structures, reuse of timber elements, minimisation of construction waste.

DEMOUNTABLE FACADE

USE OF LOCAL MATERIALS

MODULATION

PREFABRICATION

PRODUCTION
Production of building materials; prefabricated structures, timber infill structures, use of environmentally friendly and recyclable materials.

REDUCTION OF CONSTRUCTION WASTE

Efficient construction organisation and precise material planning

MODULATION

PREFABRICATION

CONSTRUCTION
Assembly of prefabricated structures, material optimisation and minimisation of construction waste

REDUCTION OF CONSTRUCTION WASTE

I aimed to reduce waste already through the design of the building itself. The design works with standard material dimensions in order to avoid unnecessary offcuts. A significant saving is achieved through the ENVILOP building envelope, which eliminates the need for additional façade insulation and minimises the amount of construction waste.

RENEWABLE ENERGY SOURCES

OPERATION / MAINTENANCE
Energy-efficient building operation, long service life of the load-bearing structure, possibility of maintenance and replacement of timber elements.

DEMOUNTABLE FACADE

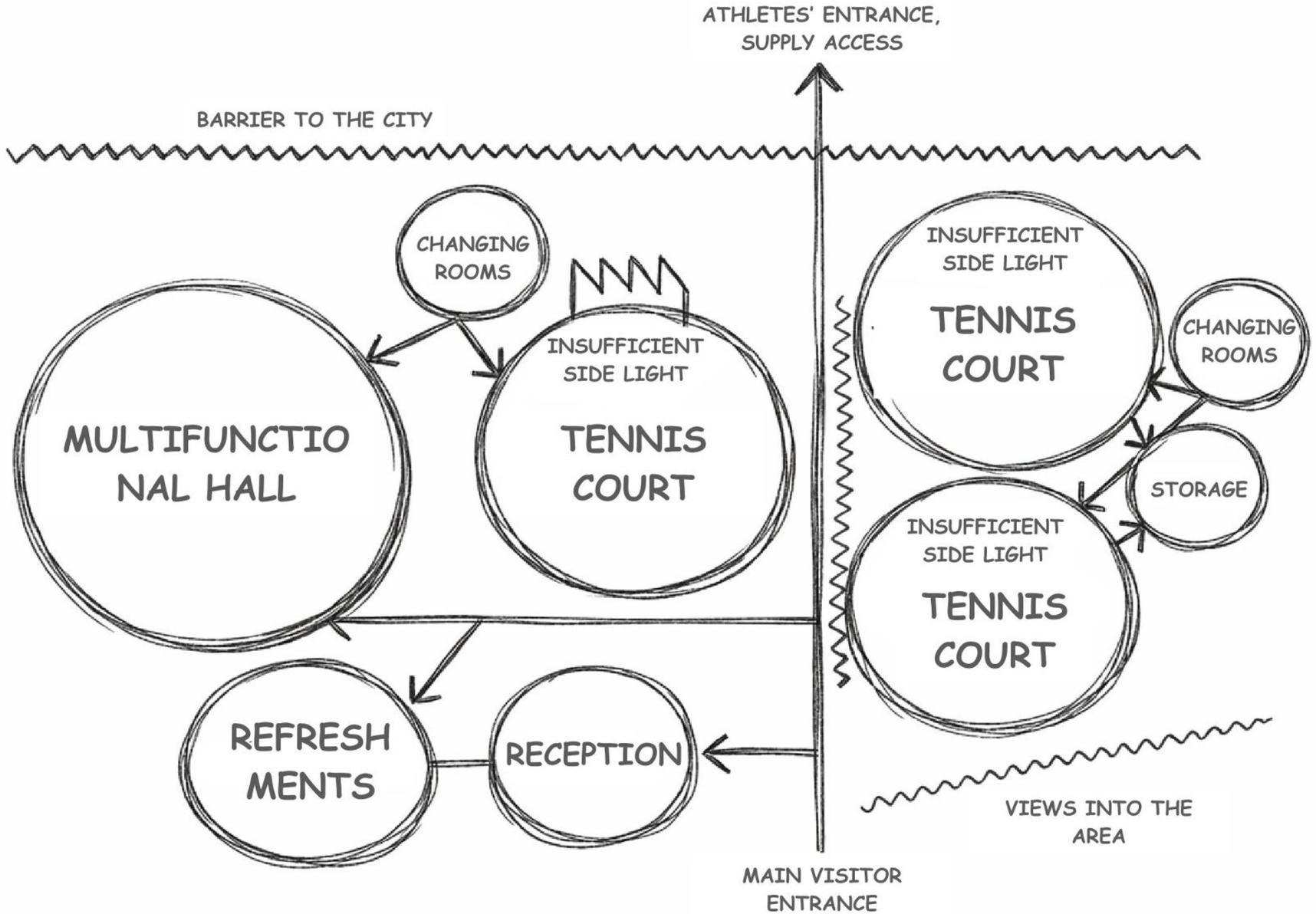
PASSIVE BUILDING

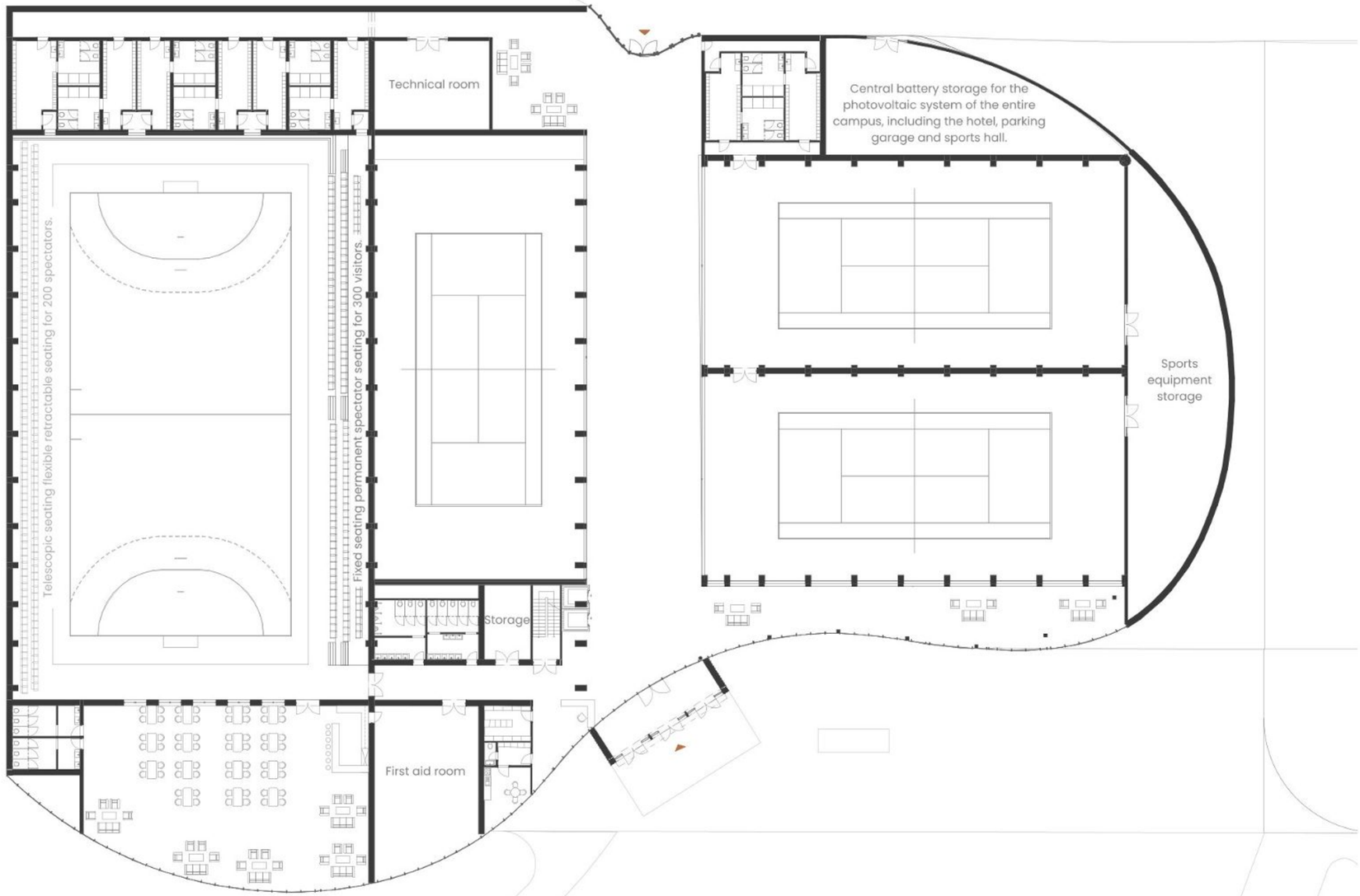
END OF LIFE CYCLE
Separation of timber infill structures, dismantling of the frame, sorting of building materials.

DEMOUNTABLE FACADE

strategies for the building life cycle ending

04 SPORTS HALL

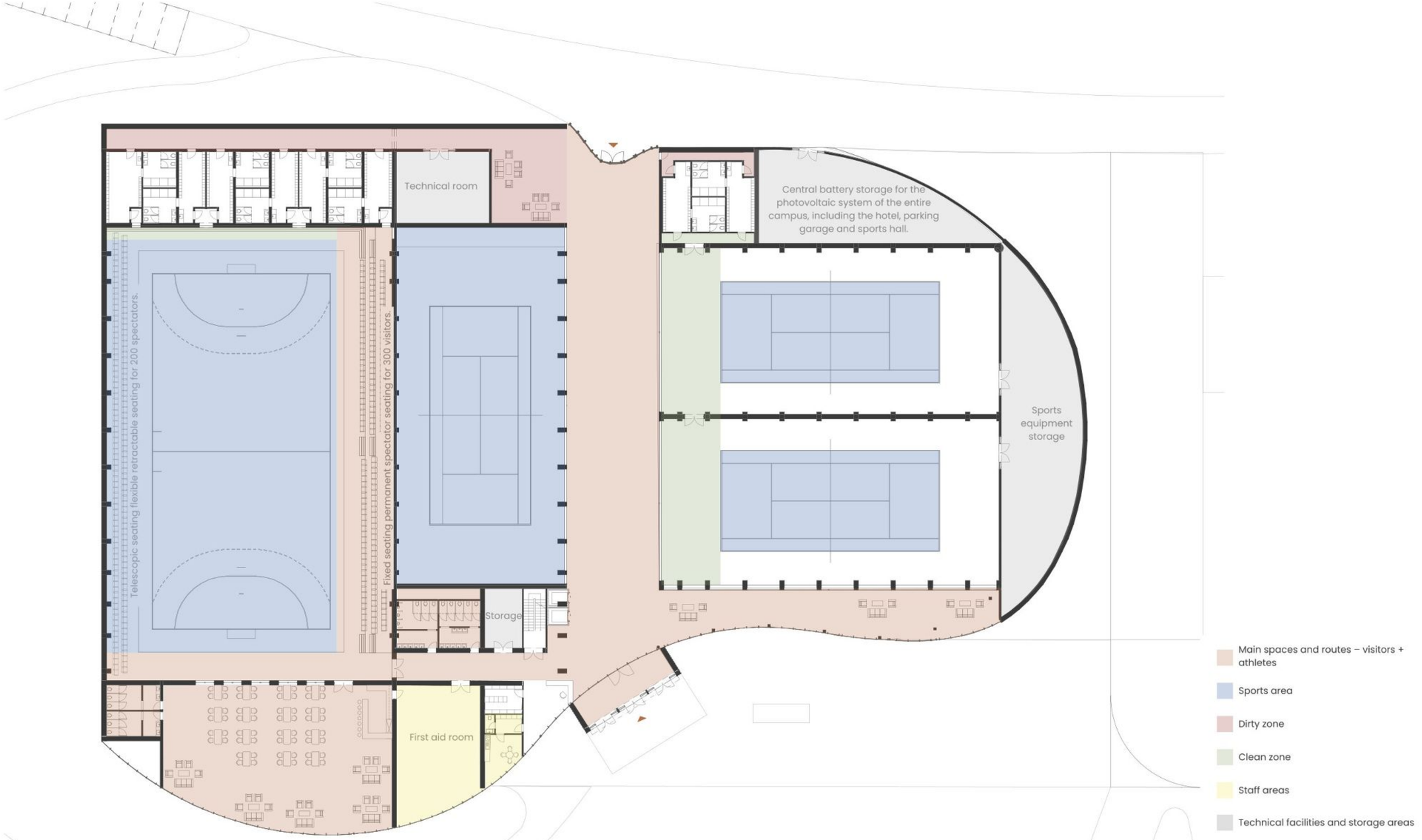

ATHLETES' ENTRANCE,
SUPPLY ACCESS
BARRIER TO THE CITY
CHANGING ROOMS
INSUFFICIENT SIDE LIGHT
TENNIS COURT
MULTIFUNCTIONAL HALL
INSUFFICIENT SIDE LIGHT
TENNIS COURT
CHANGING ROOMS
STORAGE
INSUFFICIENT SIDE LIGHT
TENNIS COURT
REFRESHMENTS
RECEPTION
VIEWS INTO THE AREA
MAIN VISITOR ENTRANCE



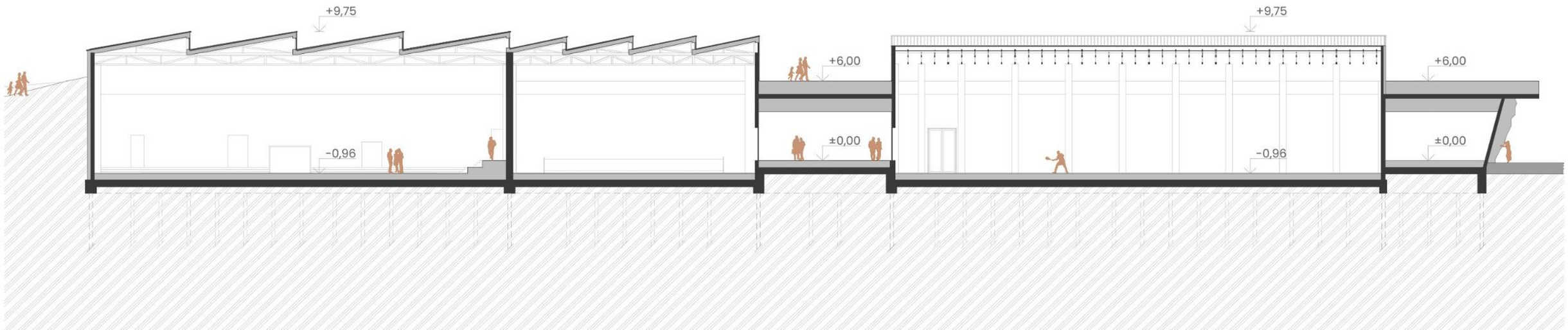
M 1:350

0 5 25m

sports hall – 1st floor plan



1st floor plan – clean and dirty corridor



M 1:350

0 5 25m

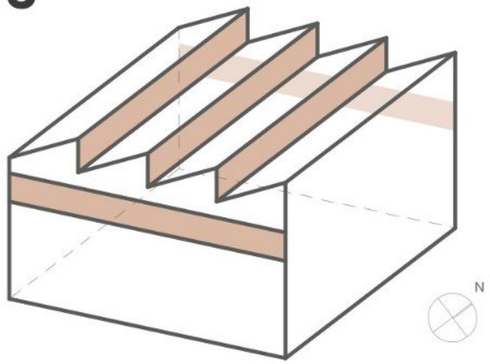
sports hall – section

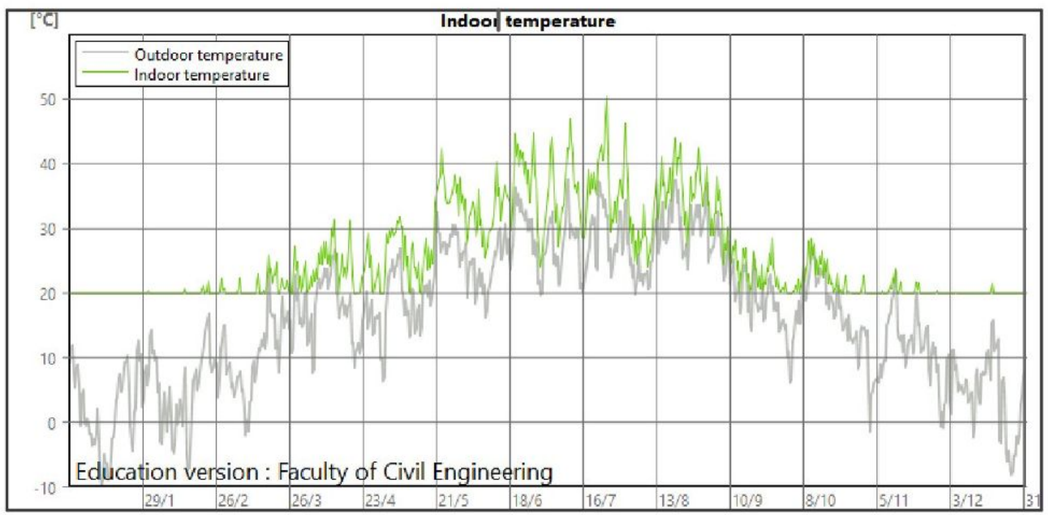
M 1:350

0 5 25m

sports hall – elevations

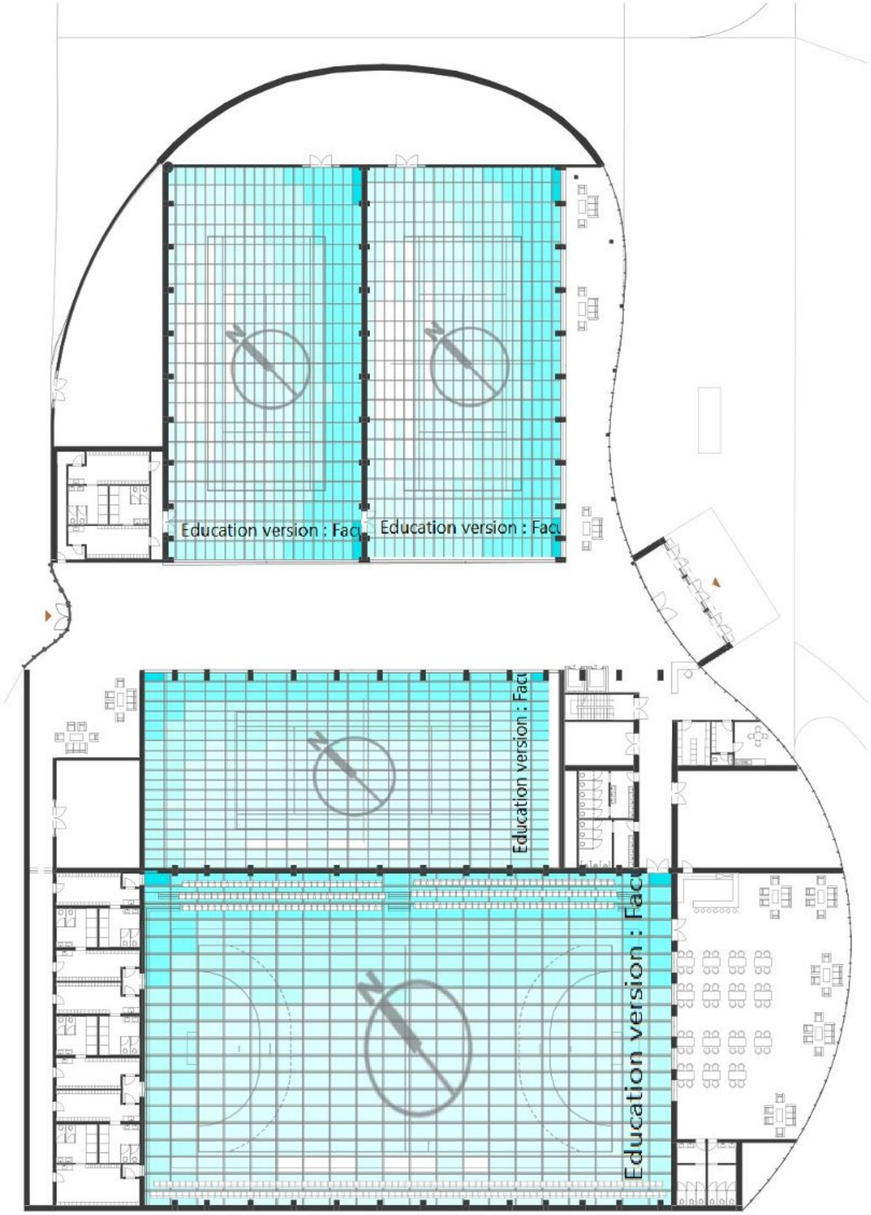
1 Variant 1 – south- and north-facing windows and shed roof



