



2025-2026

HYDRIC MEMORY :

AT THE CROSSROADS OF THE WADI AND THE CITY

DESIGN OF AN INTEGRATED WATER MANAGEMENT INFRASTRUCTURE

SITE PLANNING CONCEPT :



SITE INTEGRATION

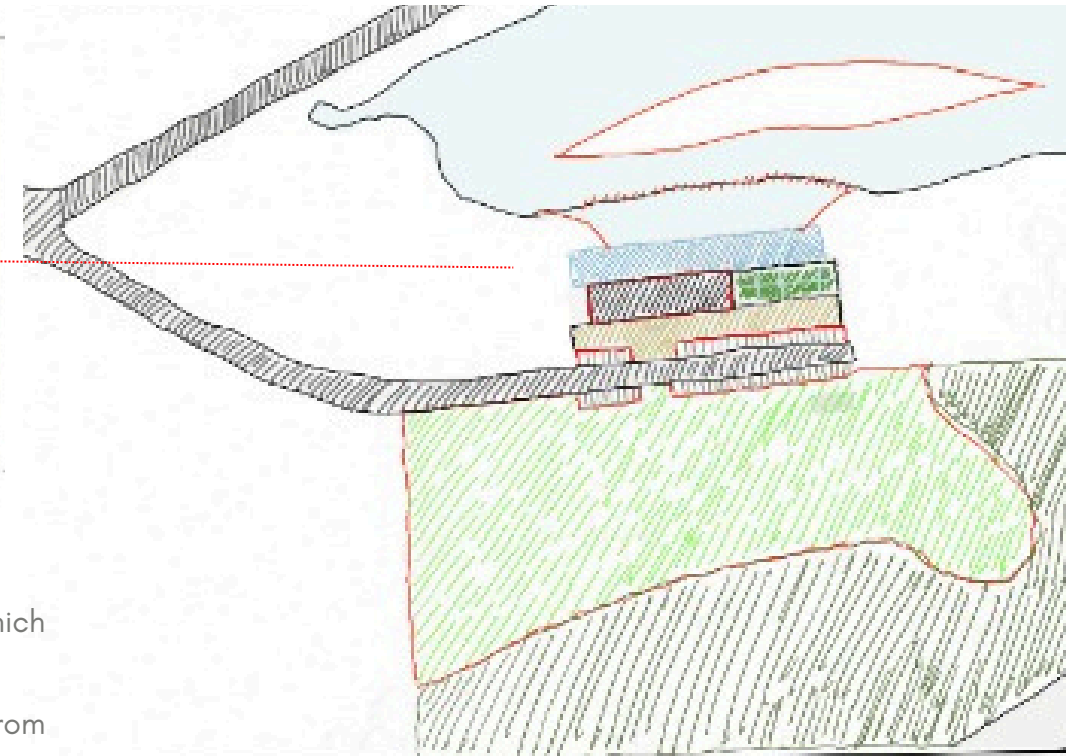
We deliberately chose to intervene directly along the wadi, aligning the project parallel to its course. Rather than acting as a barrier, the building becomes a bridge—a threshold that reconnects the city with the underutilized natural landscape of Oued Ikkem.



ACCESSIBILITY

Given the selected site, one of the primary design challenges was to establish accessibility, which had previously been lacking.

Bordered by the regional coastal road, the proposal introduces a new access road branching from the existing infrastructure and running along the project site, providing direct and efficient access.



