ARCHITECTURE STUDENT CONTEST

21st INTERNATIONAL EDITION, BELGRADE 2026

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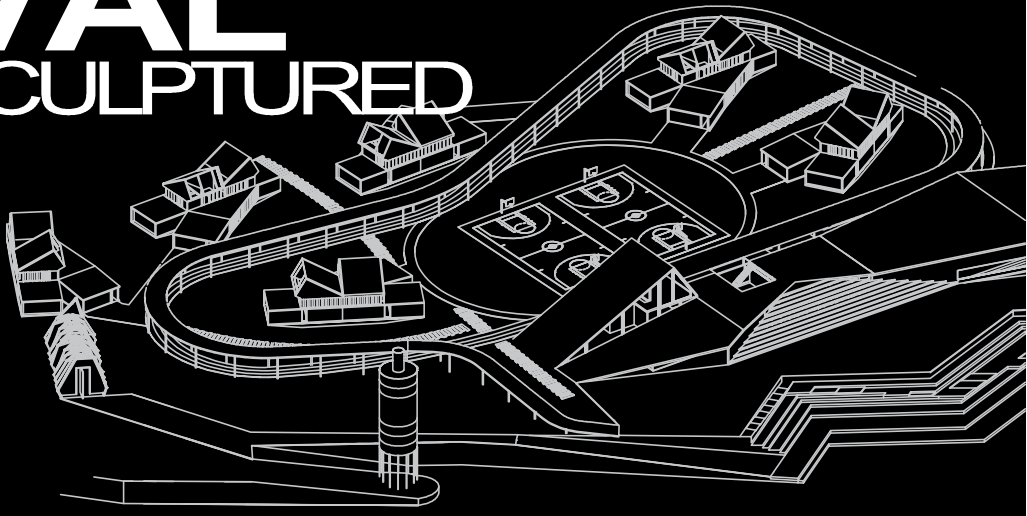
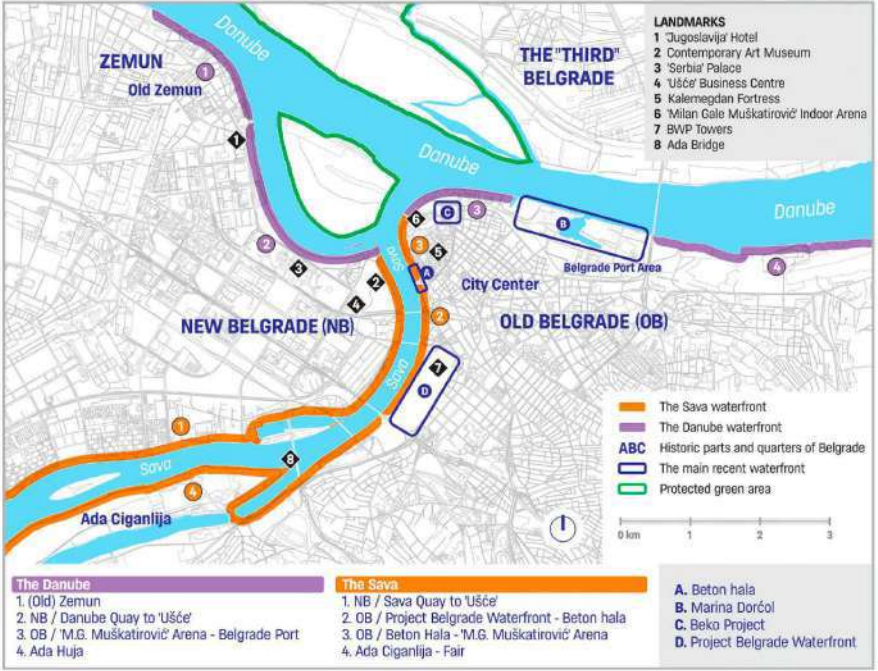
SCULPTURED




ZEMUN
Old Zemun
Danube
THE "THIRD" BELGRADE
Danube
Danube
Belgrade Port Area
City Center
NEW BELGRADE (NB)
OLD BELGRADE (OB)
Sava
Sava
Ada Ciganlija
LANDMARKS
1 'Jugoslavija' Hotel
2 Contemporary Art Museum
3 'Serbia' Palace
4 'Ušće' Business Centre
5 Kalemegdan Fortress
6 'Milan Gale Muškatirović' Indoor Arena
7 BWP Towers
8 Ada Bridge
The Sava waterfront
The Danube waterfront
ABC Historic parts and quarters of Belgrade
The main recent waterfront
Protected green area
0 km 1 2 3
The Danube
1. (Old) Zemun
2. NB / Danube Quay to 'Ušće'
3. OB / 'M.G. Muškatirović' Arena - Belgrade Port
4. Ada Huja
The Sava
1. NB / Sava Quay to 'Ušće'
2. OB / Project Belgrade Waterfront - Beton hala
3. OB / Beton Hala - 'M.G. Muškatirović' Arena
4. Ada Ciganlija - Fair
A. Beton hala
B. Marina Dorćol
C. Beko Project
D. Project Belgrade Waterfront

SITE PHOTO ANALYSIS

AJK BELGRADE & SURROUNDINGS

01. CONTEXT & CONNECTIONS
Strong connection to the city, bridges and waterfront.

02. MOVEMENT & ACCESS
Flow for people, bikes and service.

03. ZONING & USES
Public, semi-public and private areas.

04. TOPOGRAPHY & LEVELS
Terraced landscape follows the river.

05. VIEWS & ORIENTATION
Open views to the river, bridges and city skyline.

PEDESTRIAN
Walkways & promenades

BICYCLE
Cycle paths & parking

WATER
River access & water interaction

REST / SLEEP
Stay / Relax / Retreat

EATING
Cafés / Restaurants & outdoor dining

VIEWING
Watch the river & city views

NATURE
Greenery & shade

SOCIAL SPACE
Gathering & events

SERVICE
Loading / Delivery & maintenance

06. SUN PATH
Optimal sunlight on terraces and public spaces.

07. WIND ANALYSIS
Prevailing winds from the south-west, good natural ventilation.

08. NOISE LEVELS
Noise from bridge and city, buffered by landscape.

09. GREEN & ECOLOGY
Green pockets and trees bring life and shade.

10. WATER ACTIVITIES
Boating, kayaking and waterfront interaction.

EXPERIENCE JOURNEY

ARRIVE
Approach by foot, bike or public transport.

EXPLORE
Walk through the promenade and discover spaces.

RELAX
Find a place to rest and enjoy the view.

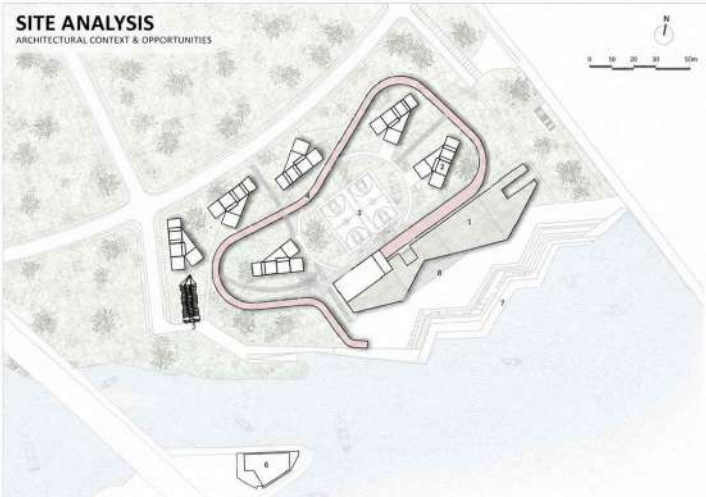
DINE
Enjoy food and drink with river atmosphere.

CONNECT
Meet people, join events and community life.

UNWIND
Watch the sailing boats and sunset.

SITE ANALYSIS

ARCHITECTURAL CONTEXT & OPPORTUNITIES



SITE COMPONENTS

1. MAIN BUILDING
2. ACCOMMODATION CLUSTERS
3. SPORTS COURTS
4. LOOP ROAD / PEDESTRIAN PATH
5. ENTRY LANDMARK
6. WATERFRONT PAVILION
7. STEPPED WATERFRONT
8. SERVICE / DECK AREA

CONTEXT & ACCESS

- Clear vehicular access from the main road.
- Loop road ensures smooth internal circulation.
- Pedestrian-friendly pathways connect all major components.

ZONING

- PRIVATE / ACCOMMODATION
- RECREATIONAL
- PUBLIC / COMMUNAL
- SERVICE

SUN PATH & CLIMATE

- Optimal orientation for daylight in courts and open spaces.
- Prevailing sea breeze from SE improves natural ventilation.
- Shaded areas under vegetation reduce heat gain.

KEY OPPORTUNITIES

- Enhance waterfront experience and public access.
- Integrate landscape for shading and microclimate comfort.
- Strengthen visual and functional connections across the site.
- Promote sustainable design with passive strategies.

SITE INSIGHTS

WATERFRONT POTENTIAL
Direct water access and stepped edges create opportunities for public engagement and recreational activities.

GREEN BUFFER
Existing vegetation provides natural shade, privacy, and enhances the microclimate.

CENTRAL RECREATION
Sports courts are the heart of the site, encouraging activity and community interaction.

ACCESSIBILITY
The loop road ensures efficient movement and connects all major functions seamlessly.

VIEWS & ORIENTATION
Strategic orientation captures views toward the water and maximizes natural light.