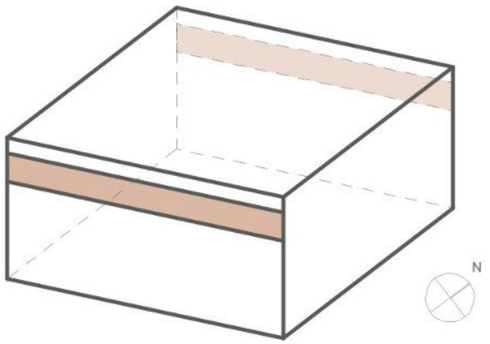


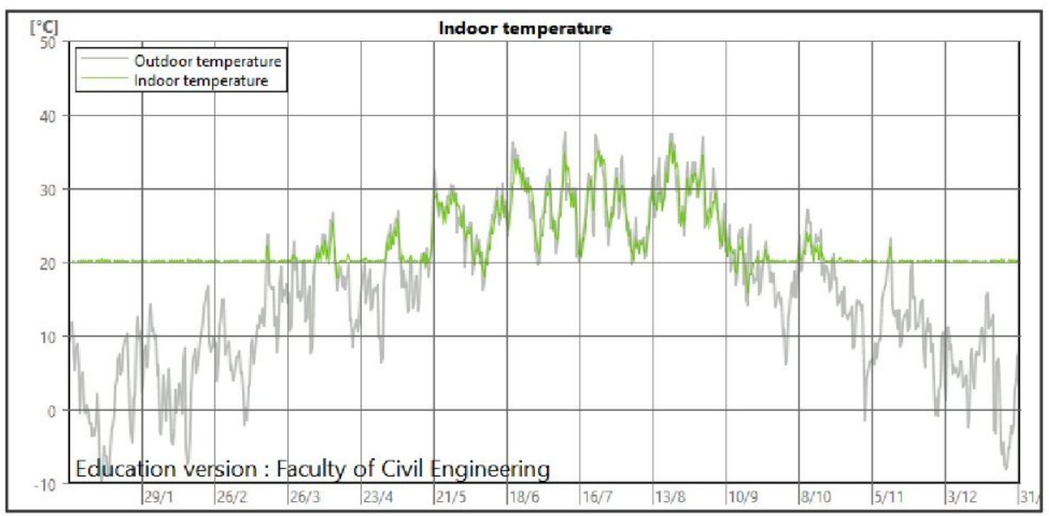
	Hours Ti >T_{max}	Heating demand	Coolind demand
South- and north-facing windows and shed roof	1812 h	123 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.



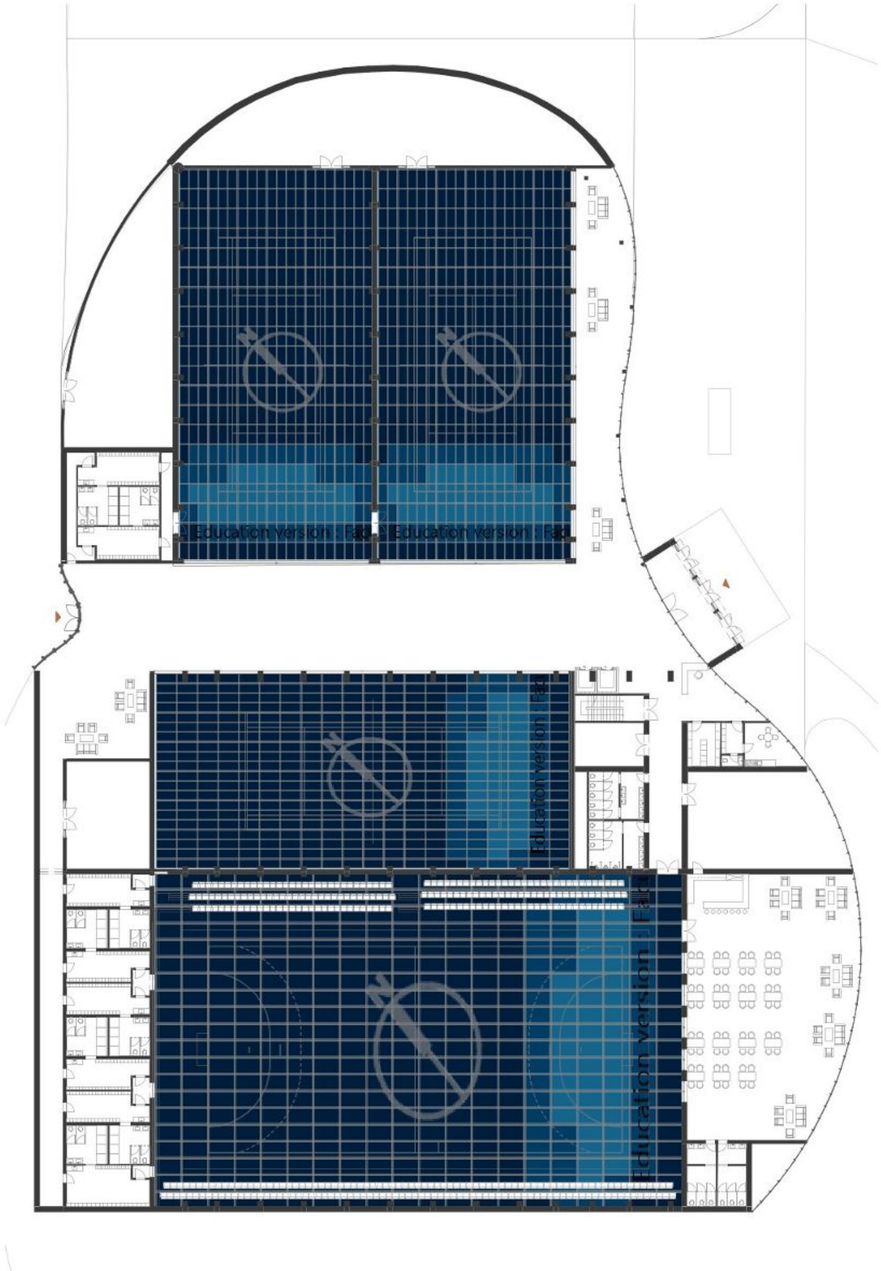
2 Variant 2 – south- and north-facing windows without shading



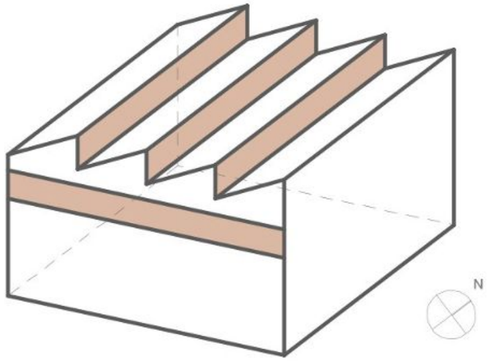


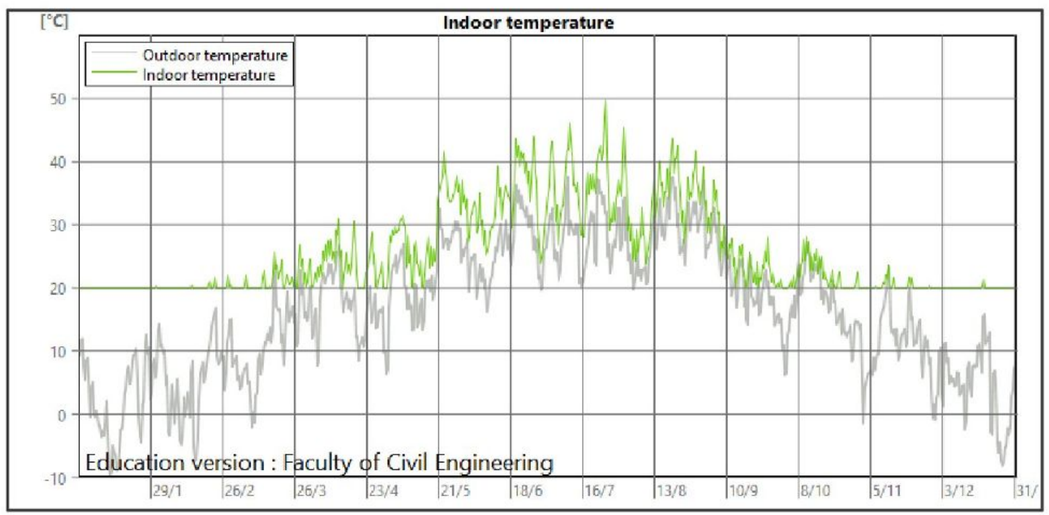
	Hours Ti > T_{max}	Heating demand	Coolind demand
South- and north-facing windows without shading	1014 h	109 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.



3 Variant 3 – south facing windows and shed roof

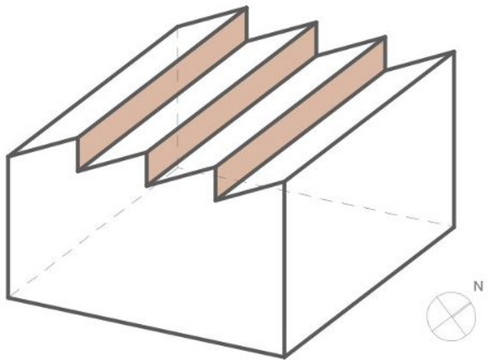


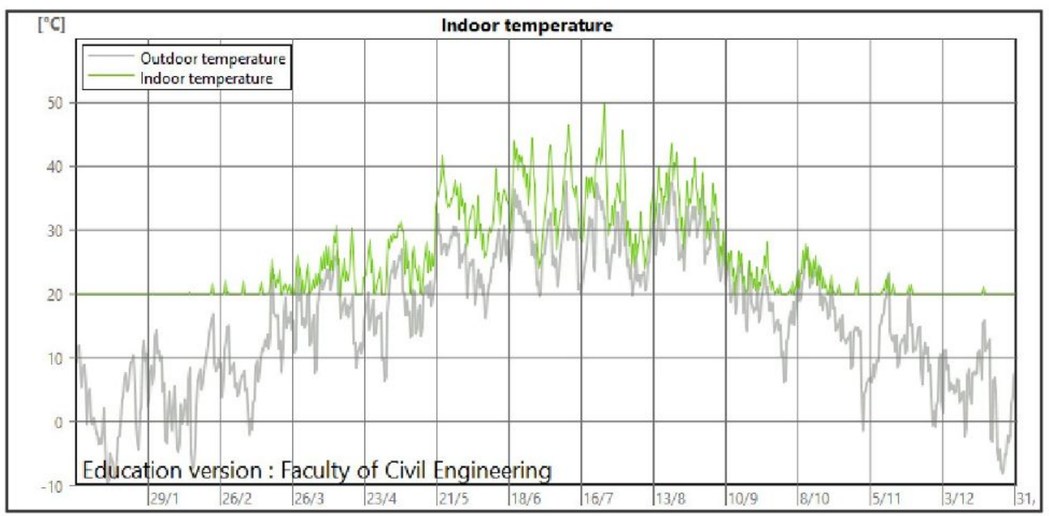


	Hours Ti >T_{max}	Heating demand	Coolind demand
South facing windows and shed roof	1756 h	123 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

4 Variant 4 - shed roof



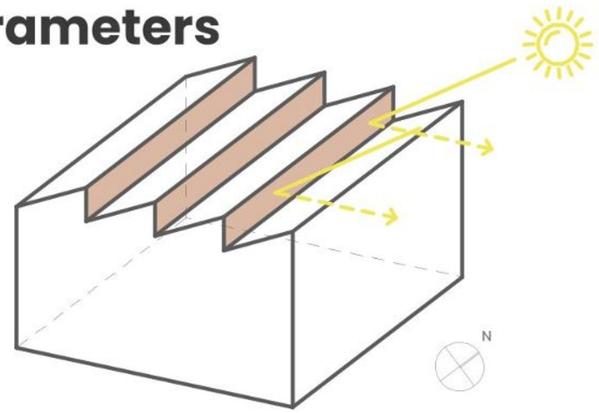


	Hours Ti >T_{max}	Heating demand	Coolind demand
Shed roof	1739 h	126 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

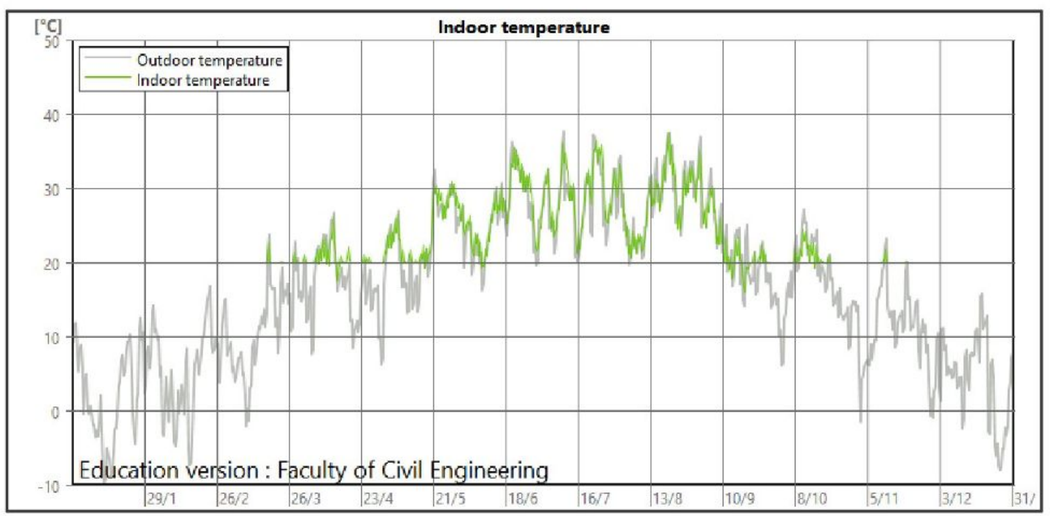
daylighting vs. overheating – variant 4

5 Variant 5 - shed roof, modified glazing parameters



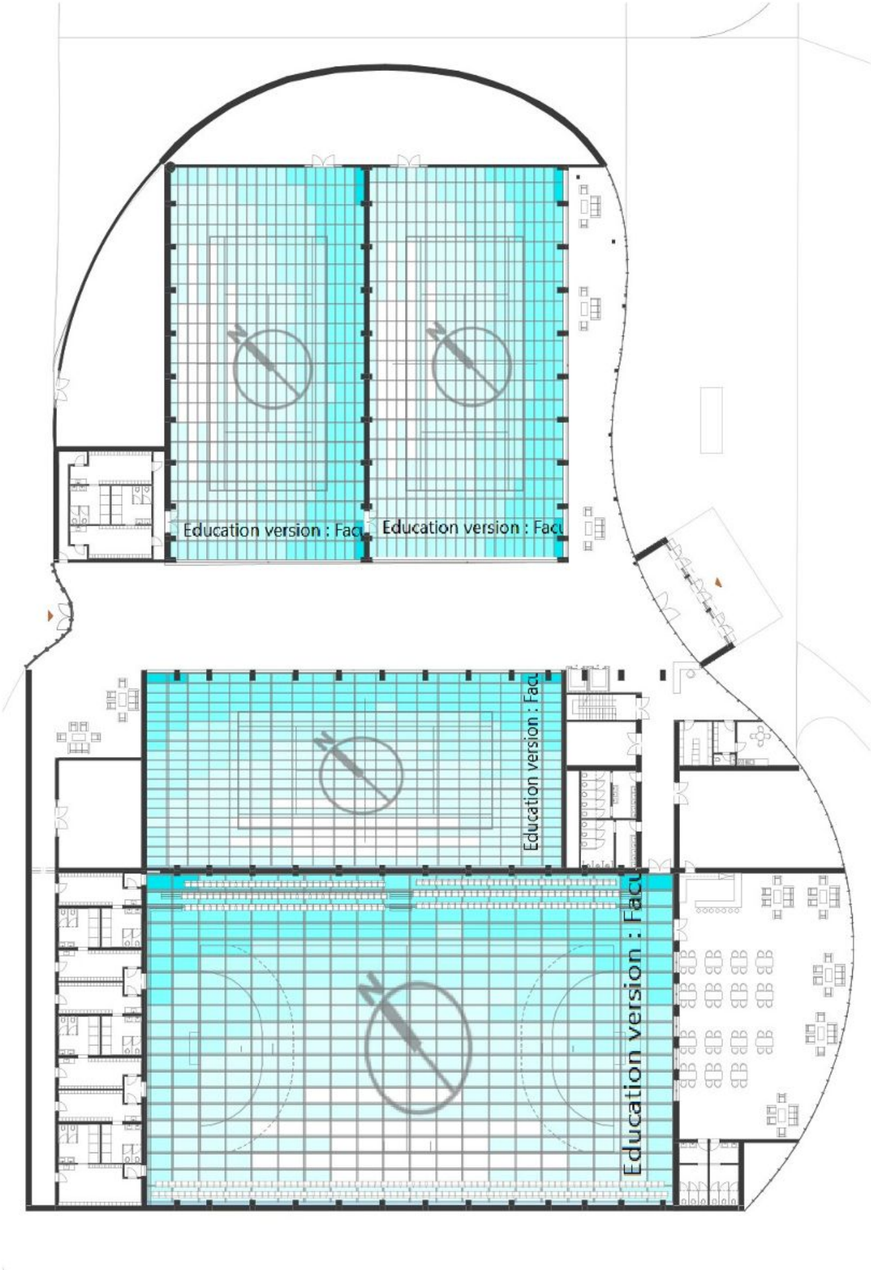
GLAZING PARAMETERS

Window heat transfer coefficient Uw = 0.62 W/m²K
Uw=0,62 W/m²K (with Ug 0,5W/m2K)
Ug=0,5W/m²K;
g=0,1