THRESHOLD BRIDGE: GUIDING AND DISPERSING INCOMING WATER

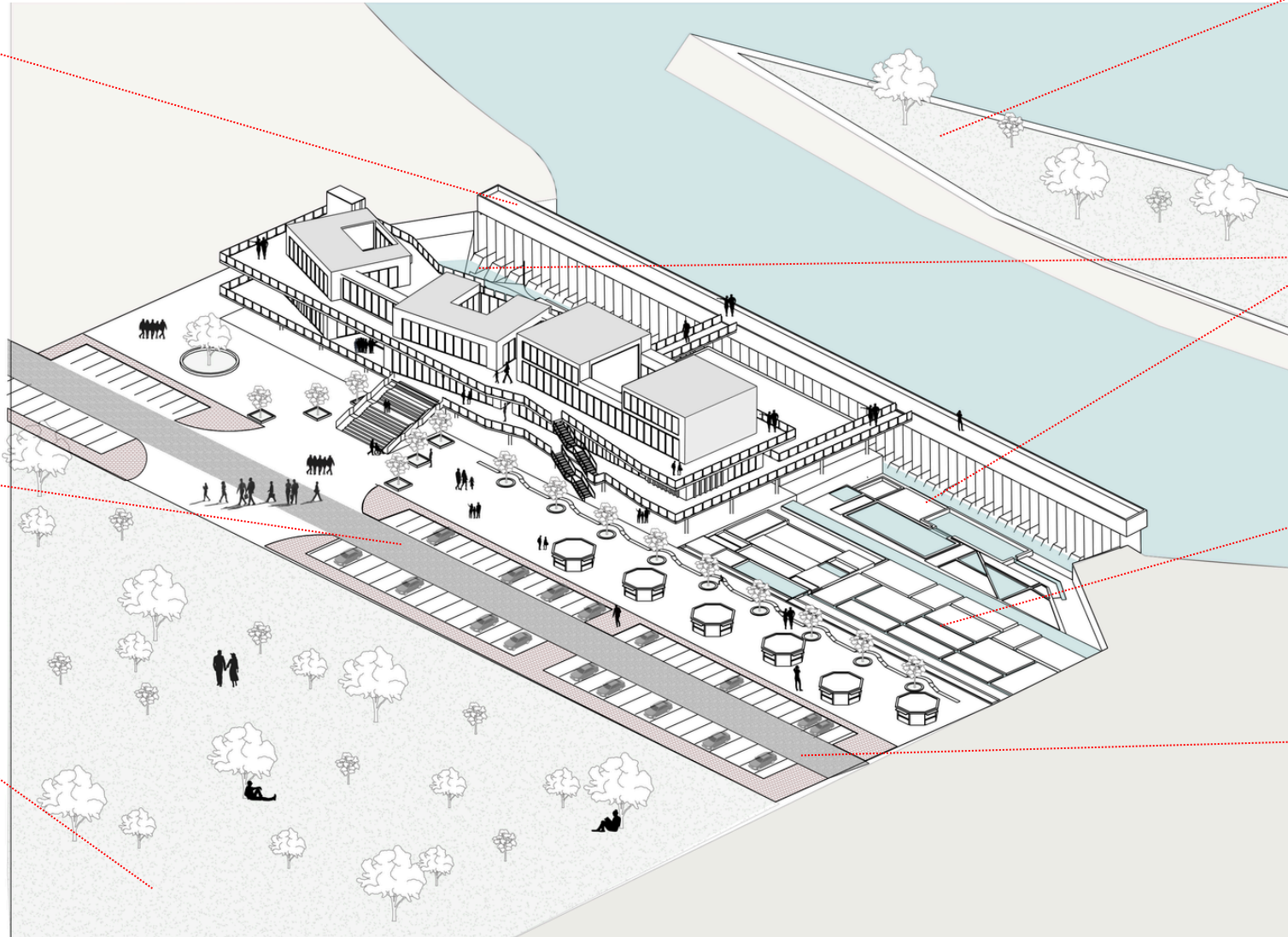
At the entrance to the hydraulic landscape, a threshold bridge is designed to intercept and redirect floodwaters toward the retention basins and constructed wetlands. Under normal conditions, the bridge remains fully accessible to visitors, offering panoramic views of the wadi and the water management systems integrated into the project.

MULTIMODAL ACCESSIBILITY

To encourage public use, the newly created access road is complemented by parking areas on both sides, as well as dedicated pedestrian pathways ensuring safe and convenient access for all users.

AFFORESTATION: STABILIZING THE SOIL AND RECHARGING THE GROUNDWATER

To promote rainwater infiltration and improve soil stability, the transition zone between the project and the existing forest is fully landscaped and afforested, extending the site's ecological corridor.