SITE ANALYSIS

WATERFRONT COMMUNITY CONCEPT

PEDESTRIAN
Walkways & promenades

BICYCLE
Cycle path & parking

WATER
River access & water interaction

REST / SLEEP
Stay / Relax / Retreat

EATING
Cafés / Restaurants & outdoor dining

VIEWING
Watch the river & sailing boats

NATURE
Greenery & shade

SOCIAL SPACE
Gathering & events

SERVICE
Loading / Delivery & maintenance

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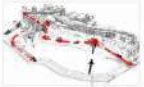

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Flow for people, bikes and service.

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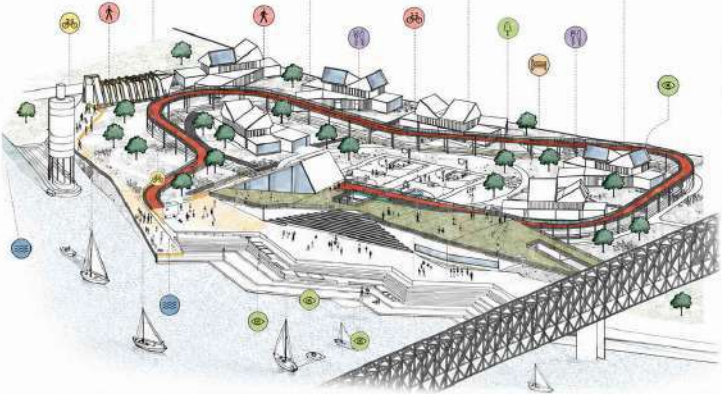
Open views to the river and sailing boats.



EXPERIENCE JOURNEY

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Approach by foot, bike or boat.

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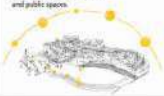
Optimal sunlight on terraces and public spaces.



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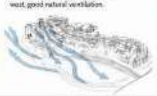
Prevailing winds from the south-west, good natural ventilation.



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Noise from bridge and city, buffered by landscape.

09. GREEN & ECOLOGY
Green pockets and trees bring life and shade.

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Boating, kayaking and waterfront interaction.

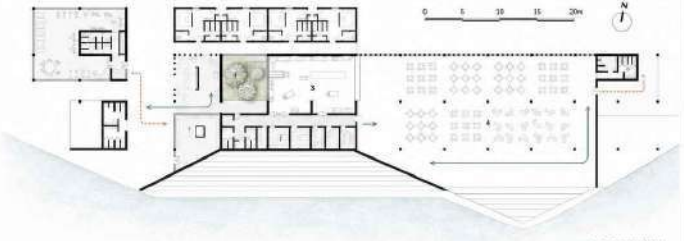
FLOOR PLAN ANALYSIS

SPATIAL ORGANIZATION & FUNCTIONAL FLOW

GROUND FLOOR PLAN

The ground floor is organized to encourage community interaction, with open and flexible spaces oriented towards the waterfront.

- Direct waterfront connection
- Central courtyard brings light and ventilation
- Clear circulation for efficient flow
- Flexible spaces for multiple uses



SPATIAL LEGEND – GROUND FLOOR

1. ACCOMMODATION UNITS
2. BATHROOMS
3. COURTYARD
4. MULTIPURPOSE HALL
5. KITCHEN / SERVICE
6. RECEPTION
7. SUPPORT SPACES

FUNCTIONAL ZONING

- PRIVATE / ACCOMMODATION
- PUBLIC / COMMUNITY
- SERVICE
- CIRCULATION

KEY TAKEAWAYS

- Strong connection to the waterfront through stepped terrace.
- Central courtyard improves daylight, ventilation and creates a calm core.
- Large multipurpose hall supports flexible common-by activities.
- Clear separation of public, private and service functions.

ROOF / TERRACE PLAN

The roof terrace provides an open, flexible space for outdoor activities, events and relaxation with views to the waterfront.

- Open terrace for events & gatherings
- Green pocket for shade and microclimate
- Connection to indoor spaces
- Durable, low-maintenance roof surface

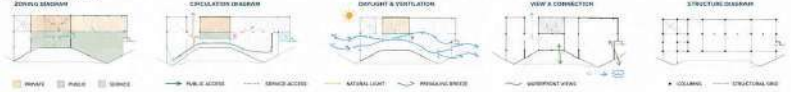
SPATIAL LEGEND – ROOF PLAN

1. OPEN TERRACE AREA
2. GREEN POCKET

DESIGN INTENT

- Enhance outdoor experience and community life
- Promote sustainability through green spaces
- Create shaded areas to reduce heat gain
- Maximize views and connection to nature

ANALYSIS DIAGRAMS



OVERALL BENEFITS

- Strengthens community interaction and social engagement
- Encourages environmental comfort and sustainability
- Supports flexible use and adaptability over time
- Creates a strong identity connected to the waterfront

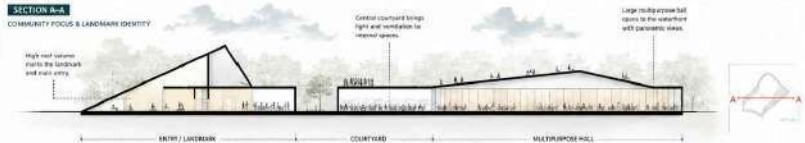
DESIGNED FOR CONNECTION, COMFORT & COMMUNITY

BUILDING SECTIONS ANALYSIS

SPATIAL CHARACTER, CLIMATE RESPONSE & EXPERIENCE

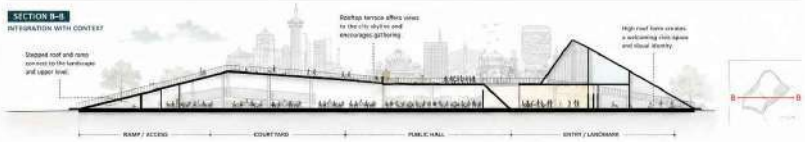
SECTION A–A

COMMUNITY FOCUS & LANDMARK IDENTITY



SECTION B–B

INTEGRATION WITH CONTEXT



SECTION C–C

WATERFRONT CONNECTION & TERRACING

SECTION ANALYSIS

SPATIAL LEGEND

- PUBLIC / COMMUNITY
- PRIVATE / ACCOMMODATION
- SERVICE / SUPPORT
- CIRCULATION
- GREEN / COURTYARD

KEY SECTION DIAGRAM

- NATURAL LIGHT
- NATURAL VENTILATION
- VIEWS
- PEOPLE MOVEMENT

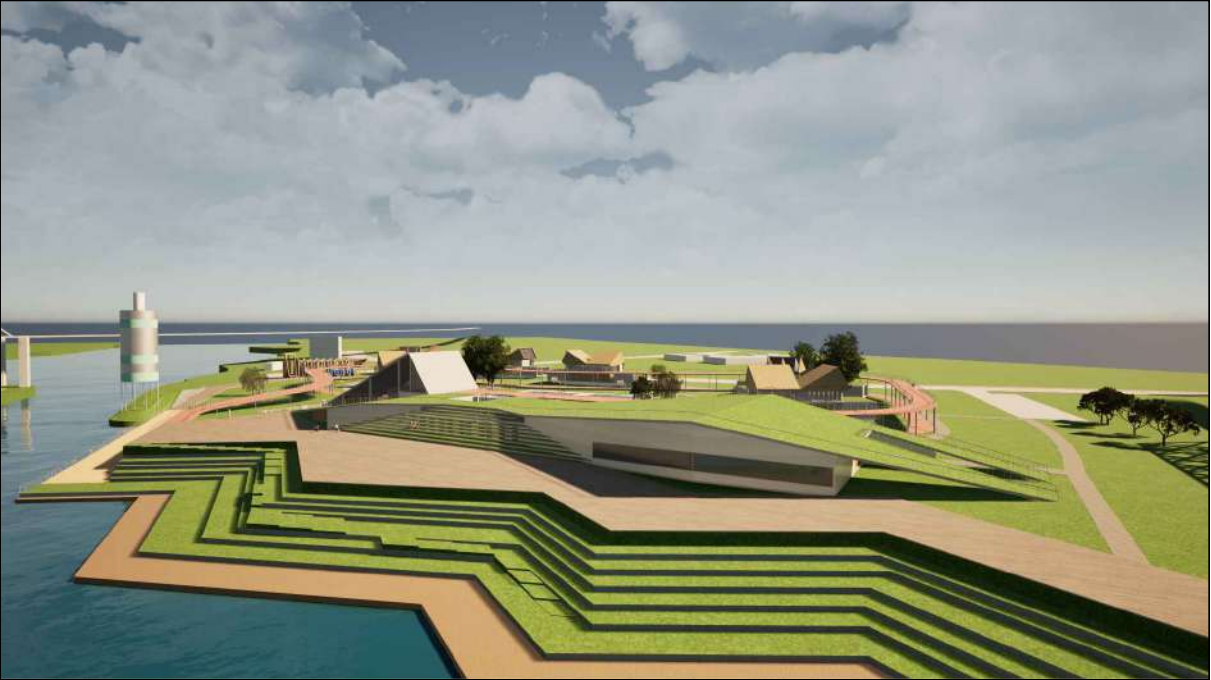
DESIGN INTENT

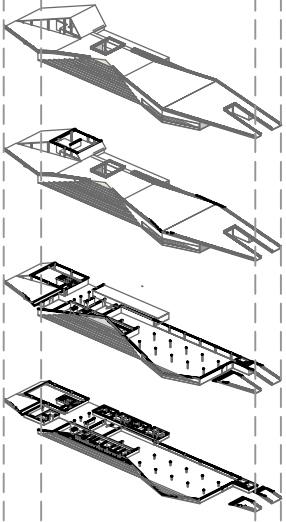
- Create a strong identity through landmark roof forms.
- Integrate indoor and outdoor spaces with courtyards and terraces.
- Enhance natural ventilation and daylight in all spaces.
- Promote community interaction with flexible, inclusive spaces.
- Connect people to nature and the waterfront.