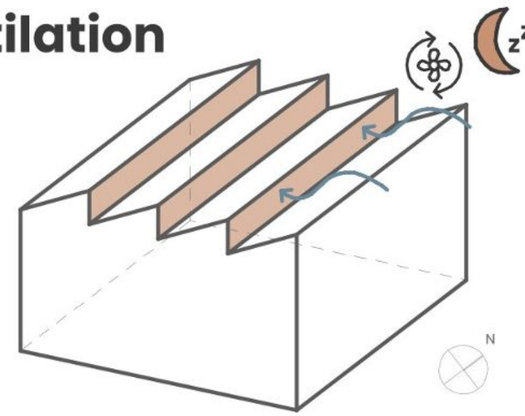


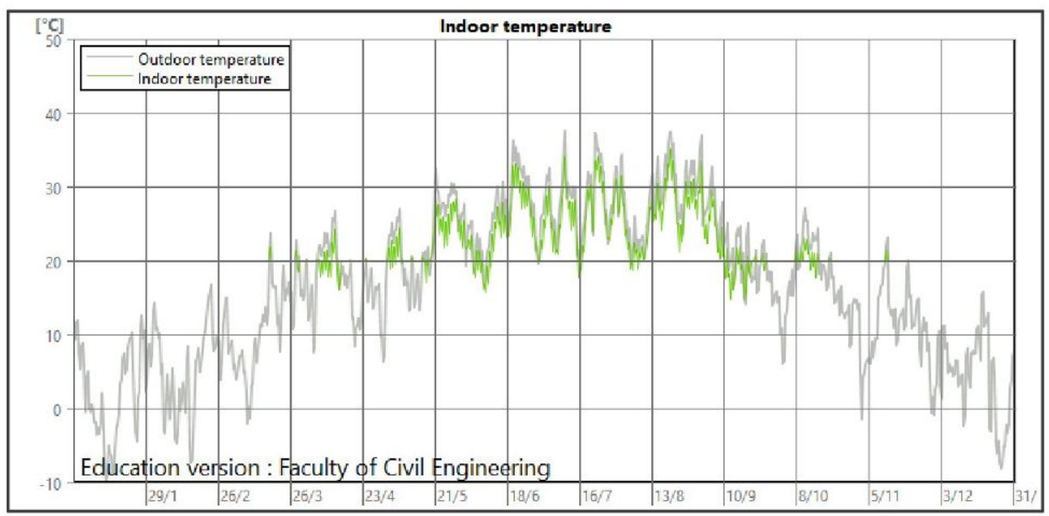
	Hours Ti >T_{max}	Heating demand	Coolind demand
shed roof, modified glazing parameters	823 h	150 kWh/m²	0 kWh/m²

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.



6 Variant 6 – shed roof + night ventilation

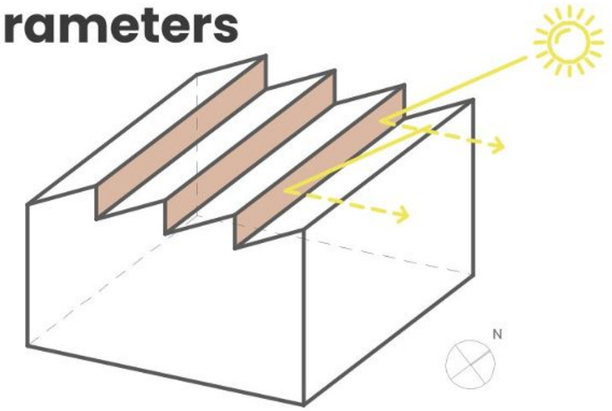




	Hours Ti >T_{max}	Heating demand	Coolind demand
shed roof + night ventilation	654 h	227 kWh/m^2	0 kWh/m^2

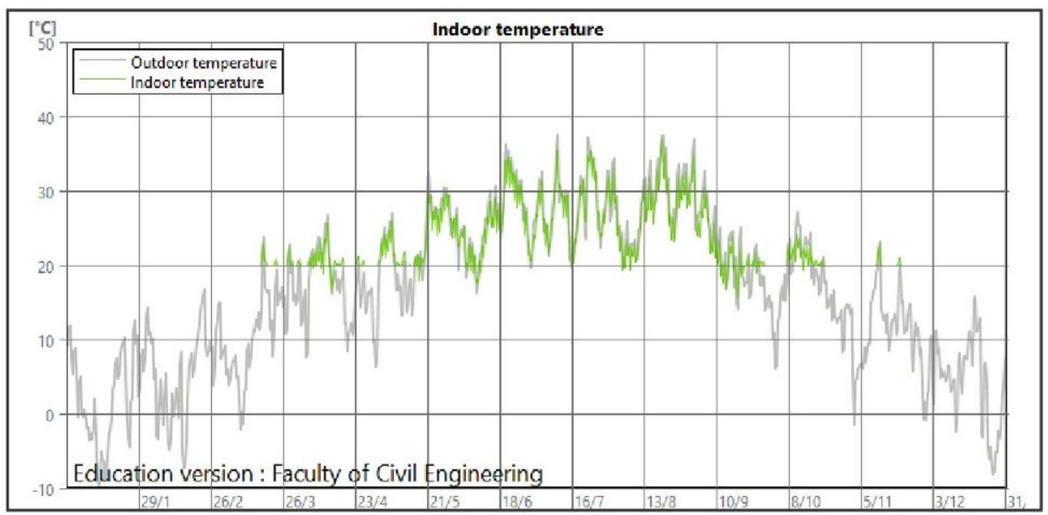
The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

7 Variant 7 - shed roof, modified glazing parameters



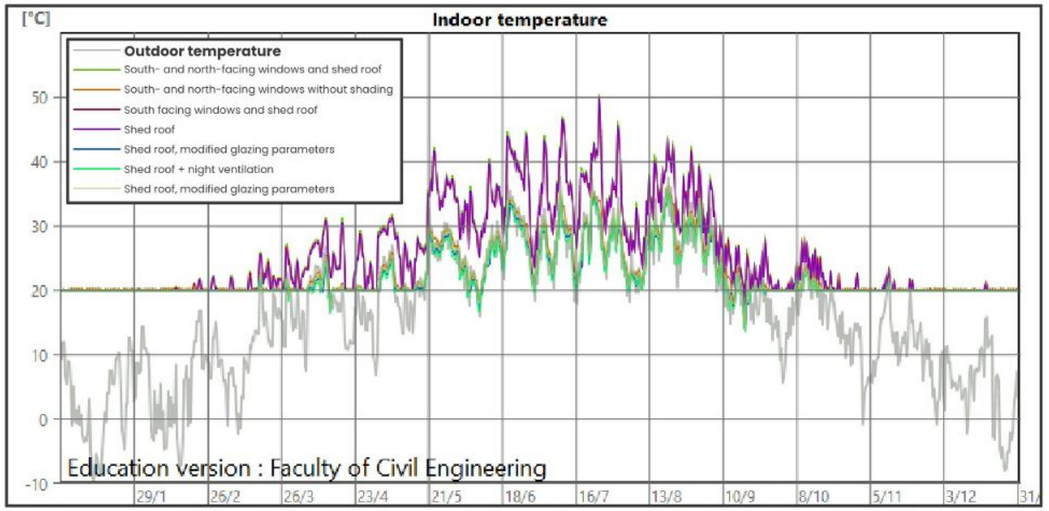
GLAZING PARAMETERS

Window heat transfer coefficient Uw = 0.62 W/m²K
Uw=0,62 W/m²K (with Ug 0,5W/m2K)
Ug=0,5W/m²K;
g=0,25



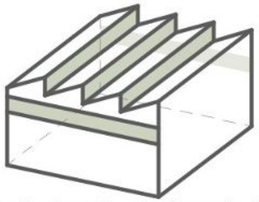
	Hours Ti >T_{max}	Heating demand	Coolind demand
shed roof, modified glazing parameters	829 h	222 kWh/m^2	0 kWh/m^2

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

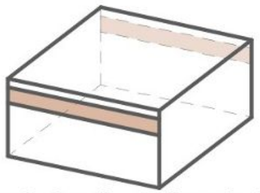


	Hours Ti >T_{max}	Heating demand	Coolind demand
South- and north-facing windows and shed roof	1812 h	123 kWh/m^2	0 kWh/m^2
South- and north-facing windows without shading	1014 h	109 kWh/m^2	0 kWh/m^2
South facing windows and shed roof	1756 h	123 kWh/m^2	0 kWh/m^2
Shed roof	1739 h	126 kWh/m^2	0 kWh/m^2
Shed roof, modified glazing parameters	823 h	150 kWh/m^2	0 kWh/m^2
Shed roof + night ventilation	654 h	227 kWh/m^2	0 kWh/m^2
Shed roof, modified glazing parameters	829 h	222 kWh/m^2	0 kWh/m^2

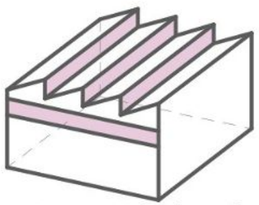
The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.



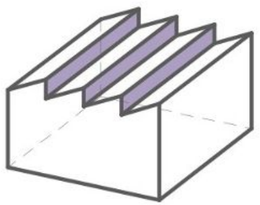
Variant 1 - South- and north-facing windows and shed roof



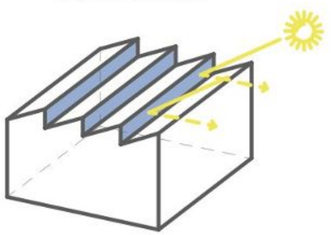
Variant 2 -South- and north-facing windows without shading



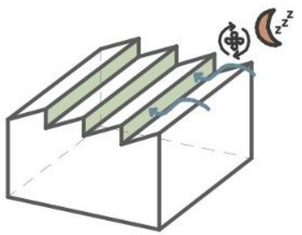
Variant 3 - South facing windows and shed roof



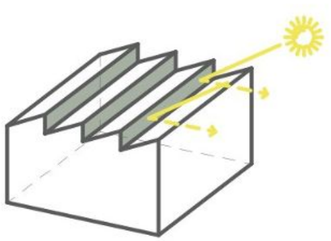
Variant 4 - Shed roof



Variant 5 - Shed roof, modified glazing parameters



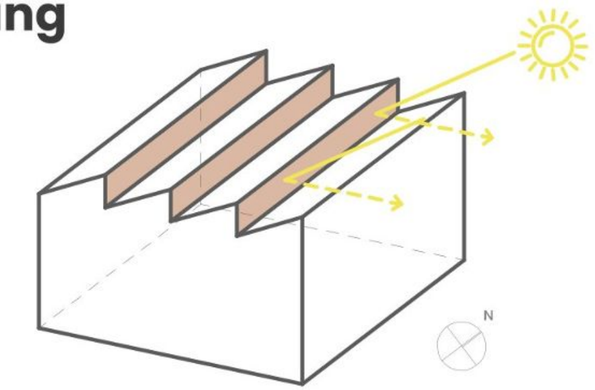
Variant 6 - Shed roof + night ventilation



Variant 7 - Shed roof, modified glazing parameters

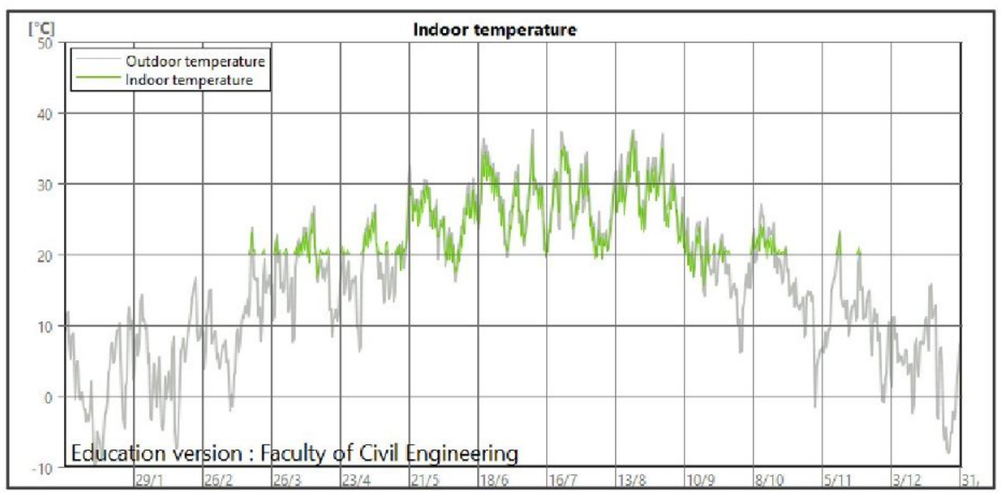
sports hall – comparison of variants in terms of overheating

Selected Variant 7 – shed roof with optimised glazing



GLAZING PARAMETERS

Window heat transfer coefficient Uw = 0.62 W/m²K
Uw=0,62 W/m²K (with Ug 0,5W/m2K)
Ug=0,5W/m²K;
g=0,25

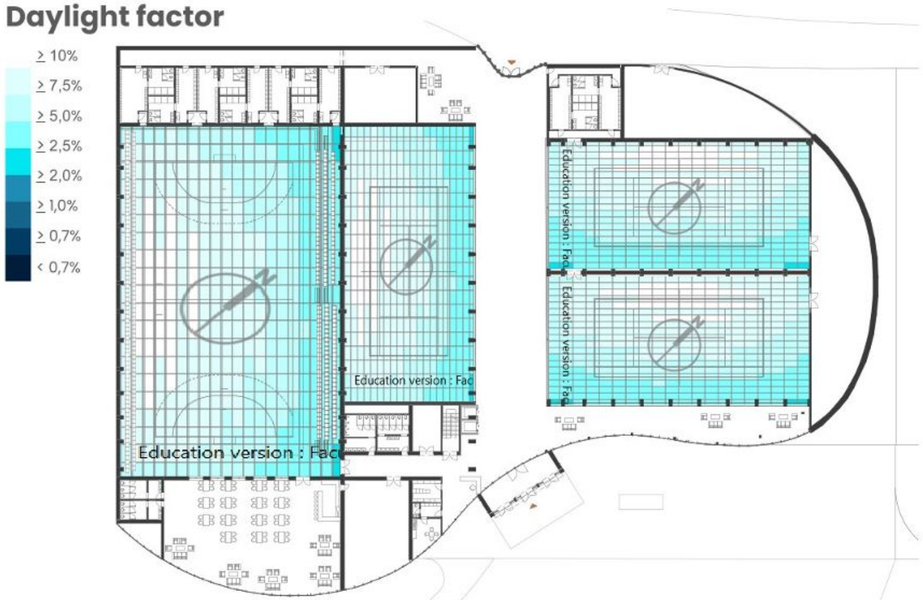


	Hours Ti >T_{max}	Heating demand	Coolind demand
Shed roof, modified glazing parameters	829 h	222 kWh/m^2	0 kWh/m

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

Daylight autonomy

Daylight factor




sports hall – visualisati

05 PARKING GARAGE WITH RETAIL

M 1:200
0 2 12m

Parking Garage

Parking capacity: 174 parking spaces
Function: parking facility for visitors, athletes and staff
Connection: direct pedestrian link to the sports campus and public riverfront