CREATION OF A RIVER ISLAND: A SECONDARY WADI CHANNEL

To better accommodate seasonal flooding and manage water flows without disrupting the site, a secondary river channel is created, forming a fluvial island. Inspired by the ancestral Saguia irrigation canals, this intervention slows, distributes, and regulates water before it reaches the project.

TERRACED WATER STEPS

To further slow and guide floodwaters toward the retention basins, a series of stepped terraces is integrated immediately beyond the bridge. These terraces are publicly accessible on one side while functioning as hydraulic infrastructure on the other, combining technical performance with public use.

DEMONSTRATION LANDSCAPE

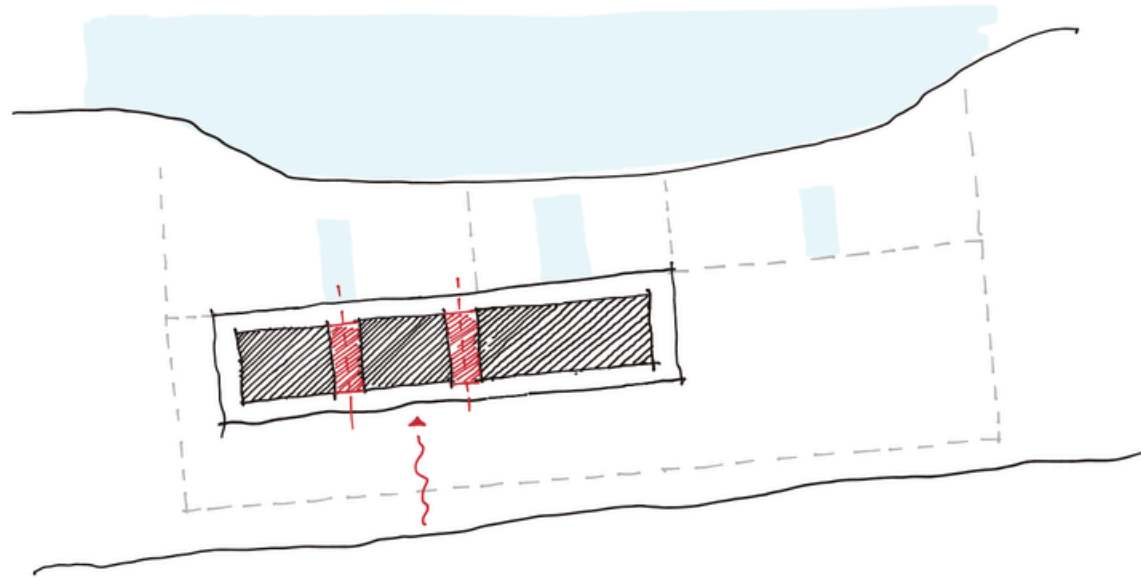
To showcase the proposed water management and distribution system at a neighborhood scale, planted demonstration gardens irrigated through a network of Saguia-inspired channels are located along the wadi frontage, allowing visitors to observe the system in operation.

PUBLIC PLAZA

As the project is intended to serve not only technical and functional purposes but also cultural and social ones, a public plaza is introduced behind the building. Equipped with seating areas and kiosks, it provides a welcoming space for gathering, relaxation, and social interaction.