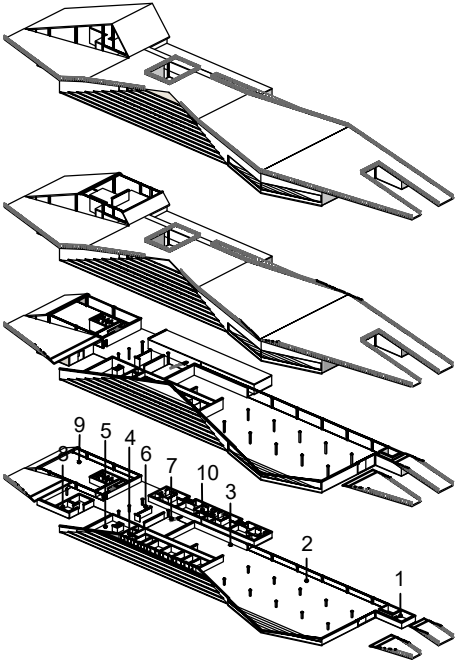
KEY TAKEAWAYS

- Distinctive roof forms define spaces and create a memorable identity.
- Courtyards and terraces provide light, ventilation and social spaces.
- Stepped edges and ramps ensure seamless connection to landscape and waterfront.
- Flexible halls support diverse community functions and events.

A HARMONIOUS BLEND OF NATURE, COMMUNITY & ARCHITECTURE | CONNECTING PEOPLE, SPACES & THE WATERFRONT

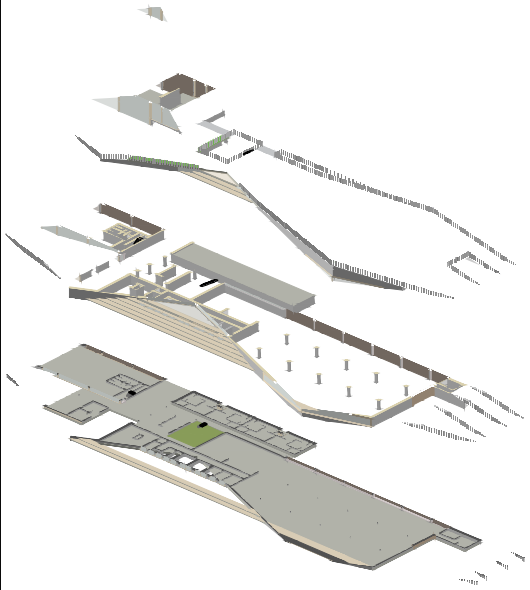


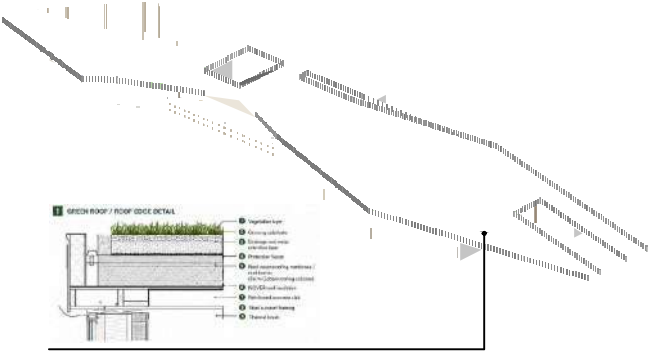




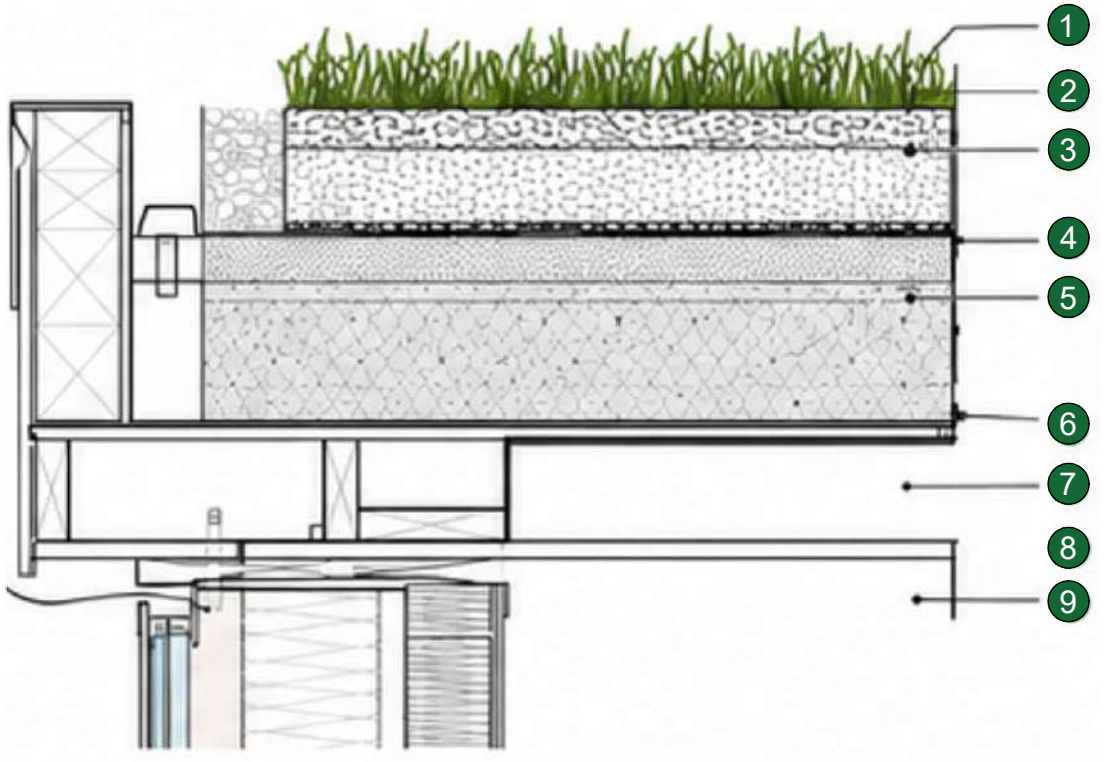
LEGEND

1	COATROOM POWDER ROOM
2	RESTAURANT
3	KITCHEN
4	STORAGE ROOM OFFICES
5	STORE
6	CAFETERIA
7	ATRIUM
8	PUBLIC RESTROOM
9	GYM MEDICAL ROOM
10	CHANGING ROOMS BATHROOMS




1 GREEN ROOF / ROOF EDGE DETAIL

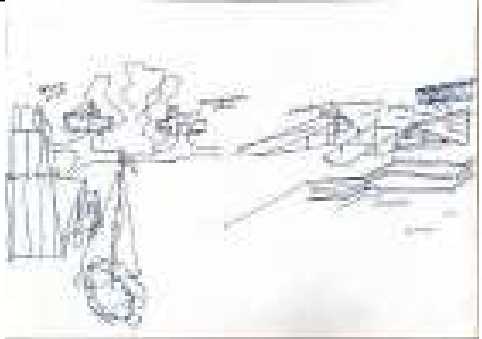
ISOVER ROOF MEADOW
SEMI-INTENSIVE GREEN ROOF

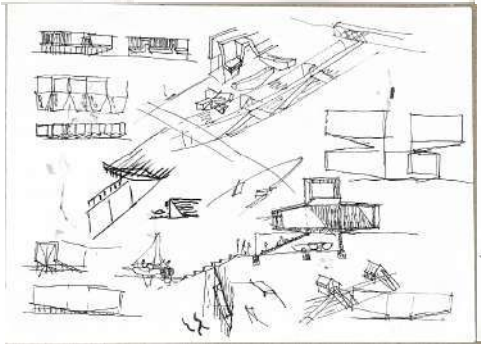


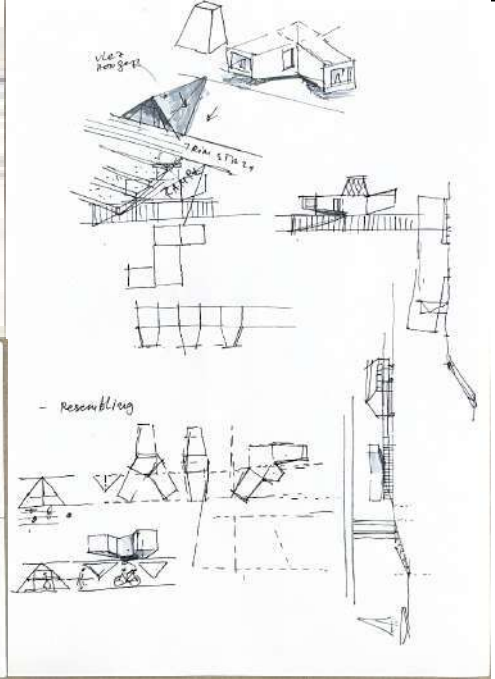
1. Vegetation layer
2. Growing substrate
3. Drainage and water retention layer
4. Protection fleece
5. Roof waterproofing membrane/root barrier (Saint-Gobain roofing solution)
6. ISOVER roof insulation
7. Reinforced concrete slab
8. Sreel support ftaming
9. Thermal break

\+ More diverse plant mix (grasses, herbs)
\+ Can be regularly walked on
\+ Can be combined with utility function (growing vegetables, herbs)
\- More demanding maintenance
\- Greater weight of vegetation layer

This detail shows a green roof edge construction with layers for vegetation, drainage, waterproofing, insulation, and support. The vegetation grows in a substrate layer, while the drainage layer retains some rainwater and removes excess water. The waterproofing membrane and root barrier protect the roof from leaks and root damage. ISOVER insulation improves thermal performance, and the thermal break reduces heat loss at the roof edge. Overall, the system makes the roof more sustainable, protected, and energy-efficient.