Sports Equipment Retail

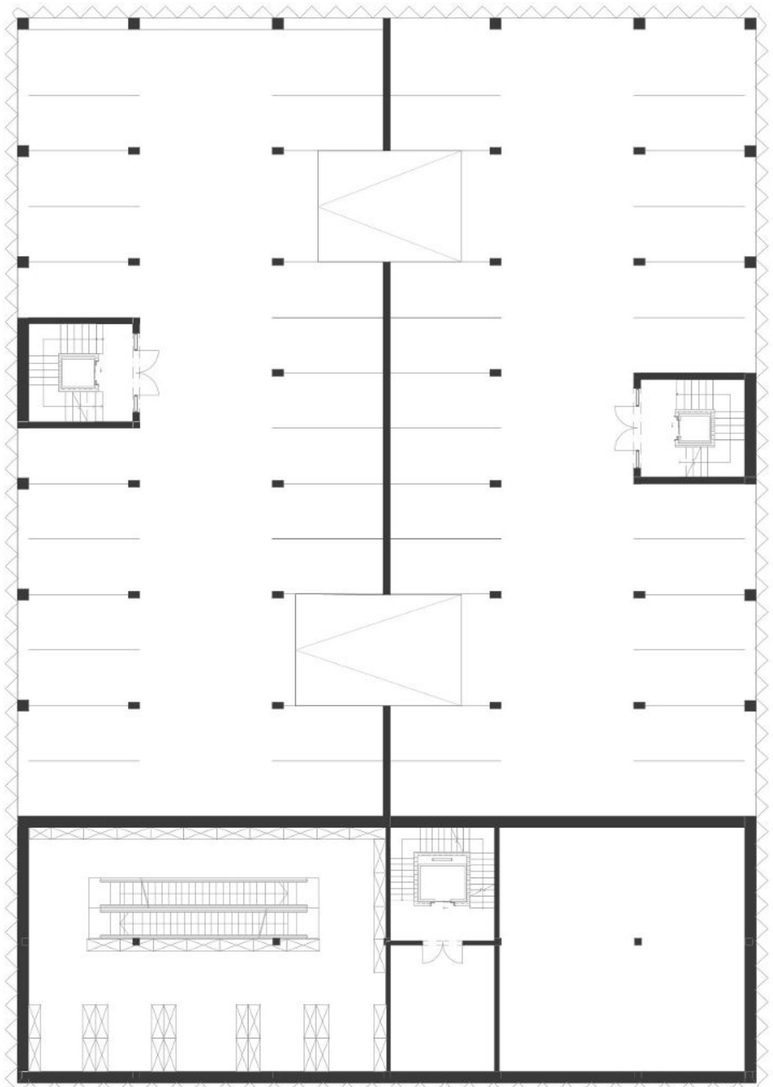
retail area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

Storage areas:
storage area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

Operational facilities:
service and operational areas are located on all retail floors

Connection: direct pedestrian link to the sports campus and public riverfront promenade

1st floor plan



Parking Garage

Parking capacity: 174 parking spaces
Function: parking facility for visitors, athletes and staff
Connection: direct pedestrian link to the sports campus and public riverfront

Sports Equipment Retail

retail area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

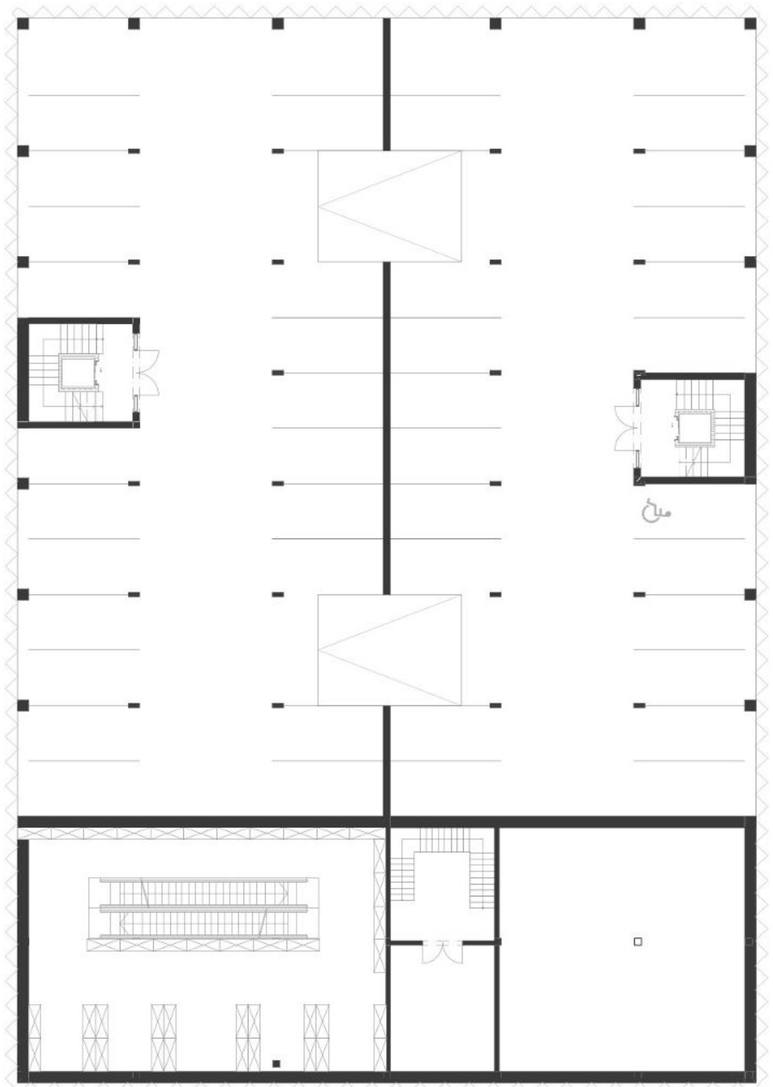
Storage areas:
storage area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

Operational facilities:
service and operational areas are located on all retail floors

Connection: direct pedestrian link to the sports campus and public riverfront promenade

M 1:200
0 2 12m

2nd floor plan



Parking Garage

Parking capacity: 174 parking spaces
Function: parking facility for visitors, athletes and staff
Connection: direct pedestrian link to the sports campus and public riverfront

Sports Equipment Retail

retail area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

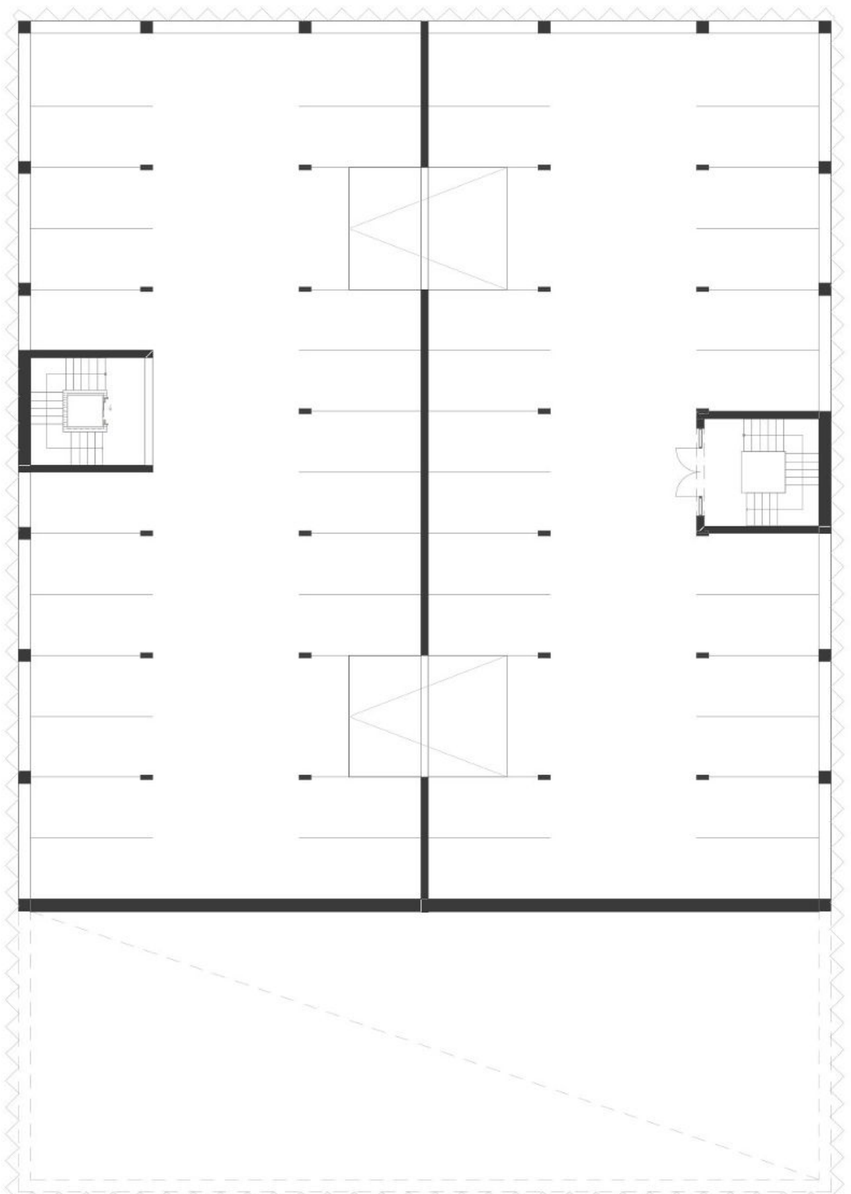
Storage areas:
storage area: 180 m² per floor
number of retail floors: 3 floors
total retail area: 540 m²

Operational facilities:
service and operational areas are located on all retail floors

Connection: direct pedestrian link to the sports campus and public riverfront promenade

M 1:200
0 2 12m

3rd floor plan

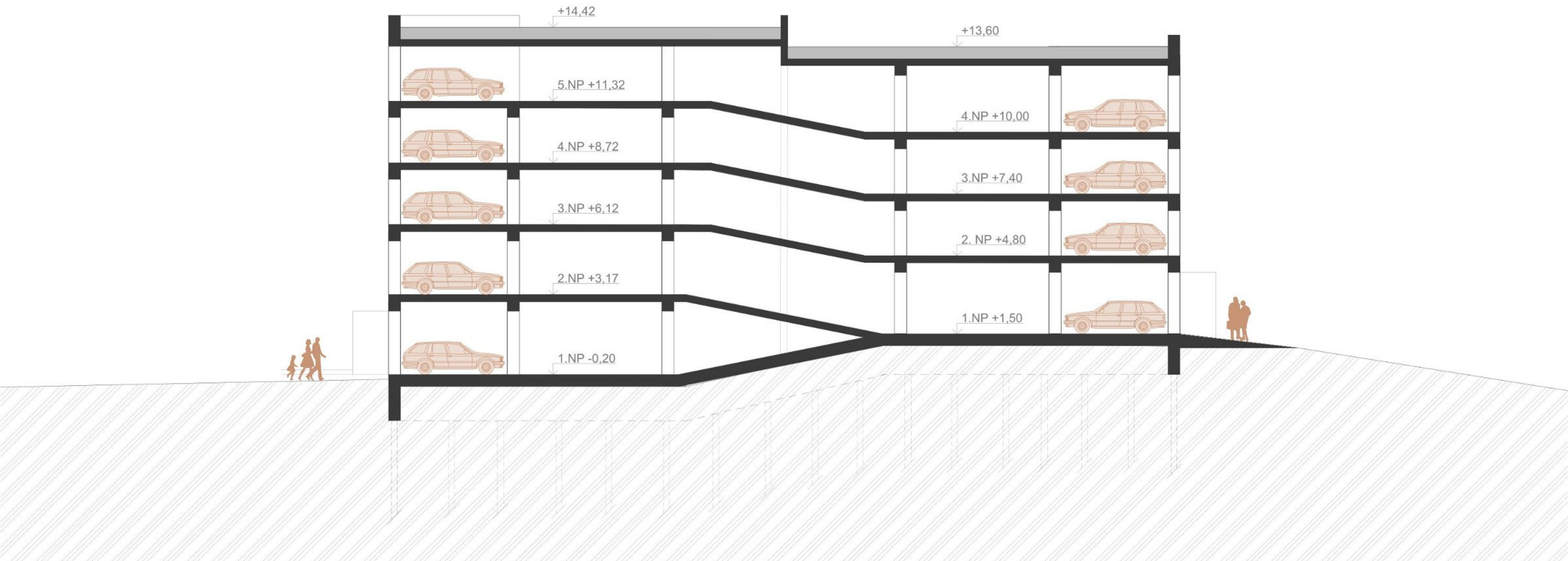


Parking Garage

Parking capacity: 174 parking spaces
Function: parking facility for visitors, athletes and staff
Connection: direct pedestrian link to the sports campus and public riverfront

M 1:200
0 2 12m

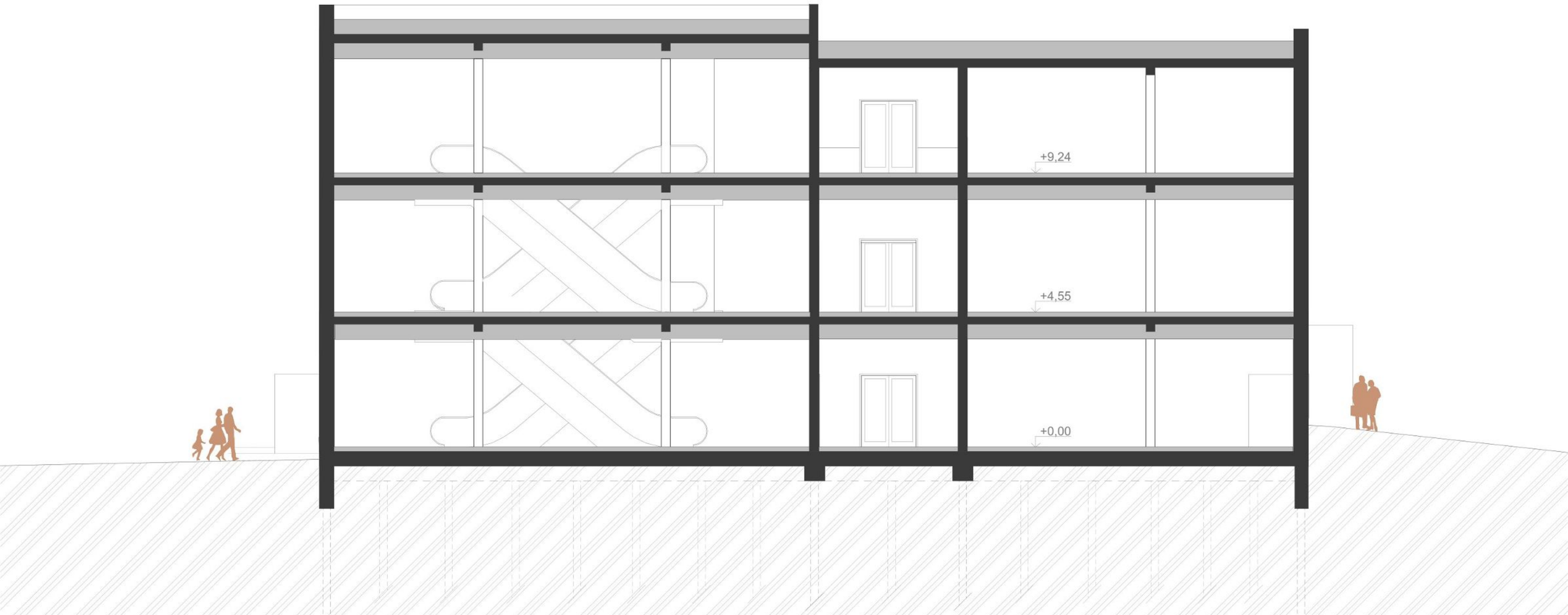
4th floor plan



M 1:125

0 1 4m

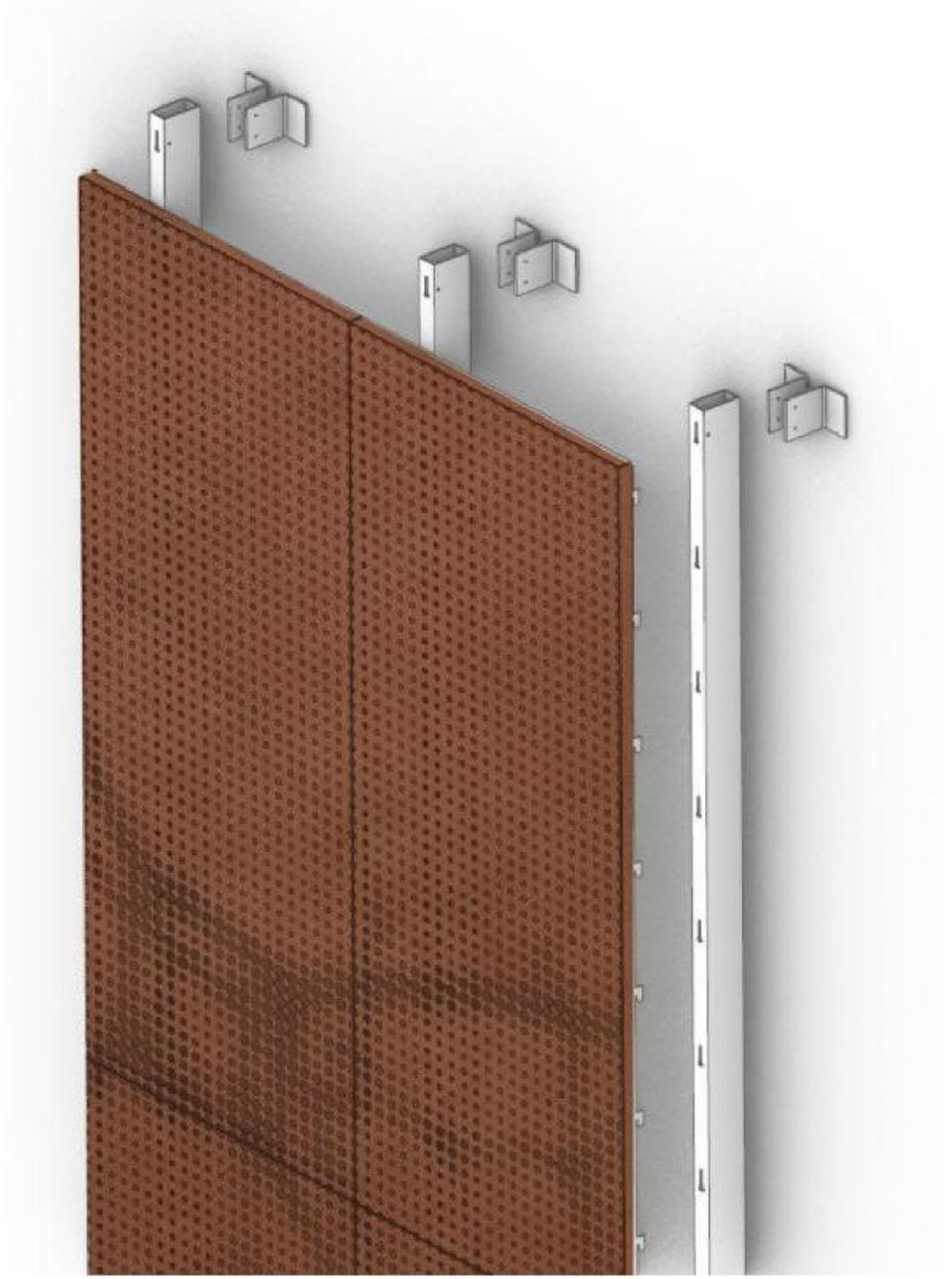
section through the parking garage



M 1:125

0 1 4m

section through the retail unit



FACADE PANELS

The facade detail is designed as a ventilated envelope with perforated metal panels anchored to a secondary supporting structure. The panels are considered to be made of aluminium or steel sheet with perforation, providing partial shading, filtering of views and lightening of the overall facade expression.

The panel surface is treated with a photocatalytic layer based on titanium dioxide nanoparticles (TiO_2), applied by spraying or coating onto the finished surface. When exposed to UV radiation from daylight, a photocatalytic reaction is activated on the surface. This process creates highly reactive particles capable of decomposing selected harmful substances in the air, especially volatile organic compounds (VOCs) and nitrogen oxides (NOx). These substances are subsequently converted into less harmful compounds, which are washed off the treated surface by rainwater.

The active surface treatment therefore gives the perforated metal panels not only an architectural, climatic and aesthetic function, but also an environmental effect.

06 YACHT CLUB

Inefficient layout solution
unclear entrance organisation
functions are not logically separated
lack of high-quality connection to the riverfront
consequence: complicated operation and poorer usability of the building

Outdated technical solution
probably inefficient technologies
absence of renewable energy sources
insufficient ventilation

Risk of interior overheating
large glazed areas without shading
orientation towards the water surface increases solar gains
absence of passive shading elements
consequence: high heat gains during the summer period

Insufficient barrier-free design
missing barrier-free entrance to the building
the building operation is not accessible to people with reduced mobility
consequence: limited accessibility and unsuitable operation

Insufficient thermal envelope of the building
older structures without high-quality insulation
thermally inadequate facade and roof
possible thermal bridges
consequence: high energy demand

Insufficient relationship to public space
limited connection to the promenade
unused potential of the riverfront
missing recreational areas
consequence: weak integration into the public space

Difficult island accessibility
complicated connection to the mainland
limited pedestrian accessibility
unclear connection to public routes
consequence: poorer accessibility of the site and weak connection to the city

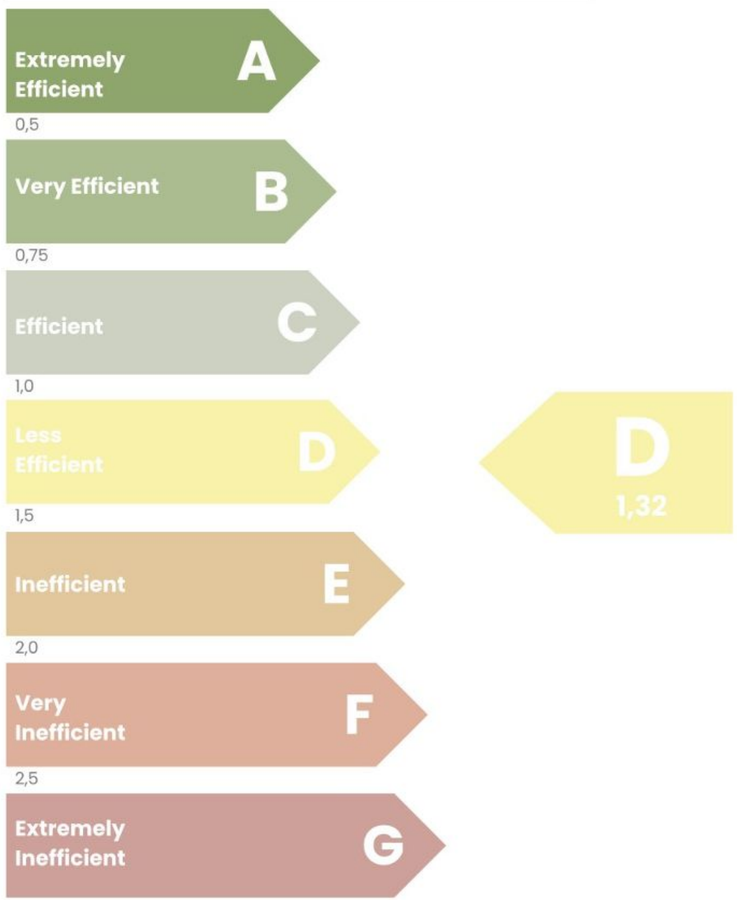
THERMAL BALANCE

Average heat transfer coefficient of the building:

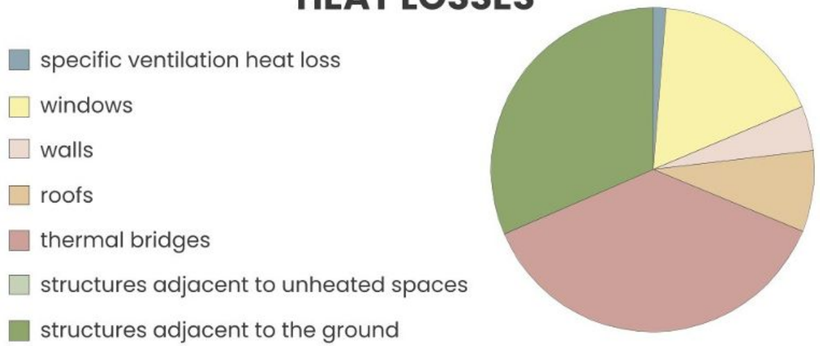
e_A=28,91 kWh/(m²a)

Specific heating demand:

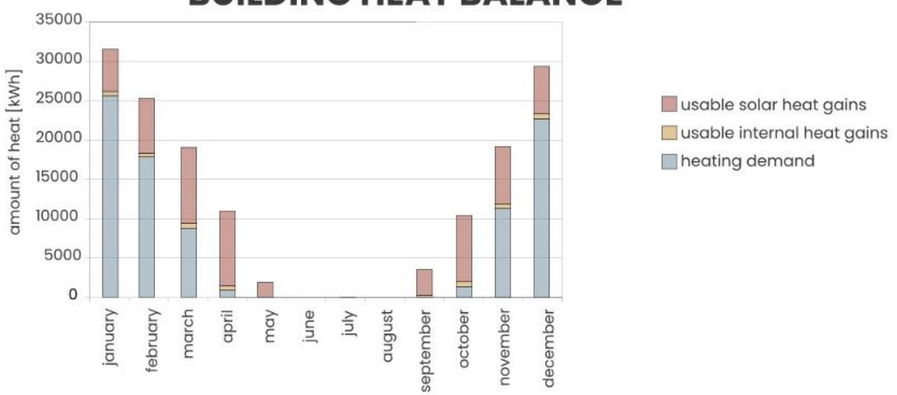
U_{em}=1,32 W/m²K



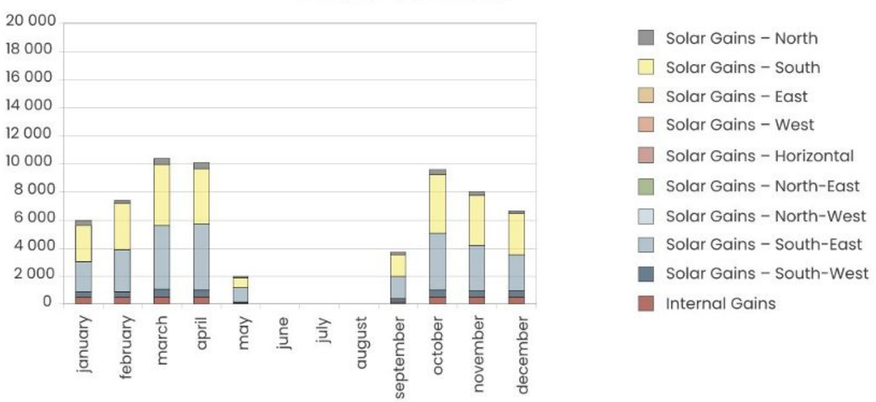
HEAT LOSSES



BUILDING HEAT BALANCE



HEAT GAINS

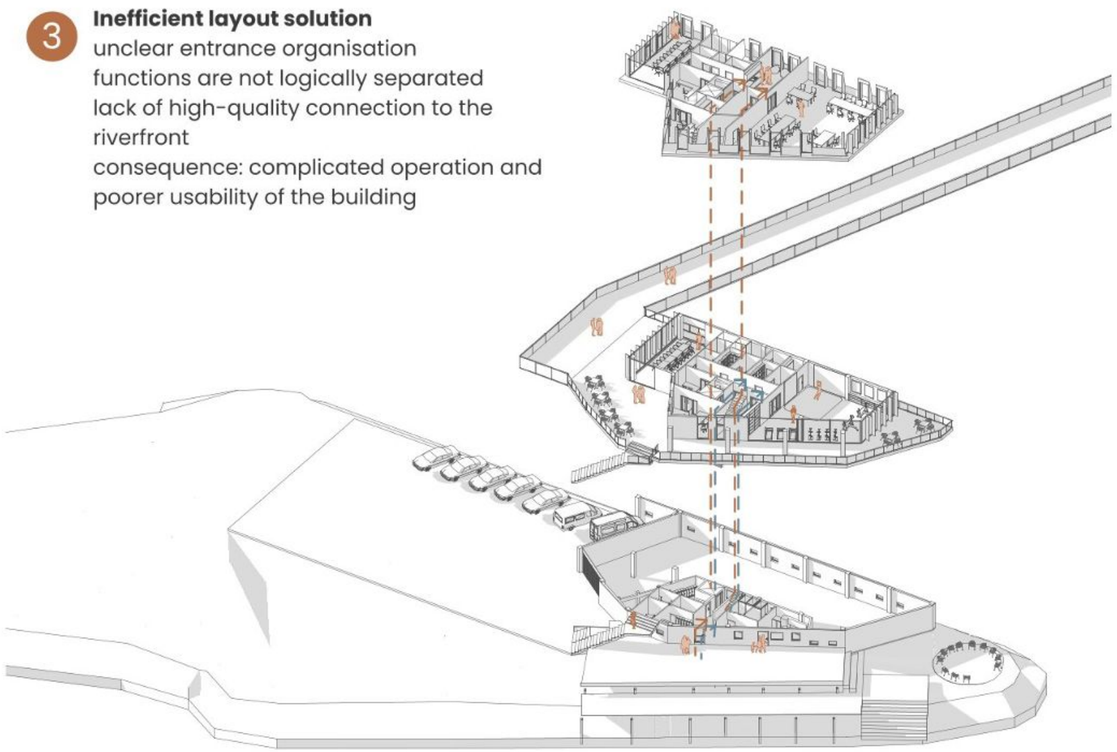


energy performance of the existing condition

1 **Insufficient thermal envelope of the building**
older structures without high-quality insulation
thermally inadequate facade and roof
possible thermal bridges
consequence: high energy demand

2 **Insufficient thermal performance of window and door openings**
thermally inadequate glazing and infill construction parameters, possible thermal bridges
consequence: high energy demand

3 **Inefficient layout solution**
unclear entrance organisation
functions are not logically separated
lack of high-quality connection to the riverfront
consequence: complicated operation and poorer usability of the building

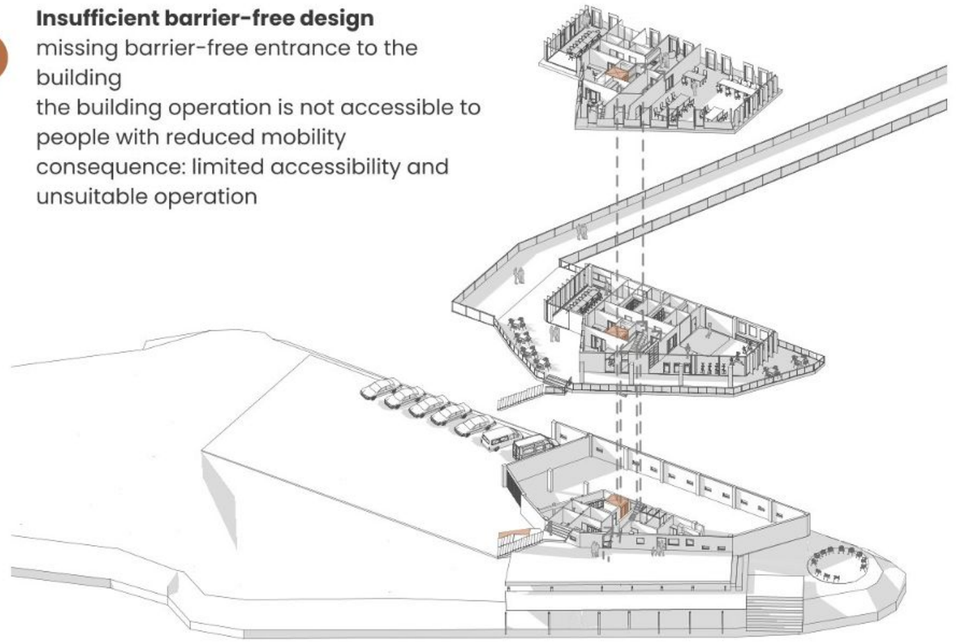


4 **Outdated technical solution**
probably inefficient technologies
absence of renewable energy sources
insufficient ventilation

reconstruction diagram

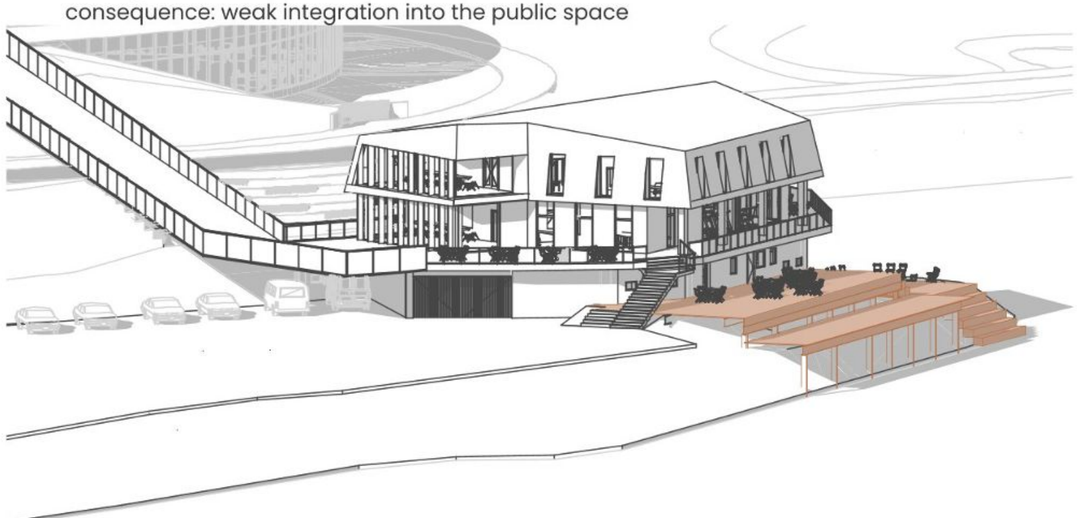
5 **Risk of interior overheating**
large glazed areas without shading
orientation towards the water surface increases solar gains
absence of passive shading elements
consequence: high heat gains during the summer period

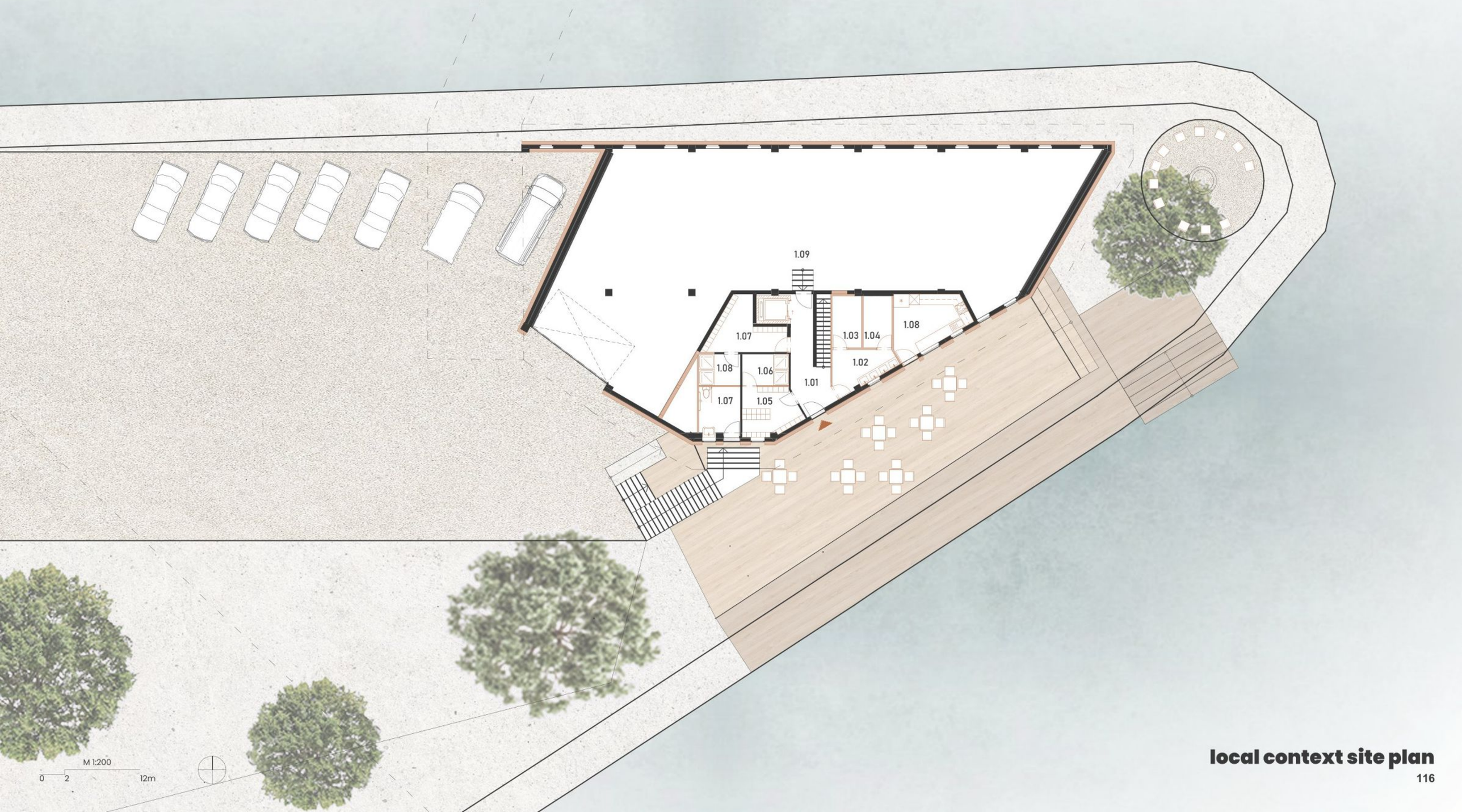
6 **Insufficient barrier-free design**
missing barrier-free entrance to the building
the building operation is not accessible to people with reduced mobility
consequence: limited accessibility and unsuitable operation