- Resembling

ACCOMMODATION UNIT PLANS ANALYSIS

SPATIAL LAYOUT, FUNCTION & DESIGN INTENT

SPATIAL LEGEND

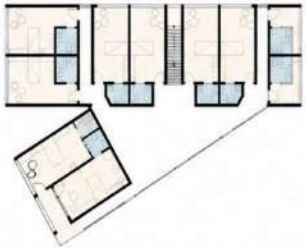
- SLEEPING AREA
- BATHROOM
- CIRCULATION
- STORAGE / SERVICE
- OUTDOOR / TERRACE

KEY PLAN

TYPE A

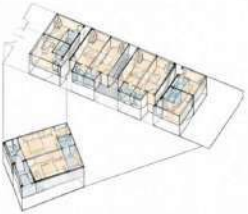
DOUBLE UNIT + ANGLED SUITE

Scale 1:150

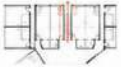


SPATIAL ORGANIZATION

- Linear arrangement of double units with central stair core.
- Each unit has a private bathroom and direct access.
- Angled suite offers visual privacy and flexibility.
- Clear separation between public circulation and private spaces.



CIRCULATION



Central stair provides efficient vertical access and connects all units.

PRIVACY

Private bedrooms and bathrooms are tucked away from the main circulation.

VENTILATION

Cross ventilation through front and rear openings in each unit.

NATURAL LIGHT

Daylight penetrates from front and rear, ensuring bright and comfortable spaces.

KEY TAKEAWAYS

- Efficient layout with shared circulation.
- Angled unit enhances privacy and architectural interest.
- Good daylight and cross ventilation in all units.
- Ideal for couples or small families.

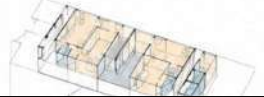
TYPE B

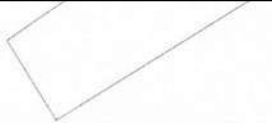
COMPACT DOUBLE UNIT

Scale 1:200

SPATIAL ORGANIZATION

- Compact and efficient double unit with central circulation.
- Bedrooms on either side for privacy.





Bathrooms and storage placed for maximum functionality.

Simple layout allows flexibility in use.

CIRCULATION

Central stair connects both units efficiently.

PRIVACY

Bedrooms are positioned for visual and acoustic privacy.

VENTILATION

Cross ventilation through openings on both sides.

NATURAL LIGHT

Daylight enters from both sides, creating a bright interior.

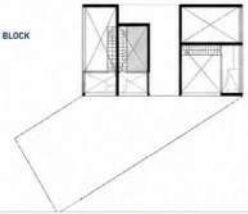
KEY TAKEAWAYS

- Well-balanced, compact layout.
- Ensures privacy and comfort in limited space.
- Efficient ventilation and daylight from both sides.
- Suitable for short or long-term stays.

TYPE C

VERTICAL CORE / SERVICE BLOCK

Scale 1:200



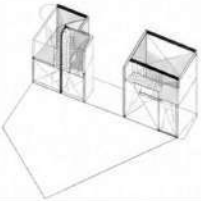
SPATIAL ORGANIZATION

Vertical cores contain stairs and service functions.

Storage and mechanical spaces are integrated inside the core.

Supports vertical circulation and structural stability.

Acts as the backbone for the accommodation blocks.



CIRCULATION

Stair cores ensure safe and efficient vertical movement.

FUNCTION

Service spaces and shafts are organized within the core.

VENTILATION

Vertical shafts allow hot air exhaust and fresh air intake.

STRUCTURE

Strong core supports the building structure and stability.

KEY TAKEAWAYS

- Essential service and circulation core.
- Efficient integration of structure and services.
- Ensures safety, accessibility and building performance.

EFFICIENT SPACES • PRIVACY & COMFORT • NATURAL LIGHT & VENTILATION • FLEXIBLE LIVING SOLUTIONS

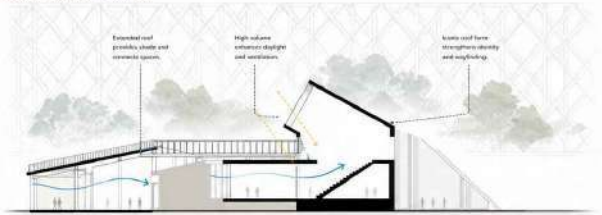
ARCHITECTURAL SECTIONS ANALYSIS

SPATIAL EXPERIENCE, STRUCTURE & DAYLIGHT STRATEGY

SECTION 01

COMMUNITY HALL & LANDMARK ROOF

- Distinctive roof form creates a landmark identity on the waterfront.
- High volume space enhances daylight and ventilation.
- Split level and stair connect spaces visually and functionally.
- Lightweight roof floats above open spaces creating a sense of openness.



SECTION 02

ACCOMMODATION BLOCK & COURTYARD CONNECTION

- Pitched roofs may create privacy while maintaining connections to water.
- Bridge and balcony link buildings across the central courtyard.
- Double height and mezzanine spaces add spatial variety.
- Elevated structure allows passive ty and airflow at ground level.

KEY DESIGN STRATEGIES

MATERIAL & SPATIAL LEGEND

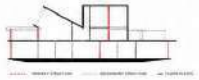
KEY PLAN

ENVIRONMENTAL STRATEGIES

KEY TAKEAWAYS

- The roof form creates a strong landmark while shaping a welcoming community space.
- Daylight and cross ventilation are maximized through high volumes and open sides.
- Split levels and visual connections enhance spatial experience.
- The structure and roof system express lightness and openness.

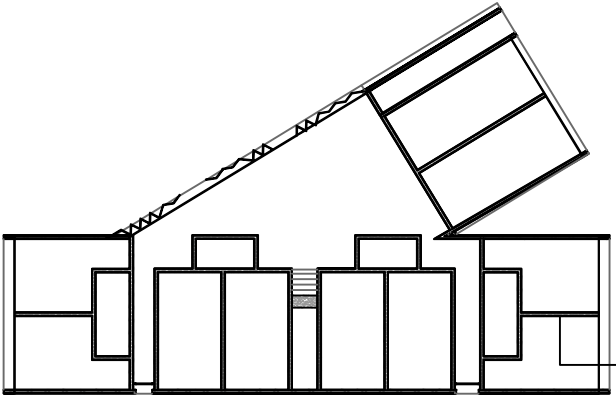
STRUCTURAL & SPATIAL DIAGRAM

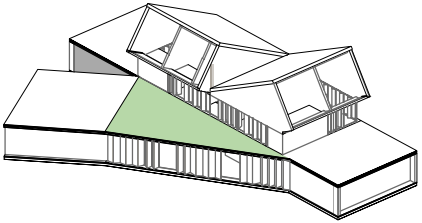


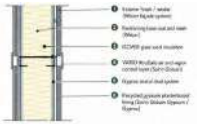
DESIGN INTENT

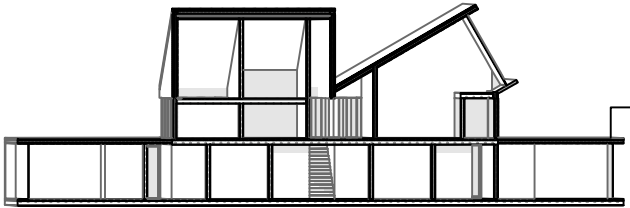
- Create memorable spaces that connect people with the waterfront and community.
- Use climate responsive design for comfort and sustainability.
- Express structure and form to build identity and a sense of place.
- Provide flexible spaces that adapt to changing needs.

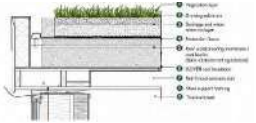
CONNECTED SPACES • CLIMATE RESPONSIVE DESIGN • DISTINCT IDENTITY • COMMUNITY & NATURE IN HARMONY



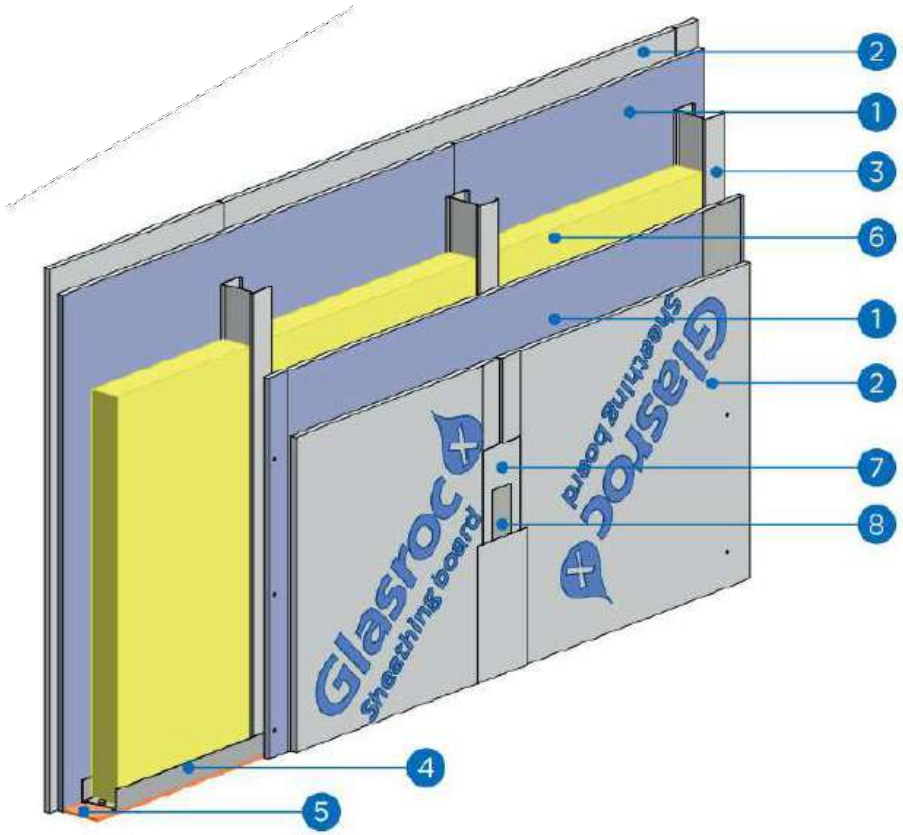








A1 EI 120
FEASIBLE WALL HEIGHT 4 METRES



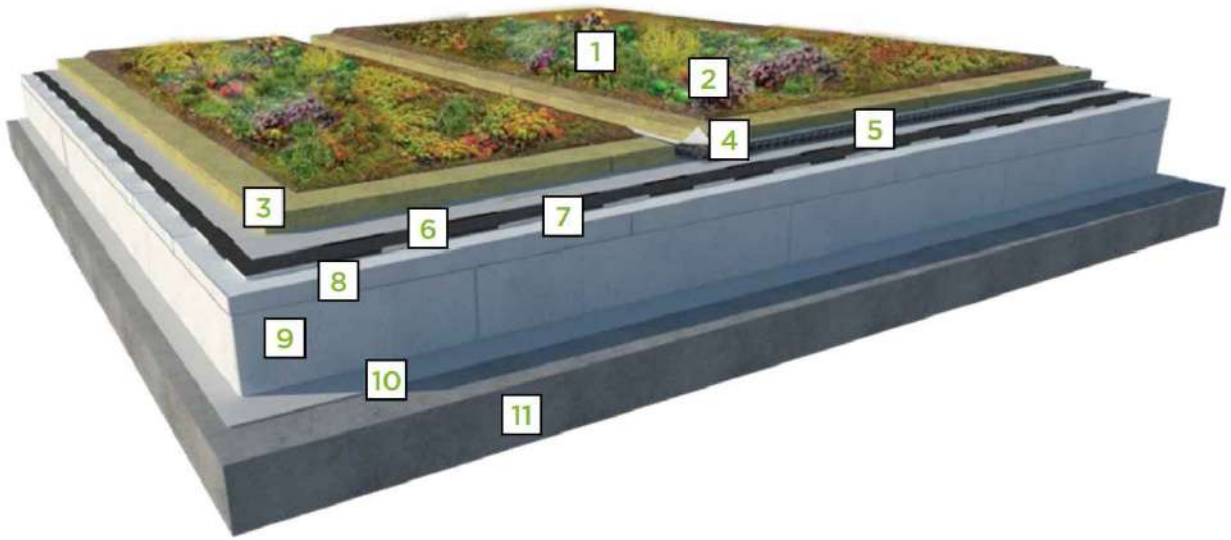
1. Duraline Blue DB plasterboard
2. Glasroc® X sheating board
3. R-CW 75 Rigiprofil
4. R-UW 75 Rigiprofil
5. Acoustic tape for profile
6. Mineral wool insulation
7. Vario joint filler
8. Jointing reinforcement glass tape

PARTITION INSTALLED ON SIMPLE PROFILE WITH DURALINE BLUE DB PLASTERBOARD AND GLASROC® X SHEATHING BOARD / REACTION TO FIRE: A1

Short marking: Profile size/wall thickness	Partition details: board type and thickness	Distance of CW studs	Wall height	Fire resistance	Insulation: thickness/type		Sound insulation:
[mm]	[mm]	[mm]	[m]	EI [min]	[mm]	típus	Rw(Rw+C)
CW 75/125	2 x (Duraline Blue DB 12.5 + Glasroc X 12.5)	300	7	EI 30	75	Isover Akusto	–
CW 75/125	2 x (Duraline Blue DB 12.5 + Glasroc X 12.5)	600	5	EI 90	75	Isover Akusto	56 (52)
CW 75/125	2 x (Duraline Blue DB 12.5 + Glasroc X 12.5)	600	4	EI 120	75	Isover Akusto	56 (52)

This detail shows a lightweight partition wall system made with plasterboards, metal profiles, and mineral wool insulation. The wall uses Duraline Blue DB plasterboard and Glasroc X sheathing board fixed to Rigiprofil steel studs. Inside the wall, mineral wool insulation improves sound insulation and fire resistance. The system also includes acoustic tape, joint filler, and reinforcement tape to improve stability and finish. Overall, this wall construction provides fire protection, acoustic comfort, durability, and a clean interior surface.

ISOVER ENERGY-EFFICIENT
ROOF EXTENSIVE GREEN ROOF



1. Extensive vegetation – sedums, sempervivums, succulents
2. Extensive mineral substrate, 30 mm thick
3. Isover Flora hydrophilic panels, thickness 50 mm
4. Filter fabric, 120 g/m2 (only used with dimpled membrane)
5. Drainage dimpled membrane (use depends on drainage capacity calculation)
6. Protective geotextiles, 300 g/m2
7. Waterproofing resistant to root penetration
8. Isover EPS 150 thermal insulation gradient wedges
9. Isover EPS 100 thermal insulation
10. Vapour barrier
11. Supporting roof structure

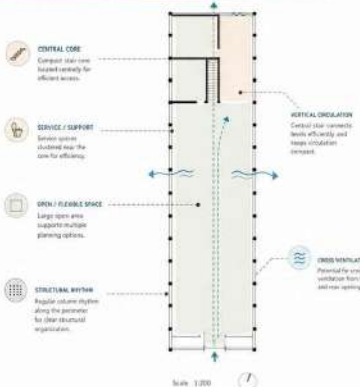
The most common type of green roofs are compositions with low xerophytic vegetation. They are low maintenance and also the most affordable. Recommended plants include sedums, sempervivums and other plants that can tolerate extreme roof conditions. The appearance and colour of sedums changes throughout the year. This type of green roof retains more water than a roof without plants. It is also lightweight and suitable for the reconstruction of houses, pergolas, etc.

\+ Rainwater retention
\+ Most affordable
\+ Easy implementation
\+ Low maintenance
\+ Low weight
\- Limited choice of vegetation
\- Can’t be walked on at all times

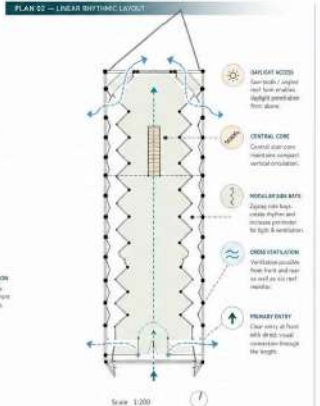
PLAN ANALYSIS

SPATIAL ORGANIZATION, CORE LOGIC & FUNCTIONAL RHYTHM

PLAN 01 — COMPACT CORE LAYOUT



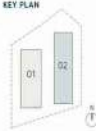
PLAN 02 — LINEAR RHYTHMIC LAYOUT



LEGEND

- Vertical Circulation / Core
- Service / Support
- Open / Flexible Space
- Circulation (Horizontal)
- Ventilation
- Structure / Columns
- Perimeter / Envelope

KEY PLAN



DESIGN INTENT

The plans are organized around a efficient central core and a clear structural rhythm to create flexible, well-lit and well-ventilated spaces. The layouts support adaptable programs while ensuring simplicity of circulation and constructability.

KEY TAKEAWAYS

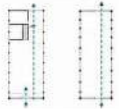
- Efficient central stair core minimizes circulation footprint.
- Linear organization provides clarity and flexibility.
- Regular structural grid and perimeter columns enable modular planning.
- Cross ventilation and daylight potential from both sides and from above (Plan 02).
- Compact service core keeps utilities and functions well organized.
- Open spaces are adaptable for diverse programs.

PLAN INFORMATION

Plan 01 Type	Compact Core Layout
Plan 02 Type	Linear Rhythmic Layout
Scale	1:200
Orientation	North (N)
Use Intent	Accommodation Unit

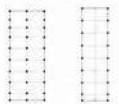
CIRCULATION

Efficient vertical connection with direct and simple flow.



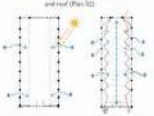
STRUCTURE

Clear structural rhythm with perimeter columns.



DAYLIGHT & VENTILATION

Cross-ventilation from front and rear; daylight from sides and roof (Plan 02).

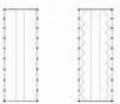


PROGRAM LOGIC

Core + service at one end, large open space for flexible use.