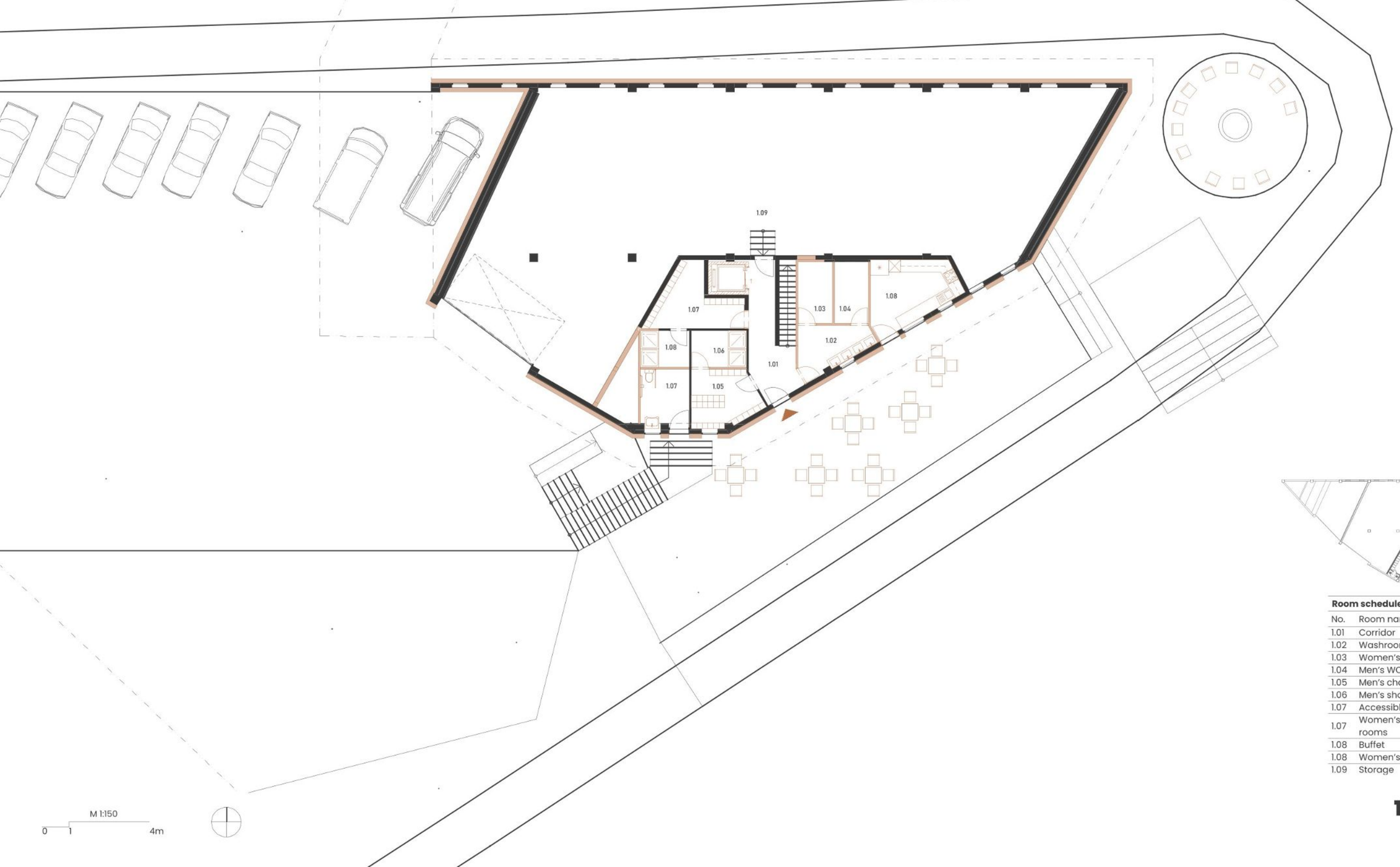
7 **Difficult island accessibility**
complicated connection to the mainland
limited pedestrian accessibility
unclear connection to public routes
consequence: poorer accessibility of the site and weak connection to the city

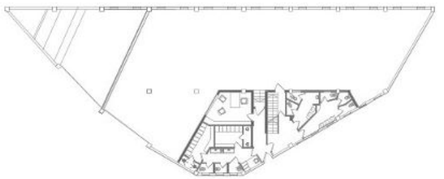
8 **Insufficient relationship to public space**
limited connection to the promenade
unused potential of the riverfront
missing recreational areas
consequence: weak integration into the public space





local context site plan



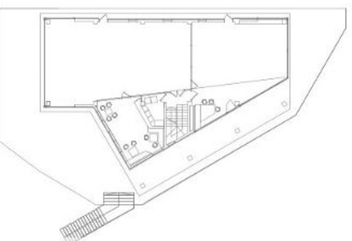


Room schedule – Yacht Club, 1st Floor		
No.	Room name	Area (m2)
1.01	Corridor	17,80
1.02	Washroom	7,22
1.03	Women's WC	5,23
1.04	Men's WC	4,95
1.05	Men's changing room	8,65
1.06	Men's showers	4,86
1.07	Accessible WC	6,97
1.07	Women's changing rooms	9,95
1.08	Buffet	12,54
1.08	Women's showers	4,32
1.09	Storage	291,27

M 1:150

0 1 4m

1st floor plan

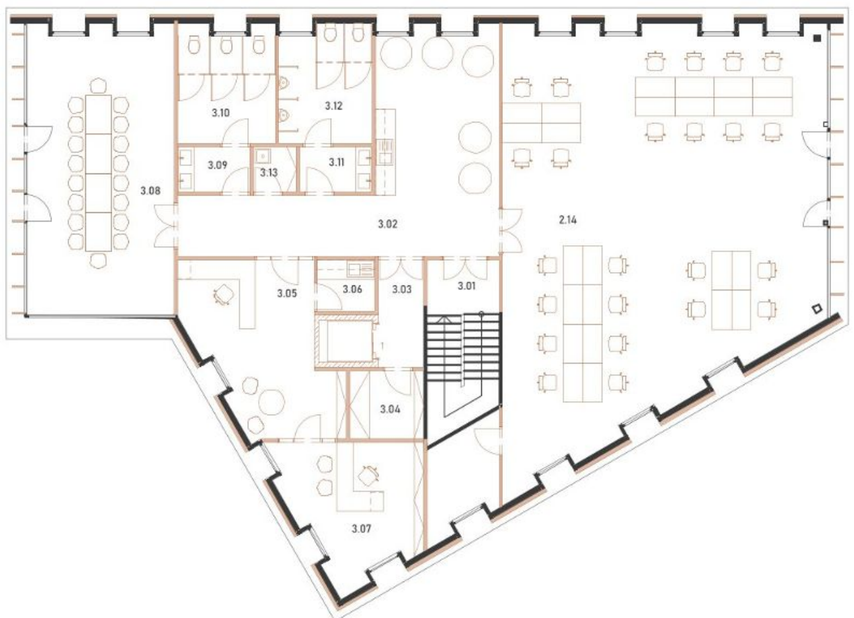


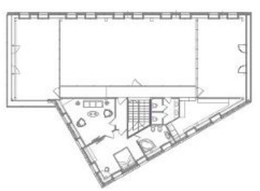
Room schedule – Yacht Club, 2nd Floor		
No.	Room name	Area (m2)
2.01	Staircase	11,62
2.02	Corridor	17,09
2.03	Corridor	7,60
2.04	Meeting room	43,37
2.05	Office	11,17
2.06	Kitchenette	2,95
2.07	Office	17,49
2.08	Women's changing room	5,08
2.09	Women's showers	5,24
2.10	Women's washrooms	2,52
2.11	Women's WC	5,96
2.12	Men's changing room	5,70
2.13	Men's showers	5,31
2.14	Men's washrooms	3,53
2.15	Men's WC	6,56
2.16	Gym	82,69
2.17	Storage	3,21

M 1:150

0 1 4m

2nd floor plan



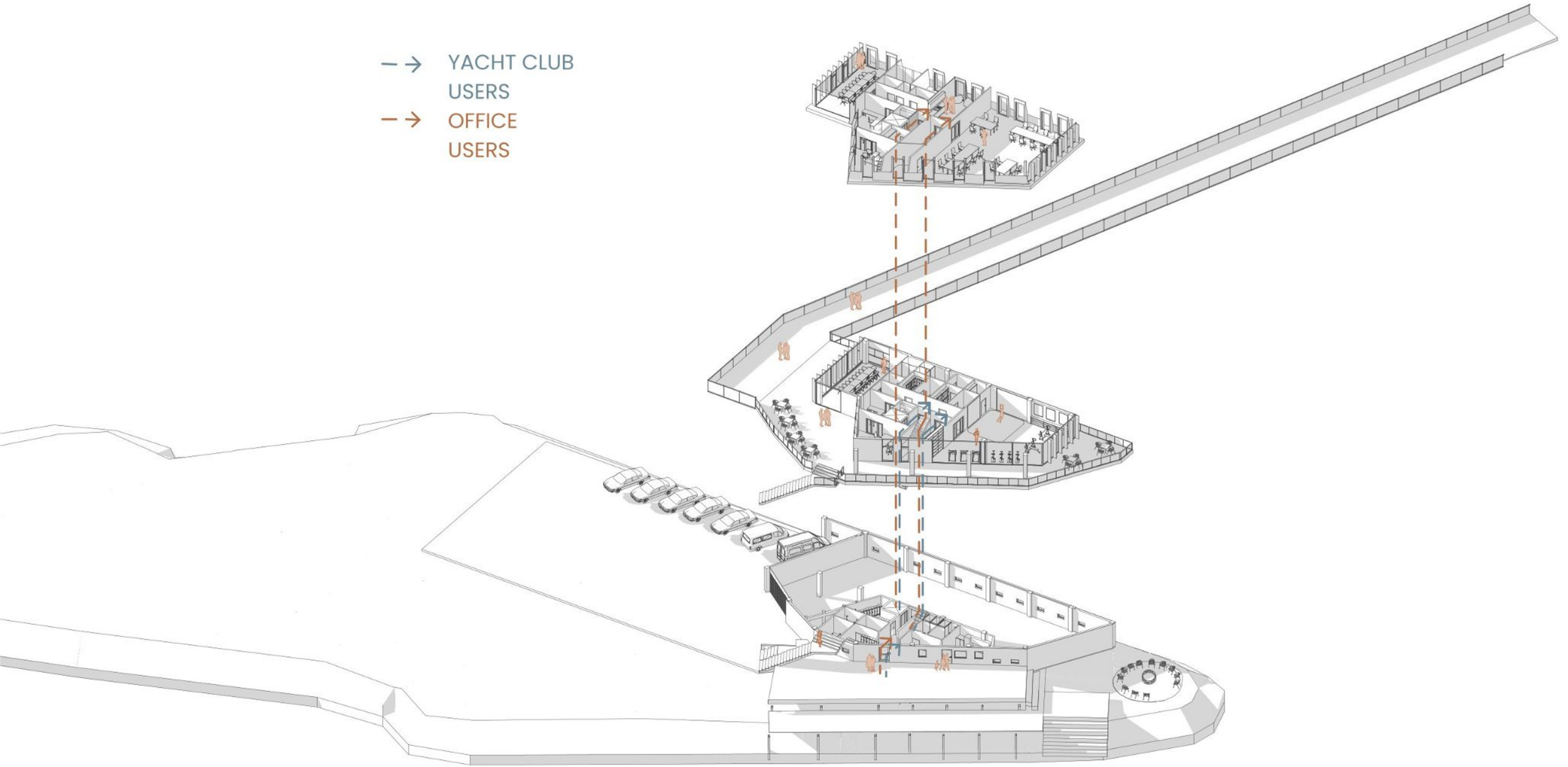


Room schedule – Yacht club, 3rd floor		
No.	Room name	Area (m2)
2.14	Office	116,32
3.01	Staircase	11,23
3.02	Corridor with Kitchenette	37,92
3.03	Corridor	7,60
3.04	Archive	4,78
3.05	Office	19,94
3.06	Kitchenette	2,95
3.07	Office	14,99
3.08	Meeting room	37,75
3.09	Women's washrooms	3,10
3.10	Women's WC	9,94
3.11	Men's washroom	3,13
3.12	Men's WC	10,20
3.13	Cleaning room	1,86

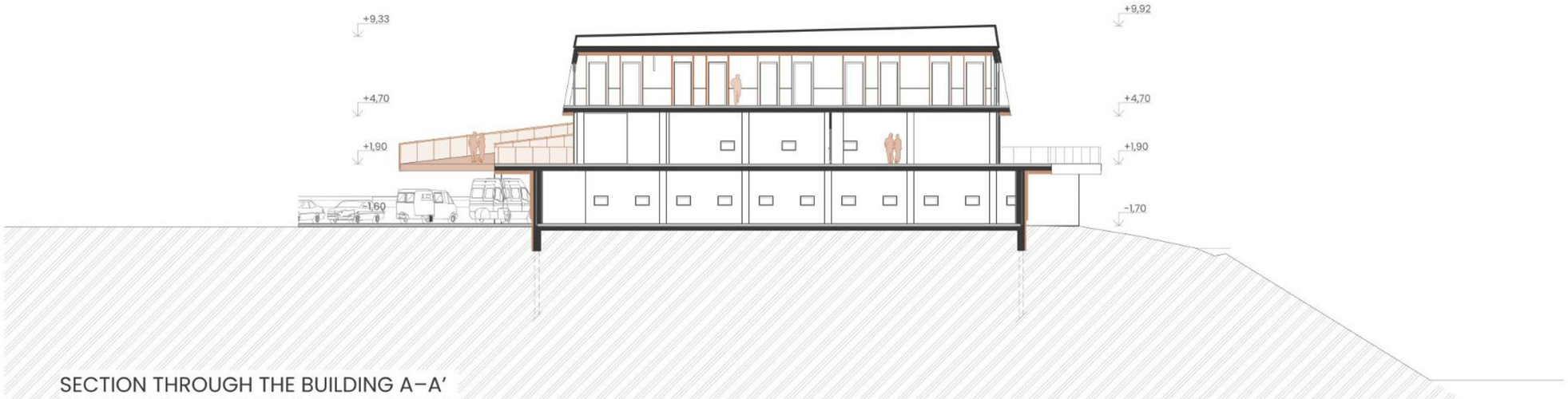
M 1:150

0 1 4m

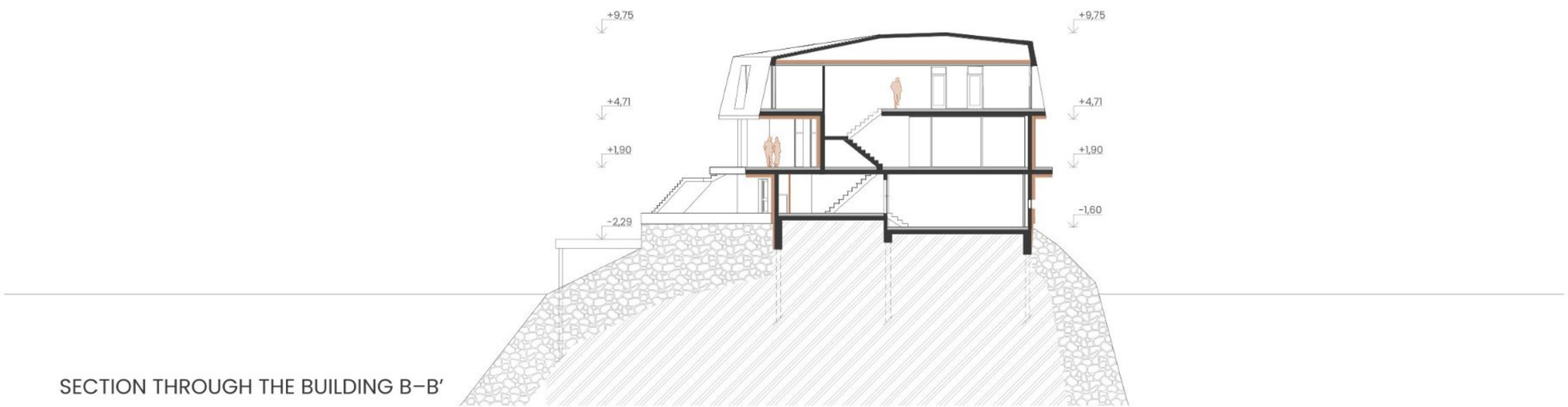
3rd floor plan



operational diagram



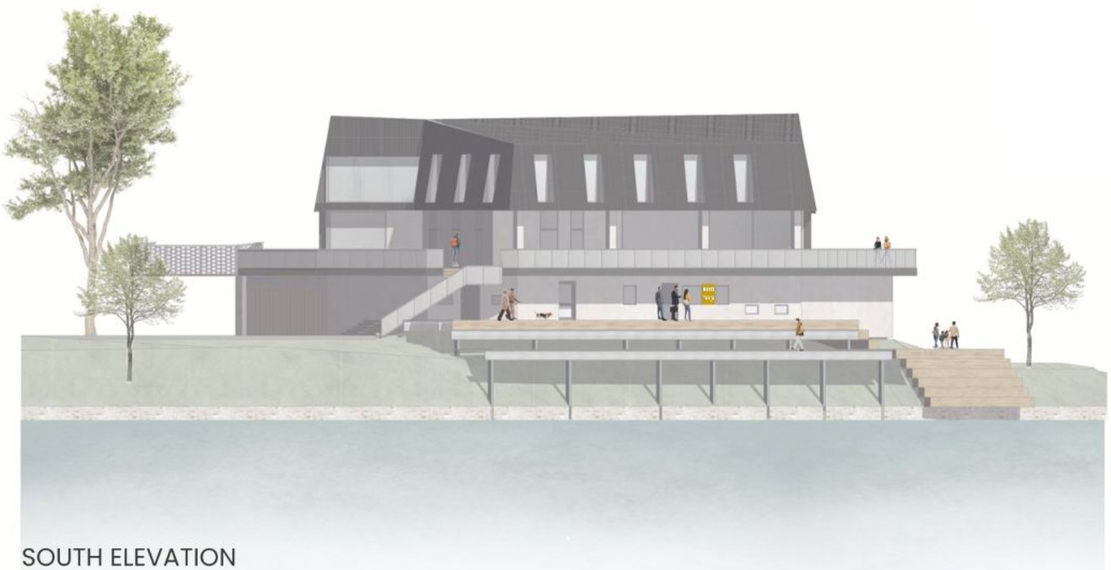
SECTION THROUGH THE BUILDING A–A'



SECTION THROUGH THE BUILDING B–B'

M 1:200

0 2 12m

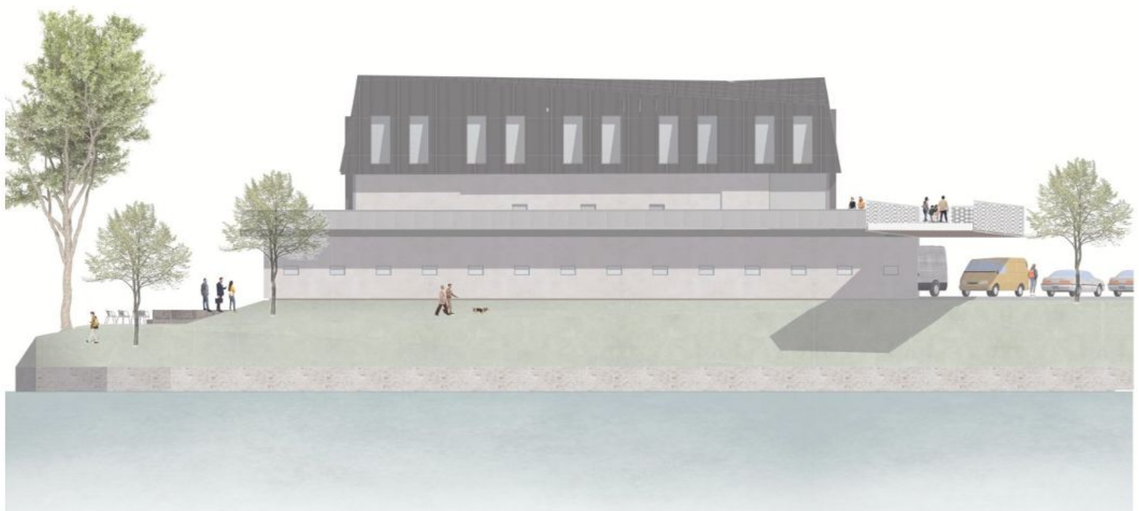


SOUTH ELEVATION

EAST ELEVATION

M 1:200

0 2 12m



NORTH ELEVATION

WEST ELEVATION

M 1:200

0 2 12m

Z004 **REINFORCED WALL, th. 205mm**

weberpas — silicone	1 mm
weberpas podklad UNI — primer / base coat	0 mm
weber.therm 700 + webertherm 117 A101 — reinforcing mesh	3 mm
Isover EPS 70F	160 mm
weber.therm 700	10 mm
Reinforced concrete wall	200 mm
Adhesion bridge weber.kombi contact	0 mm
Fine levelling render webermur rudin fine	3 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W05 **ACOUSTIC PARTITION, th. 150mm**

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard Habito H	12 mm
RIGIPS plasterboard Habito H	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75	100 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS plasterboard Habito H	13 mm
RIGIPS plasterboard Habito H	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W06 **PARTITION, th. 150mm**

WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
Vertical profile R-CW 75 + horizontal profile R-UW 75	100 mm
cavity filled with ISOVER AKU acoustic mineral wool insulation	
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	12 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

W08 **INSTALLATION SERVICE WALL, th. 150mm**

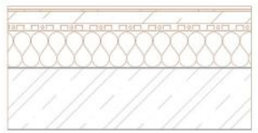
WEBERDECO FRESH, interior final paint, 2×	0 mm
Penetrating primer according to substrate absorbency	0 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
RIGIPS plasterboard building board RB (A) 12.5	13 mm
Non-ventilated air cavity + vertical profile R-CW 75 + horizontal profile R-UW 75	125 mm

* In the case of drywall partitions, ceiling systems and whole-room linings with RIGIPS ProMix Finish trowelling compound in quality Q4, after sanding and priming a double final interior coating is to be applied — water-dilutable, vapour-permeable, suitable for plasterboard substrates. RIGIPS recommends ProMix Finish for final jointing and full-surface Q4 finishing as the finest final surface treatment; at the same time, it recommends a vapour-permeable,

M 1:20

0 0,2 1,2m

F01 **FLOOR ON GROUND WITH HEAVY TRAFFIC, 503 mm, U=0,157 W/m²K**

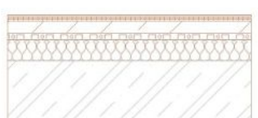


Sintered ceramic tiles, high abrasion resistance, min. PEI IV / V, slip resistance min. R9 / R10	10 mm
Flexible tile adhesive Weber 4890	5 mm
Cement self-levelling screed Weber 932	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Thermal insulation EPS 150	150 mm
Waterproofing against ground moisture and radon — 2× modified asphalt membrane / radon barrier according to the plot radon index	3 mm
Monolithic reinforced concrete slab. Reinforcement, thickness, concrete specification, execution and location of expansion joints to be subject to structural calculation	250 mm

F04 **INTERMEDIATE FLOOR, 450 mm**

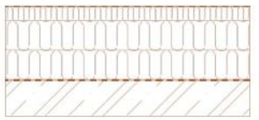
Ceramic tiles, imitation terrazzo, with recycled content, slip resistance min. R9 / R10	10 mm
Flexible tile adhesive Weber 4890	5 mm
Cement self-levelling screed Weber 932	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer — PE foil	0 mm
Isover TDPT	50 mm
Stropní panely spiroll	250 mm

F05 **INTERMEDIATE FLOOR, BATHROOM, 450 mm,**



Ceramic tiles, slip resistance min. R9 / R10, suitable for wet areas	10 mm
WEBER weberfor profiflex, flexible tile adhesive C2TE S1	5 mm
WEBER webertec 822, waterproofing membrane under tiling	5 mm
WEBER weberfloor 4160, cement-based self-levelling compound	5 mm
Concrete screed WEBERBAT BETON	50 mm
Isover EPS under heating panel	30 mm
Separating layer - PE foil	0 mm
Isover TDPT	50 mm
Monolithic reinforced concrete slab. Reinforcement, thickness, concrete specification, execution and location of expansion joints to be subject to structural calculation	250 mm

R03 **ROOF, tl. 450 mm**



Waterproofing membrane	2 mm
Thermal insulation Isover S	60 mm
Thermal insulation Isover T	120 mm
Thermal insulation Isover T	120 mm
Vapour barrier, equivalent diffusion thickness 120 m	1 mm
Reinforced concrete C25/30	150 mm

C02 **PLASTERBOARD CEILING ABOVE CURTAIN, 300 mm**

Non-ventilated air cavity + metal hanger	285 mm
Load-bearing profile R-CD	27mm
RIGIPS gypsum board Glasroc F Ridurit (Firecase)	15 mm
Final full-surface skim coat RIGIPS ProMix Finish*	2 mm
Penetrating primer according to substrate absorbency	0 mm
WEBERDECO FRESH, interior final paint, 2×	0 mm

C03 **PERFORATED CEILING WITH CEILING COOLING, 440 mm**

Non-ventilated air cavity + metal hangers	370mm
Load-bearing profile R-CD	27mm
Heating/cooling system with structure	30mm
RIGIPS Rigiton Climafit R 8-15-20 Super	13 mm

C04 **THERMALLY INSULATED CEILING, 275 mm, U= 0,08 W/m ²K**

WEBER ETICS adhesive and base coat mortar	10 mm
ISOVER TF Profi — stone mineral wool	260mm
Base layer with embedded reinforcing mesh	2 mm
Final thin-layer silicone / silicate-silicone render WEBER	2 mm

rigips SAINT-GOBAIN

ISOVER SAINT-GOBAIN

weber SAINT-GOBAIN

ecophon SAINT-GOBAIN

British Gypsum SAINT-GOBAIN

M 1:20

0 0,2 1,2m

THERMAL BALANCE

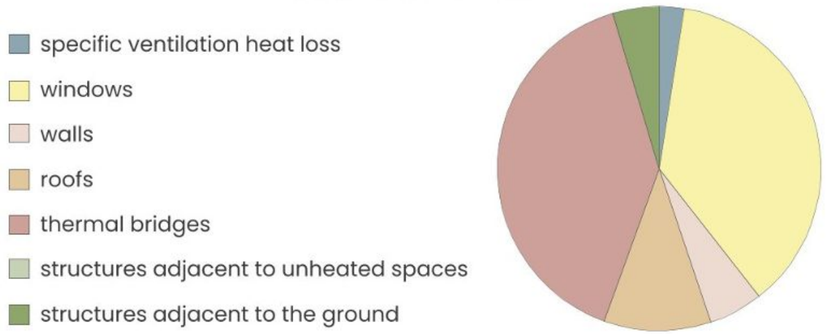
Average heat transfer coefficient of the building:

e_A=4,39 kWh/(m²a)

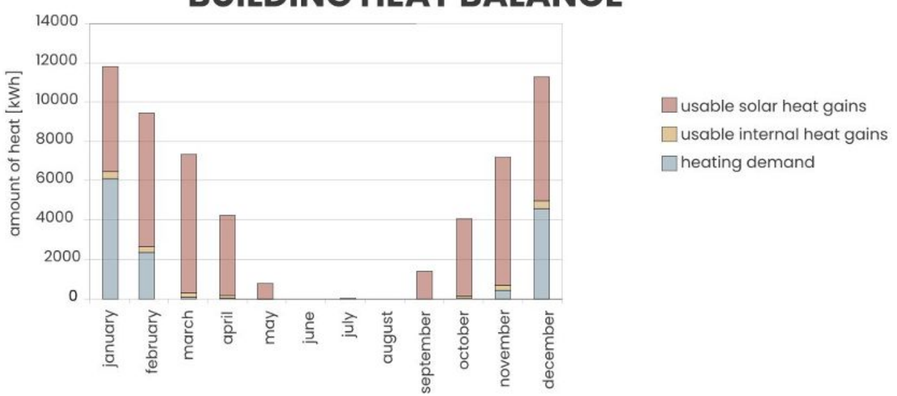
Specific heating demand:

U_{em}=0,49 W/m²K

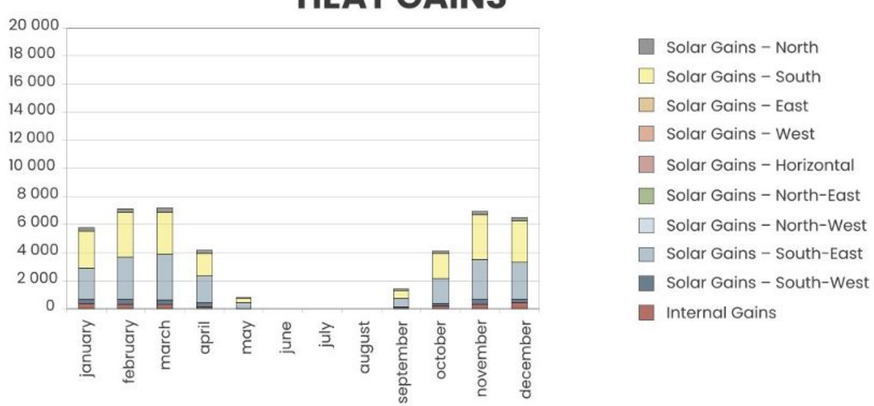
HEAT LOSSES



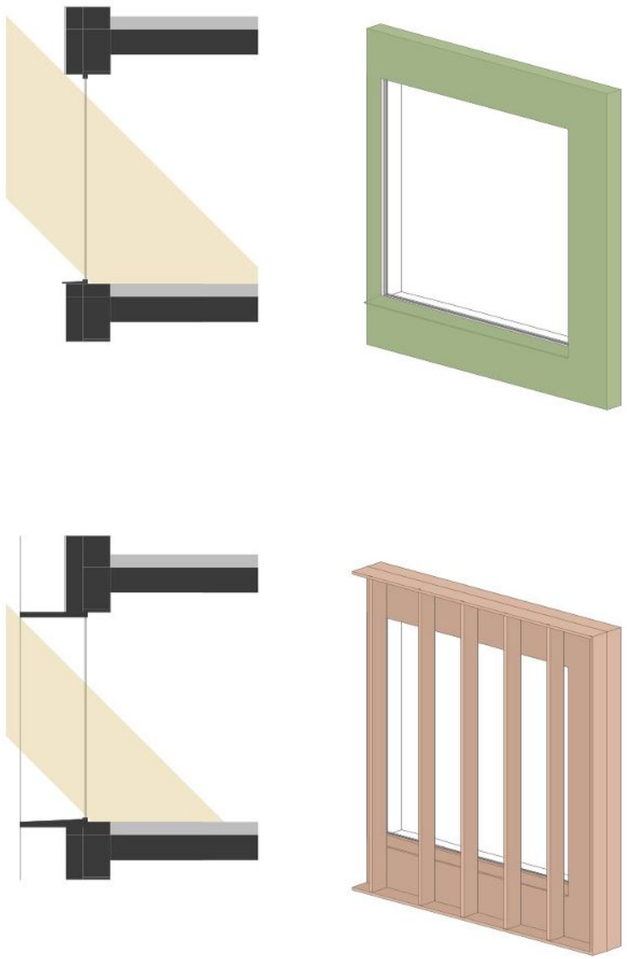
BUILDING HEAT BALANCE



HEAT GAINS

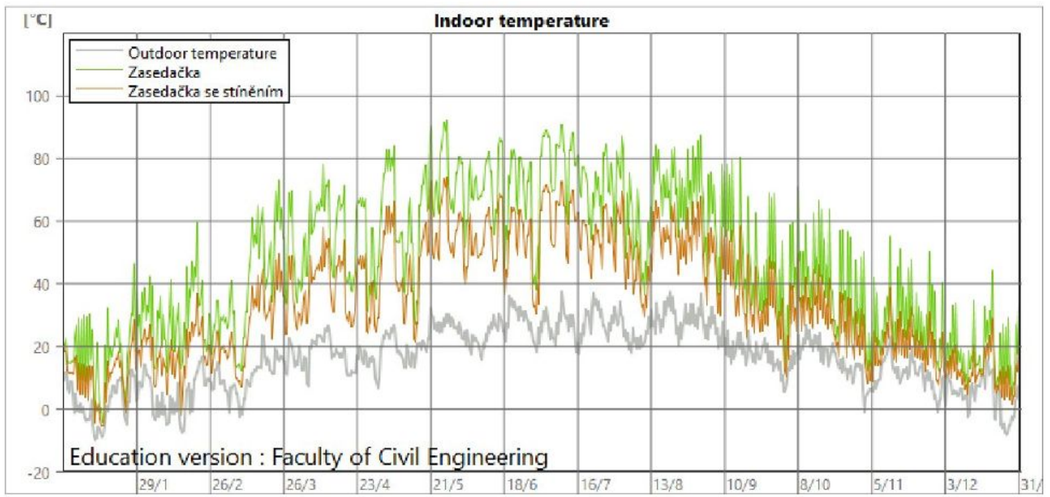


energy performance of the new condition



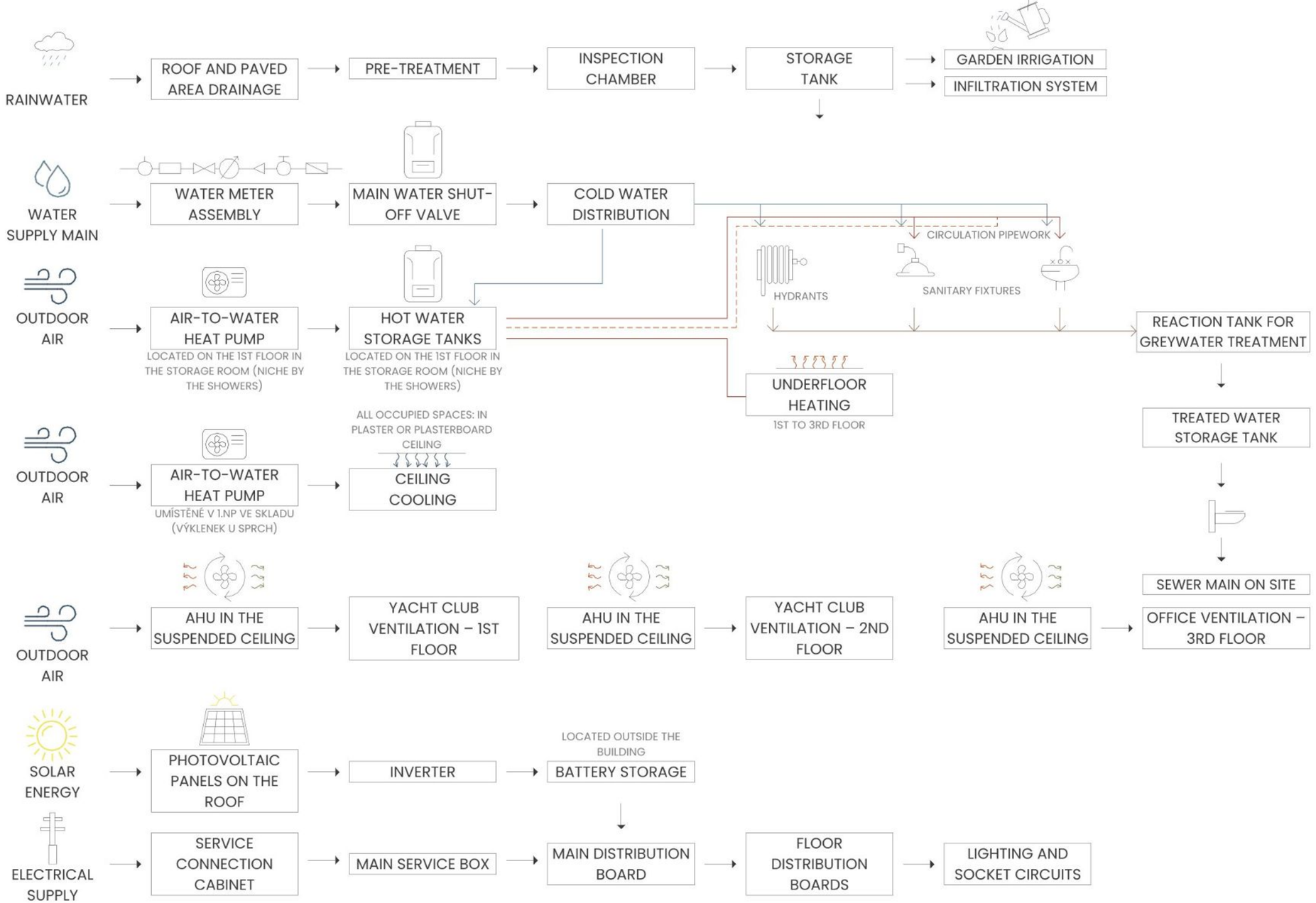
GLAZING PARAMETERS

Slavona progression windows	
Frame heat transfer coefficient Uf	0,74 W/m²K
Window heat transfer coefficient Uw (with Ug 0,5W/m2K)	0,62 W/m²K
Installation depth	114 mm
Sound reduction	33–48 dB
Number of seals	3
Standard triple insulating glazing	4/18/4/18/4; Ug=0,5W/m²K; g=54%
Glazing with solar gains	4ECL/18/4/18/ECL4; Ug=0,5W/m²K; g=60%



	Hours Ti >T_{max}	Heating demand	Coolind demand
Meeting Room 2.04 – without shading	1105 h	178 kWh/m²	0 kWh/m²
Meeting Room 2.04 – shading louvers 500	864 h	167 kWh/m²	0 kWh/m²

The indicator "Hours Ti > Tmax" expresses the annual number of hours during which the indoor temperature exceeds the limit design temperature Tmax. To reduce the risk of overheating, compliance with the limit value of 876 h/year is monitored; a lower number of hours indicates a higher level of summer thermal stability of the building.