SPATIAL RHYTHM

Repeating module and rule bays create rhythm and depth.



Note: Diagrams are conceptual representations for design analysis purposes.

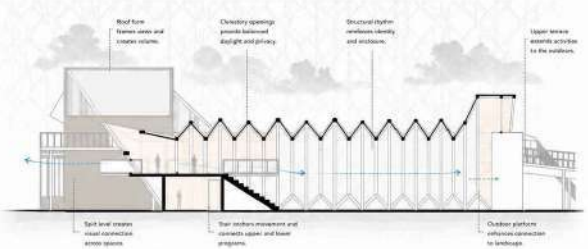
SECTION & ELEVATION ANALYSIS

SPATIAL CHARACTER, FACADE RHYTHM & ENVIRONMENTAL RESPONSE

SECTION 01

LONGITUDINAL SECTION THROUGH SERRATED FACADE

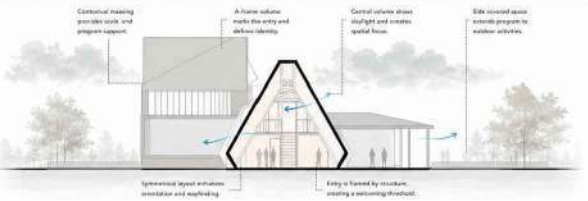
- Serrated facade rhythm creates a strong linear identity and visual cadence.
- High clerestory daylight penetrates deep into the interior space.
- Linear circulation spine connects public programs across levels.
- Split levels create spatial variation and visual connections.
- Folded roof form and framing express structure and enclosure.



SECTION 02

TRANSVERSE SECTION THROUGH A-FRAME VOLUME

- A-frame volume creates a bold architectural landmark and entry identity.
- High central volume welcomes daylight and enhances spatial presence.
- Symmetrical composition reinforces balance and visual clarity.
- Adjacent masses provide contextual scale and functional support.
- Covered side space extends program and supports outdoor use.



MATERIAL & SPATIAL LEGEND

- PUBLIC / COMMUNITY
- PRIVATE / ACCOMMODATION
- SERVICE / SUPPORT
- CIRCULATION
- STRUCTURE
- OUTDOOR / TERRACE

KEY PLAN

ENVIRONMENTAL RESPONSES

- DAYLIGHT PENETRATION
- NATURAL VENTILATION
- VIEWS & CONNECTION

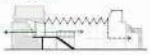
DESIGN INTENT

- Create a strong architectural identity that reflects community and place.
- Maximize natural light and ventilation to enhance comfort and reduce energy demand.
- Connect indoor and outdoor spaces through terraces, openings and layered volumes.
- Use structure and form to build rhythm, identity and spatial experience.

KEY TAKEAWAYS

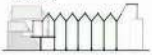
- Serrated facade establishes a distinct linear identity and rhythm.
- A-frame entry creates a memorable landmark and welcoming threshold.
- Split levels and varied roof forms enrich spatial experience and visual connections.
- Clerestory openings and ventilation strategies support daylight and thermal comfort.
- Outdoor terraces extend program and strengthen connection to site and community.

1. CIRCULATION



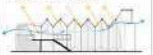
Linear circulation spine with vertical connections links spaces across split levels and terraces.

2. STRUCTURE



Repeated structural bays create the serrated rhythm and define the architectural envelope.

3. DAYLIGHT & VENTILATION



Clerestory glazing brings daylight deep inside while enabling cross ventilation.

4. FACADE RHYTHM

Serrated profile generates a strong visual cadence and expressive facade character.

5. SPATIAL IDENTITY

A-frame volume establishes a bold identity and marks the heart of the building.

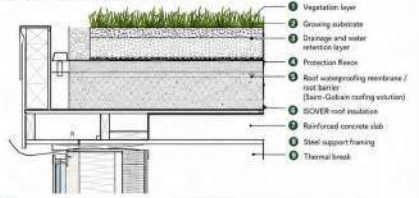
CONNECTED SPACES • CLIMATE RESPONSIVE DESIGN • DISTINCT IDENTITY • COMMUNITY & NATURE IN HARMONY


RENOVATION ANALYSIS – AJK BELGRADE
Adaptive Reuse, Spatial Reorganization & Architectural Renewal
GROUND FLOOR PLAN
FIRST FLOOR PLAN
MULTIPURPOSE / EVENT FLOOR
LONGITUDINAL SECTION
TRANSVERSE SECTION
AXONOMETRIC VIEW (RENOVATED)
ANALYTICAL DIAGRAMS
1. CIRCULATION
2. ZONING
3. PUBLIC / PRIVATE / SERVICE
4. STRUCTURAL LOGIC
5. DAYLIGHT & VENTILATION
6. INDOOR–OUTDOOR CONNECTION
LEGEND
RENOVATION STRATEGY
DESIGN INTENT
KEY TAKEAWAYS
KEY PLAN

SUSTAINABLE DETAIL ANALYSIS — SAINT-GOBAIN MATERIALS

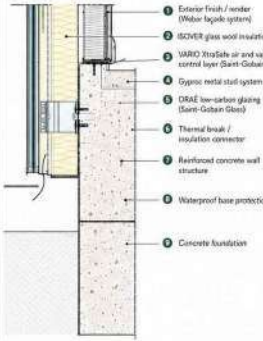
Envelope Build-Up, Thermal Performance & Circular Material Strategy

1 GREEN ROOF / ROOF EDGE DETAIL



2 INSULATED FAÇADE – WALL BUILD-UP

3 FAÇADE-TO-FOUNDATION / BASE JUNCTION



A. MATERIAL LEGEND

- Structure (Concrete / Steel)
- Insulation (ISOVER Glass Wool)
- Lining (Gypsum Board)
- Waterproofing / Air & Vapor Control
- Finish / Render (Weber System)
- Glazing (ORAÉ Low-Carbon Glass)
- Vegetation (Green Roof)

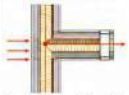
B. SAINT-GOBAIN SUSTAINABLE STRATEGY

- ISOVER insulation improves thermal and acoustic comfort and can contain up to 90% recycled glass content.
- Saint-Gobain recycled gypsum boards support circular construction and help reduce embodied carbon.
- ORAÉ low-carbon glass reduces embodied carbon while maintaining façade performance and daylight quality.
- Weber façade systems improve durability, weather resistance, and thermal performance for long-term value.
- Integrated Saint-Gobain assemblies help reduce operational energy, improve indoor comfort, and support low-carbon buildings.

C. KEY TAKEAWAYS

- Reduced heat loss through continuous insulation and thermal breaks.
- Improved moisture control with smart layering and durable waterproofing.
- Circular material thinking with recycled content and recyclable systems.
- Better daylight and comfort with high-performance, low-carbon glazing.
- Durable, resilient envelope design for long-term performance.

THERMAL CONTINUITY



Continuous insulation and thermal breaks minimize heat loss and thermal bridging, improving energy efficiency.

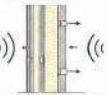
MOISTURE CONTROL

Capillary breaks, waterproofing, and vapor control layers work together to manage moisture and protect the structure.

DAYLIGHT & GLAZING

ORAÉ low-carbon glazing maximizes natural light and solar gain comfort for visual comfort and reduced energy demand.

ACOUSTIC PERFORMANCE



ISOVER glass wool and dense gypsum linings improve sound insulation for quieter, more comfortable interiors.

CIRCULAR MATERIAL LOGIC

Products designed for durability, reuse, and recyclability to reduce embodied carbon and construction waste.

DESIGN INTENT

These details illustrate a high-performance building envelope that integrates Saint-Gobain solutions for thermal efficiency, moisture protection, acoustic comfort, and circularity—supporting resilient, low-carbon architecture.

Better Materials. Better Buildings. Better Future.

Energy Performance Evaluation

Key Values

General Project Data

Project Name:	SMESTUVANJE BG.MAT...	
City Location:		
Latitude:	47° 33' 35" N	
Longitude:	19° 3' 17" E	
Altitude:	0.00	m
Climate Data Source:	Strusoft server	
Evaluation Date:	5/12/2026 11:14 PM	

Building Geometry Data

Gross Floor Area:	615.81	m²
Treated Floor Area:	562.70	m²
External Envelope Area:	342.50	m²
Ventilated Volume:	1430.25	m³
Glazing Ratio:	26	%

Building Shell Performance Data

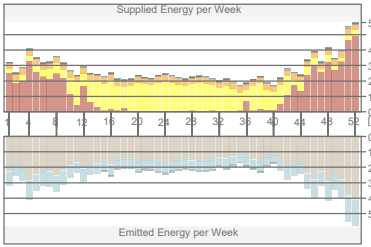
Infiltration at 50Pa:	1.65	ACH

Heat Transfer Coefficients	U value	[W/m²K]
Building Shell Average:	2.32	
Floors:	--	
External:	0.23 - 5.96	
Underground:	--	
Openings:	3.01 - 3.93	

Specific Annual Values		
Net Heating Energy:	105.41	kWh/m²a
Net Cooling Energy:	4.87	kWh/m²a
Total Net Energy:	110.28	kWh/m²a
Energy Consumption:	117.95	kWh/m²a
Fuel Consumption:	114.90	kWh/m²a
Primary Energy:	35.19	kWh/m²a
Fuel Cost:	--	GBP/m²a
CO2 Emission:	2.05	kg/m²a

Degree Days	
Heating (HDD):	3202.19
Cooling (CDD):	1857.14

Project Energy Balance



Lighting and Equipment
4313.1 kWh/a
Added Latent Energy
1426.3 kWh/a
Human Heat Gain
19717.0 kWh/a
Solar Gain
59070.9 kWh/a
Heating
59313.6 kWh/a

Transmission
99883.0 kWh/a
Infiltration
1793.9 kWh/a
Ventilation
39479.3 kWh/a
Cooling
2740.9 kWh/a

Thermal Blocks

Thermal Block	Zones Assigned	Operation Profile	Gross Floor Area m²	Volume m³
001 RESIDENTAL UNIT	36	Residential	615.81	1430.25
Total:	36		615.81	1430.25

Energy Performance Evaluation

001 RESIDENTAL UNIT - Key Values

Geometry Data		
Gross Floor Area:	615.81	m²
Treated Floor Area:	562.70	m²
Building Shell Area:	342.50	m²
Ventilated Volume:	1430.25	m³
Glazing Ratio:	26	%

Internal Temperature		
Min. (06:00 Dec. 23):	-8.06	°C
Annual Mean:	20.89	°C
Max. (17:00 Jul. 18):	46.38	°C

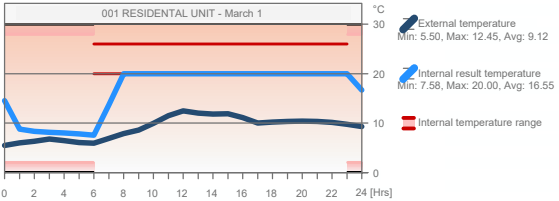
Unmet Load Hours		
Heating:	250	hrs/a
Cooling:	1610	hrs/a

Heat Transfer Coefficients U value		[W/m²K]
Floors:	-	
External:	0.23 - 5.96	
Underground:	-	
Openings:	3.01 - 3.93	

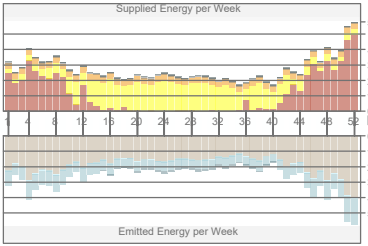
Annual Supplies		
Heating:	59313.63	kWh
Cooling:	2740.95	kWh

Peak Loads		
Heating (07:00 Dec. 23):	55.53	kW
Cooling (19:00 Jun. 09):	1.49	kW

Daily Temperature Profile



001 RESIDENTAL UNIT Energy Balance



Lighting and Equipment
4313.1 kWh/a
Added Latent Energy
1426.3 kWh/a
Human Heat Gain
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Solar Gain
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Heating
59313.6 kWh/a

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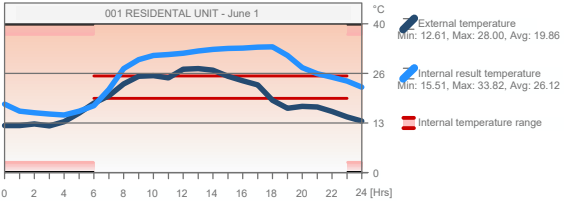
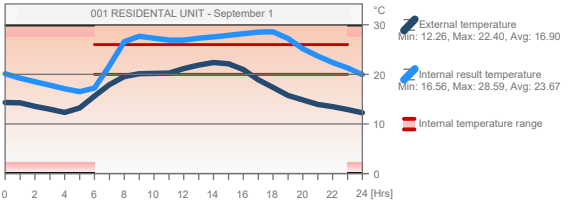
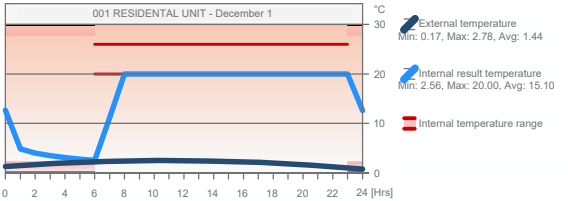
Energy Performance Evaluation







Energy Performance Evaluation

[Project Number] [Project Name]

HVAC Design Data

Thermal Block	Heating Demand		Cooling Demand		Internal Temperature	
	Yearly [kWh]	Hourly Peak [kW]	Yearly [kWh]	Hourly Peak [kW]	Min. [°C]	Max. [°C]
001 RESIDENTAL UNIT	59313	55.5 07:00 Dec. 23	2740	1.5 07:00 May. 15	-8.1 06:00 Dec. 23	46.4 7:00 Jul. 18
All Thermal Blocks:	59313	55.5 07:00 Dec. 23	2740	1.5 07:00 May. 15		

Number of Used Hours in Year:

Heating:	3280	hrs
Cooling:	1925	hrs

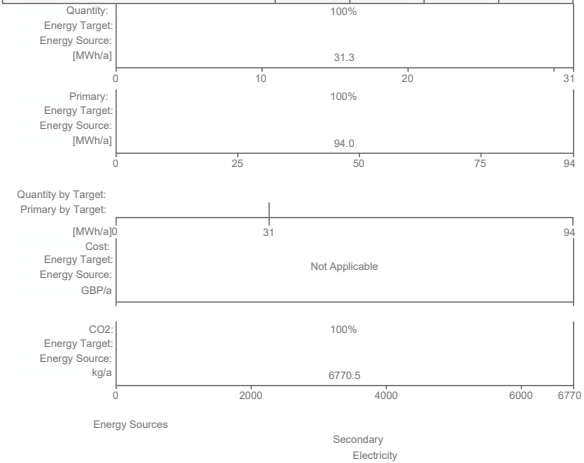
Unmet Load Hours in Year:

Heating:	250	hrs
Cooling:	1610	hrs

Energy Performance Evaluation

Energy Consumption by Targets

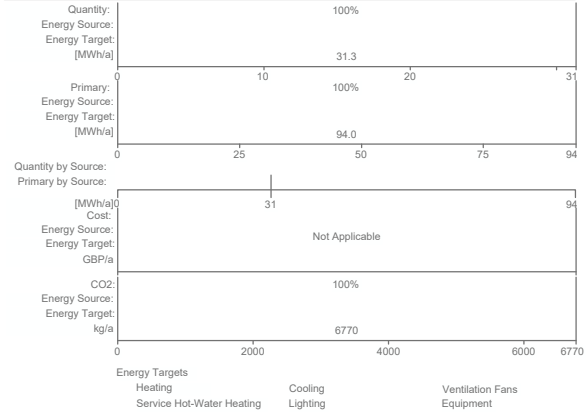
Target Name	Energy Quantity MWh/a	Primary MWh/a	Cost GBP/a	CO2 Emission kg/a
Heating	0	0	0	0
Cooling	0	0	0	0
Service Hot-Water	0	0	0	0
Ventilation Fans	0	0	0	0
Lighting & Appliances	31	94	0	6770
Total:	31	94	NA	6770



Energy Performance Evaluation

Energy Consumption by Sources

Source Type	Source Name	Energy Quantity MWh/a	Primary MWh/a	Cost GBP/a	CO2 Emission kg/a
Secondary	Electricity	31	94	--	6770
	Total:	31	94	Not Applicable	6770



Environmental Impact

Source Type	Source Name	Primary Energy MWh/a	CO2 emission kg/a
Secondary	Electricity	94	6770
	Total:	94	6770

Energy Performance Evaluation

Key Values

General Project Data		
Project Name:	SMESTUVANJE BG.MAT...	
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Longitude:	19° 3' 17" E	
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Building Geometry Data		
Gross Floor Area:	615.81	m²
Treated Floor Area:	562.70	m²
External Envelope Area:	342.50	m²
Ventilated Volume:	1430.25	m³
Glazing Ratio:	26	%

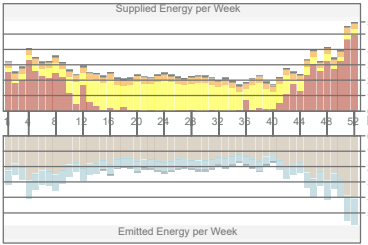
Building Shell Performance Data		
Infiltration at 50Pa:	1.65	ACH

Heat Transfer Coefficients	U value	[W/m²K]
Building Shell Average:	2.32	
Floors:	--	
External:	0.23 - 5.96	
Underground:	--	
Openings:	3.01 - 3.93	

Specific Annual Values		
Net Heating Energy:	105.41	kWh/m²a
Net Cooling Energy:	4.87	kWh/m²a
Total Net Energy:	110.28	kWh/m²a
Energy Consumption:	117.95	kWh/m²a
Fuel Consumption:	114.90	kWh/m²a
Primary Energy:	35.19	kWh/m²a
Fuel Cost:	--	GBP/m²a
CO2 Emission:	2.05	kg/m²a

Degree Days	
Heating (HDD):	3202.19
Cooling (CDD):	1857.14

Project Energy Balance



Lighting and Equipment
4313.1 kWh/a
Added Latent Energy
1426.3 kWh/a
Human Heat Gain
19717.0 kWh/a
Solar Gain
59070.9 kWh/a
Heating
59313.6 kWh/a

Transmission
99883.0 kWh/a
Infiltration
1793.9 kWh/a
Ventilation
39479.3 kWh/a
Cooling
2740.9 kWh/a

Thermal Blocks

Thermal Block	Zones Assigned	Operation Profile	Gross Floor Area m²	Volume m³
001 RESIDENTAL UNIT	36	Residential	615.81	1430.25
Total:	36		615.81	1430.25