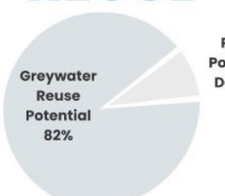


PHOTOVOLTAIC PANELS

estimated installed capacity:
at 200 Wp/panel = 61,28 kWp

This results in the following indicative annual production:
lower estimate: 61,28 × 1,045 =
approx. 64,03 kWh/year

GREY WATER REUSE



WATER SAVING
Total= 4514 m³/year

GREY WATER vs. RAINWATER REUSE

Water Reuse Strategy Comparison

Source	Source	Estimated Annual Yield	Main Use	Evaluation
Rainwater Harvesting	Roof area: 350 m²	≈ 190 m³/year	WC flushing	Limited potential due to relatively small roof area
Greywater Reuse	13 washbasins + 8 showers	≈ 538 m³/year	WC flushing	Higher and more stable reuse potential

RAINWATER HARVESTING

Calculation:

350 m² roof area × 0.69 m annual rainfall × 0.80 runoff coefficient
= ≈ 193 m³/year

Conclusion:

Rainwater can contribute to irrigation and partial WC flushing, but the available roof area does not provide enough water to cover the main non-potable water demand of the building.

GREYWATER REUSE

Calculation:

13 washbasins × 15 l/day × 365 = ≈ 71 m³/year
8 showers × 160 l/day × 365 = ≈ 467 m³/year

Total:
≈ 538 m³/year

Conclusion:

Greywater from washbasins and showers provides a significantly higher and more stable water source for WC flushing.

Design Decision

Greywater reuse is selected as the primary non-potable water strategy.
Rainwater harvesting remains a complementary measure for irrigation and landscape cooling..

WATER MANAGEMENT CONCEPT

Reference values for water demand

Source	Greywater Production [l/Day]	Total Production [m³/year]
Washbasins	15	**71**
Showers	160	**467**
Kitchenettes	-	**-**

Total Greywater Production: ≈ 538 m³/year

Potable Water Savings Through Greywater Reuse:

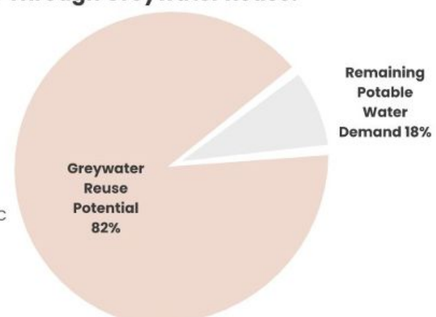
Available Greywater

Washbasins: ≈ 71 m³/year
Showers: ≈ 467 m³/year

Total available greywater:
≈ 538 m³/year

WC Flushing Demand
15 WCs
assumption: 20 flushes/day per WC
one flush: 6 l

15 × 20 × 6 l/day = 1,800 l/day
1,800 × 365 = 657,000 l/year
= ≈ 657 m³/year



By reusing greywater from washbasins and showers for WC flushing, the building can replace approximately 538 m³ of potable water per year. This represents about 82% of the estimated annual WC flushing demand. Kitchen wastewater is not included in the calculation, as it requires additional treatment due to grease and food residues. The system reduces potable water consumption and supports a more circular approach to water management within the building.

NEW BUILDING ELEMENTS
new opening infill elements with improved thermal performance parameters
new partitions according to the adjusted operation, using materials with a low carbon footprint

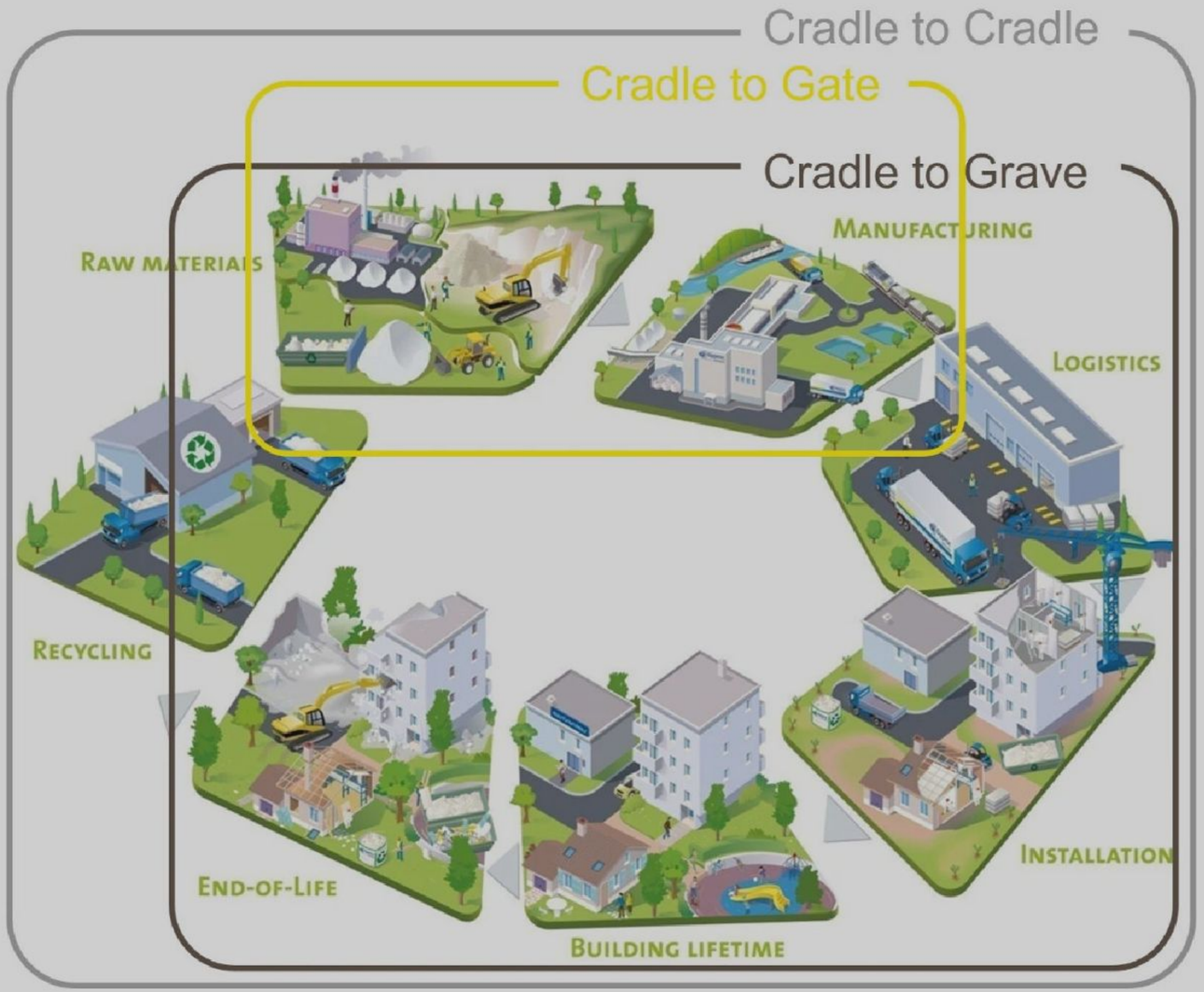
PRESEVED STRUCTURES
preservation of the main load-bearing structure of the building
reduction of demolition works
reduction of construction waste

REMOVAL OF OPENING INFILL ELEMENTS
removal of unsuitable window and door infill elements
replacement with new energy-efficient elements
improvement of the building's thermal protection

SORTING OF CONSTRUCTION WASTE
glass and metal from opening infill elements → recycling
partition material → sorting and removal
reusable elements → reuse

REMOVAL OF INTERNAL PARTITIONS
Removal of Internal Partitions
removal of unsuitable dividing structures
layout adjustment according to the new operation
selective demolition with material sorting

visualisation



10 EPD DOCUMENTS

rigips SAINT-GOBAIN

ISOVER SAINT-GOBAIN

weber SAINT-GOBAIN

ecophon SAINT-GOBAIN

British Gypsum SAINT-GOBAIN

Summary table of EPD documents

Material / product	Manufacturer	Category	EPD Number	Date of Issue	Valid Until	Declared unit	Download Link
Weber dry construction mixes	Saint-Gobain Construction Products CZ a.s., division Weber	Dry Construction Mixes	3013EPD-21-0254	08.09.2021	19.09.2026	1 kg of product	https://cenia.gov.cz/wp-content/uploads/2021/10/Weber_3013EPD-21-0254_CZ.pdf
Weber Primers / weberpodklad	Saint-Gobain Construction Products CZ a.s., division Weber	Primers	3013EPD-22-0129	06.05.2022	05.05.2027	1 kg of product	https://www.cz.weber/files/cz/2022-05/Podkladn%C3%AD%20n%C3%A1t%C4%9Bry_22_%28EPD%29.pdf
Weber Interior Plasters and Coatings	Saint-Gobain Construction Products CZ a.s., division Weber	Interior Plasters and Coatings	3013EPD-22-0131	06.05.2022	05.05.2027	1 kg of product	https://www.cz.weber/files/cz/2022-05/Vnit%C5%99n%C3%AD%20om%C3%ADtky%20a%20n%C3%A1t%C4%9Bry_22_%28EPD%29.pdf
Weber Cement Screed Materials and Concretes	Saint-Gobain Construction Products CZ a.s., division Weber	Cement Screed Materials and Concretes	3013EPD-22-0092	14.04.2022	13.04.2027	1 kg of product	https://cenia.gov.cz/wp-content/uploads/2022/04/Overene-EPD-Weber-Liberec-CZ-Cementove-poterove-materialy-0092.pdf
Habito H 12,5 mm	Saint-Gobain Construction Products CZ a.s., division Rigips	Plasterboard	3013EPD-22-0388	24.05.2022	23.05.2027	1 m² of installed board	https://www.rigips.cz/produkty/habito-h/
Rigips UA profile	Saint-Gobain Construction Products CZ a.s., division Rigips	Structural Steel Profile	3013EPD-22-0286	03.10.2022	02.10.2027	1 kg of hot-dip galvanised steel profiles	https://www.rigips.cz/produkty/vyztuzny-ua-profil/
Rigips UD profile	Saint-Gobain Construction Products CZ a.s., division Rigips	Structural Steel Profile	3013EPD-22-0286	03.10.2022	02.10.2027	1 kg of hot-dip galvanised steel profiles	https://www.rigips.cz/produkty/kategorie/profily/
Rigips UW profile	Saint-Gobain Construction Products CZ a.s., division Rigips	Structural Steel Profile	3013EPD-22-0286	03.10.2022	02.10.2027	1 kg of hot-dip galvanised steel profiles	https://www.rigips.cz/produkty/kategorie/profily/
Rigips CD profile	Saint-Gobain Construction Products CZ a.s., division Rigips	Structural Steel Profile	3013EPD-22-0286	03.10.2022	02.10.2027	1 kg of hot-dip galvanised steel profiles	https://www.rigips.cz/produkty/kategorie/profily/
Rigips CW profile	Saint-Gobain Construction Products CZ a.s., division Rigips	Structural Steel Profile	3013EPD-22-0286	03.10.2022	02.10.2027	1 kg of hot-dip galvanised steel profiles	https://www.rigips.cz/produkty/r-cw-profil/
Standard Plasterboard RB (A) 12,5 mm	Saint-Gobain Construction Products CZ a.s., division Rigips	Standard Plasterboard	EPD-IES-0021436	01.04.2025	31.03.2030	1 m² of installed board	https://api.profikalkulator.rigips.cz/documentation-access/85850f8b-1916-467f-adbe-231cdfd62172
Glasroc F FireCase 15 mm	Saint-Gobain Construction Products UK Ltd / British Gypsum	Fire Protection Plasterboard	S-P-00471	21.05.2014 (rev. 20.10.2021)	25.02.2026	1 m² of installed board	https://www.environdec.com/library/epd471 Geografický rozsah UK
Isover P	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Flat Roofs	3015-EPD-030064891	26.06.2023	26.06.2028	1 m² of installed board	https://www.isover.cz/isover-p

Summary table of EPD documents

Material / product	Manufacturer	Category	EPD Number	Date of Issue	Valid Until	Declared unit	Download Link
Isover S	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Upper Layer of Flat Roofs	3015-EPD-030061252	13.01.2021	13.01.2026	1 m² of installed board	https://www.isover.cz/produkty/isover-s Starší EPD dle EN 15804+A1
Isover T	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Upper Layer of Flat Roofs	3015-EPD-030066777	28.10.2024	27.10.2029	1 m² of installed board	https://www.isover.cz/produkty/isover-t
Isover TF Profi	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – ETICS / Facade	3015-EPD-030066780	28.10.2024	27.10.2029	1 m² of installed board	https://www.isover.cz/produkty/mineralni-vlna/isover-tf-profi
Isover Flora	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Green Roofs	3015-EPD-030066789	04.11.2024	03.11.2029	1 m² of installed board	https://www.isover.cz/environmentalni-prohlaseni-o-produktu
Isover FireProtect® 150	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Fire Insulation	3015-EPD-030066778	28.10.2024	27.10.2029	1 m² of installed board	https://www.isover.cz/epd-technicke-izolace
Isover LAM 70	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Lamellas	3015-EPD-030066785	04.11.2024	03.11.2029	1 m² of installed board	https://www.isover.cz/environmentalni-prohlaseni-o-produktu
Isover Woodsil	Saint-Gobain Construction Products CZa.s., division Isover	Mineral Wool – Timber Structures / Walls	3015-EPD-030066783	04.11.2024	03.11.2029	1 m² of installed board	https://www.isover.cz/isover-woodsil
Isover EPS 150	Saint-Gobain Construction Products CZa.s., division Isover	EPS Insulation	3015-EPD-030064311	16.06.2023	16.06.2028	1 m² of installed board	https://www.isover.cz/dokumenty/environmentalni-prohlaseni/epd-cz-2023-isover-eps-150.pdf
Isover EPS RigiFloor 4000	Saint-Gobain Construction Products CZa.s., division Isover	EPS Impact Sound Floor Insulation	3015-EPD-030064314	10.07.2023	10.07.2028	1 m² of installed board	https://www.isover.cz/environmentalni-prohlaseni-o-produktu

The issue of Environmental Product Declarations (EPDs) was addressed systematically in the design through a summary record of the materials used. For clarity, the portfolio includes a summary table of all relevant EPDs and one sample document in full, demonstrating the level and character of the supporting documentation.

LITERATURE

Neufert, Ernst and Neufert, Peter, eds. Architects' Data: Principles, Standards and Regulations for Building Design, Equipment, Spatial Requirements, Spatial Relationships, Building Dimensions, Spaces, Equipment and Devices with the Human Being as the Measure and Aim: A Handbook for Building Professionals, Clients, Teachers and Students. 2nd Czech edition. Prague: Consultinvest, 2000. 618 pp.

Tichý, D. – Kohout, M. – Tittl, F. – Jahodová, Š. Plánování města – Příručka mladého urbanisty, Czech Technical University in Prague, 2021

STANDARTS A REGULATIONS

ČSN 01 3420 – Drawings of Building Structures

ČSN 73 4301 – Residential Buildings

ČSN 73 4305 – Furnishability of Apartments

ČSN 73 0532 – Acoustics – Requirements

ČSN EN ISO 717-1 Acoustics – Airborne Sound Insulation

ČSN EN ISO 717-2 Acoustics – Impact Sound Insulation

ČSN 73 0810 Fire Safety of Buildings – General Provisions

ČSN 73 0833 Fire Safety of Buildings – Residential and Accommodation Buildings

ČSN 73 0802 Fire Safety of Buildings – Non-Industrial Buildings

ČSN 73 0600 Waterproofing of Buildings – Basic Provisions

ČSN 73 0540-1 Thermal Protection of Buildings – Terminology

ČSN 73 0540-2 Thermal Protection of Buildings – Requirements

ČSN 73 0540-3 Thermal Protection of Buildings – Design Values of Quantities

ČSN 73 0540-4 Thermal Protection of Buildings – Calculation Methods

ČSN 73 0580-1 Daylighting of Buildings – Basic Requirements

ČSN 73 0580-2 Daylighting of Buildings – Daylighting of Residential Buildings

ČSN 73 4130 Stairs and Inclined Ramps – Basic Requirements

OTHER

Archdaily.com – reference photographs of public spaces

Pinterest.com – reference photographs of public spaces

Competition Brief – Saint-Gobain International Student Competition, 2026 Edition

Maps – Google Maps. [Online]

Rigips – plasterboard and dry construction systems

Isover – thermal, acoustic and fire insulation

Ecophon – acoustic ceilings and wall systems