Energy Performance Evaluation

001 RESIDENTAL UNIT - Key Values

Geometry Data		
Gross Floor Area:	615.81	m²
Treated Floor Area:	562.70	m²
Building Shell Area:	342.50	m²
Ventilated Volume:	1430.25	m³
Glazing Ratio:	26	%

Internal Temperature		
Min. (06:00 Dec. 23):	-8.06	°C
Annual Mean:	20.89	°C
Max. (17:00 Jul. 18):	46.38	°C

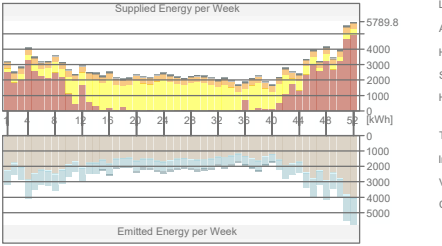
Unmet Load Hours		
Heating:	250	hrs/a
Cooling:	1610	hrs/a

Heat Transfer Coefficients U value		[W/m²K]
Floors:	-	
External:	0.23 - 5.96	
Underground:	-	
Openings:	3.01 - 3.93	

Annual Supplies		
Heating:	59313.63	kWh
Cooling:	2740.95	kWh

Peak Loads		
Heating (07:00 Dec. 23):	55.53	kW
Cooling (19:00 Jun. 09):	1.49	kW

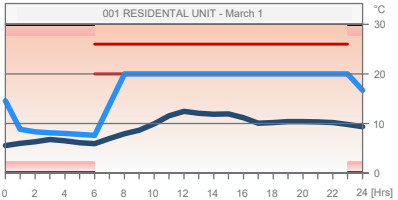
001 RESIDENTAL UNIT Energy Balance



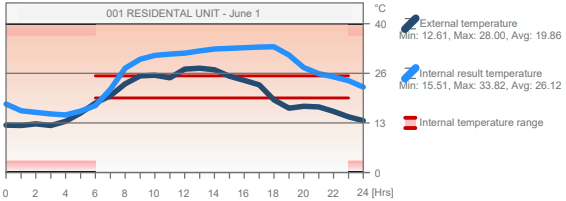
Lighting and Equipment
4313.1 kWh/a
Added Latent Energy
1426.3 kWh/a
Human Heat Gain
19717.0 kWh/a
Solar Gain
59070.9 kWh/a
Heating
59313.6 kWh/a

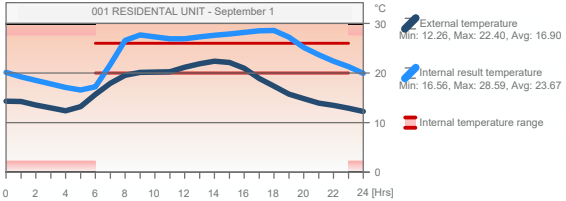
Transmission
99883.0 kWh/a
Infiltration
1793.9 kWh/a
Ventilation
39479.3 kWh/a
Cooling
2740.9 kWh/a

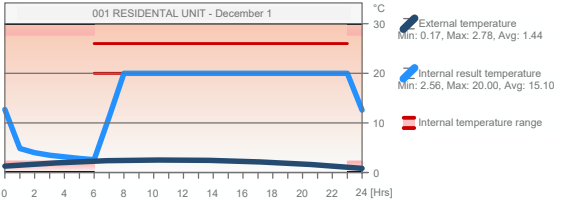
Daily Temperature Profile



Energy Performance Evaluation







Energy Performance Evaluation

HVAC Design Data

Thermal Block	Heating Demand		Cooling Demand		Internal Temperature	
	Yearly [kWh]	Hourly Peak [kW]	Yearly [kWh]	Hourly Peak [kW]	Min. [°C]	Max. [°C]
001 RESIDENTAL UNIT	59313	55.5 07:00 Dec. 23	2740	1.5 07:00 May. 15	-8.1 06:00 Dec. 23	46.4 17:00 Jul. 18
All Thermal Blocks:	59313	55.5 07:00 Dec. 23	2740	1.5 07:00 May. 15		

Number of Used Hours in Year:

Heating:	3280	hrs
Cooling:	1925	hrs

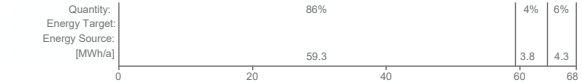
Unmet Load Hours in Year:

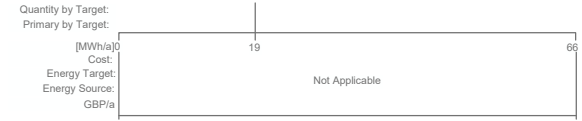
Heating:	250	hrs
Cooling:	1610	hrs

Energy Performance Evaluation

Energy Consumption by Targets

Target Name	Energy Quantity MWh/a	Primary MWh/a	Cost GBP/a	CO2 Emission kg/a
Heating	59	0	0	0
Cooling	2	6	0	222
Service Hot-Water	0	0	0	0
Ventilation Fans	0	0	0	0
Lighting & Appliances	4	12	0	931
Total:	66	19	NA	1154

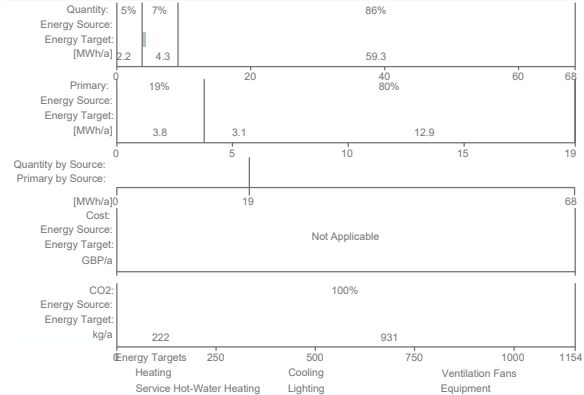




Energy Performance Evaluation

Energy Consumption by Sources

Source Type	Energy: Source Name	Quantity MWh/a	Primary MWh/a	Cost GBP/a	CO2 Emission kg/a
Renewable	External Air	3	3	NA	0
Secondary	Electricity	5	16	--	1154
	Not Specified	59	--	--	--
	Total:	68	19	Not Applicable	1154



Environmental Impact

Source Type	Source Name	Primary Energy MWh/a	CO2 emission kg/a
Renewable	External Air	3	0
Secondary	Electricity	16	1154
	Total:	19	1154

SAINT-GOBAIN GLASS

53	0.25	12	49	0.5
TL %	g-value	RL2 %	Rw	Ug

55.2 SI (16 Argon 90) 6 (16 Argon 90) 44.2 SI [Swisspacer Ultimate Pro]
COOL-LITE XTREME 61-29 #4 / PLANITHERM XN #7

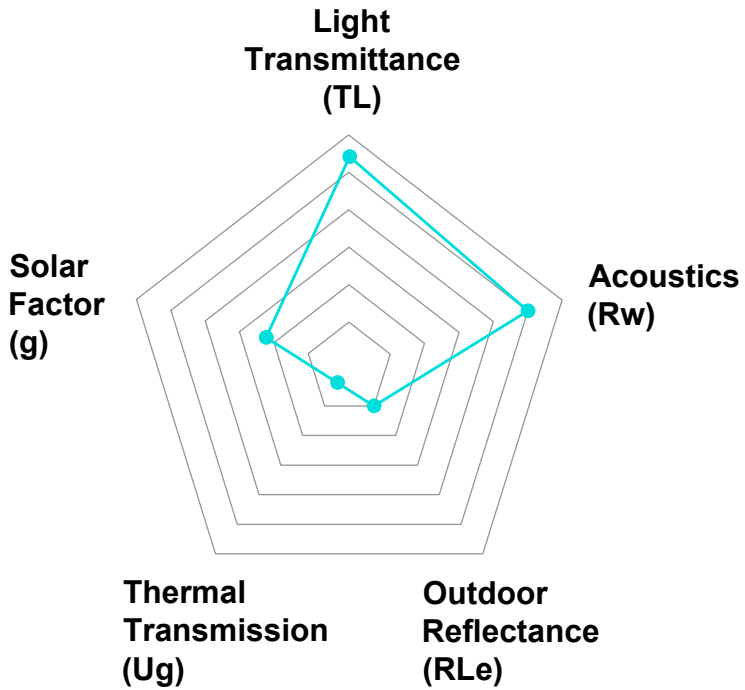
Glazing 1
PLANICLEAR (5mm) - Annealed
PVB SILENCE (0.76mm)
PLANICLEAR (5mm) - Annealed
COOL-LITE XTREME 61-29

Cavity 1
Argon 90% 16 mm
Swisspacer Ultimate Pro

Glazing 2
PLANICLEAR (6mm) - Annealed

Cavity 2
Argon 90% 16 mm
Swisspacer Ultimate Pro

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



Thermal Transmission - Ug [W/(m2.K)]	**0.5**
Solar Factor - g-value	**0.25**
Thermal Transmission - Ug [W/(m2.K)]	**53**
Thermal Transmission - Ug [W/(m2.K)]	**49**

This detail shows a Saint-Gobain high-performance glazing system made from multiple glass layers separated by argon-filled cavities. The glass includes special coatings such as COOL-LITE XTREME and PLANITHERM XN, which help control solar heat gain and improve thermal insulation.The system provides good light transmittance, low thermal transmission, and improved acoustic performance. The argon gas and warm-edge spacers reduce heat loss, while the laminated glass layers improve safety and sound insulation. Overall, this glazing detail is designed for energy efficiency, comfort, daylight control, and acoustic protection.