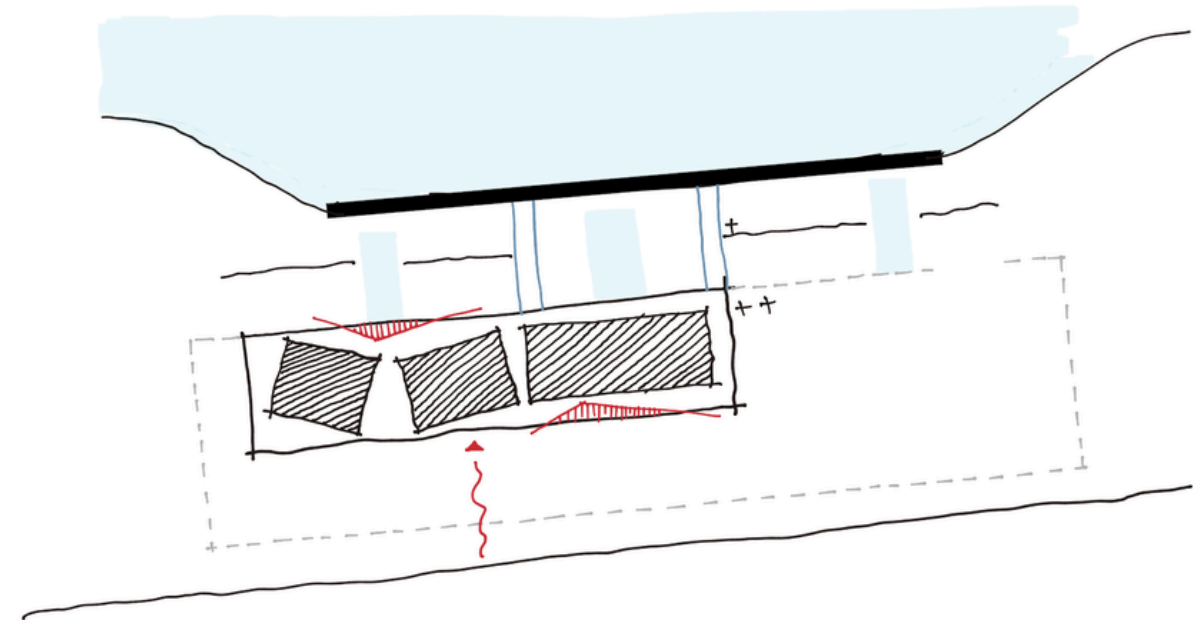
ARCHITECTURAL CONCEPT :

1. FRAGMENTED FRONTAL VOLUME



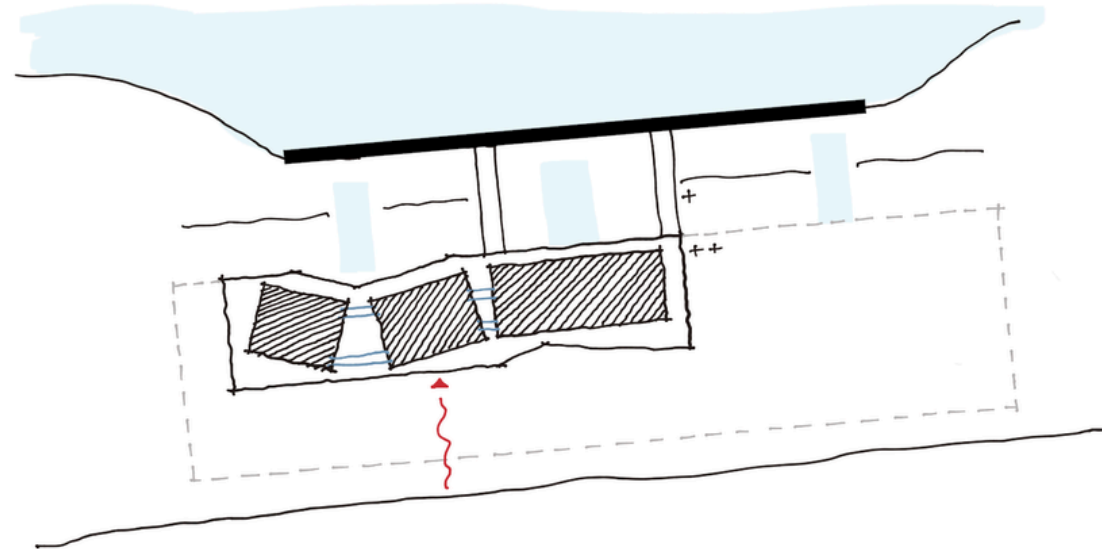
The project begins with a frontal building mass fragmented into several distinct volumes in order to reduce its visual impact and establish a stronger dialogue with the surrounding wadi landscape. This fragmentation creates visual openings and spatial breathing spaces between the blocks, promoting natural ventilation while enhancing the building's integration with the site's topography. Although the composition remains linear, the separation of the volumes introduces a dynamic architectural rhythm that defines the project's identity.

2. CIRCULATION WALKWAYS AND SPATIAL DYNAMICS



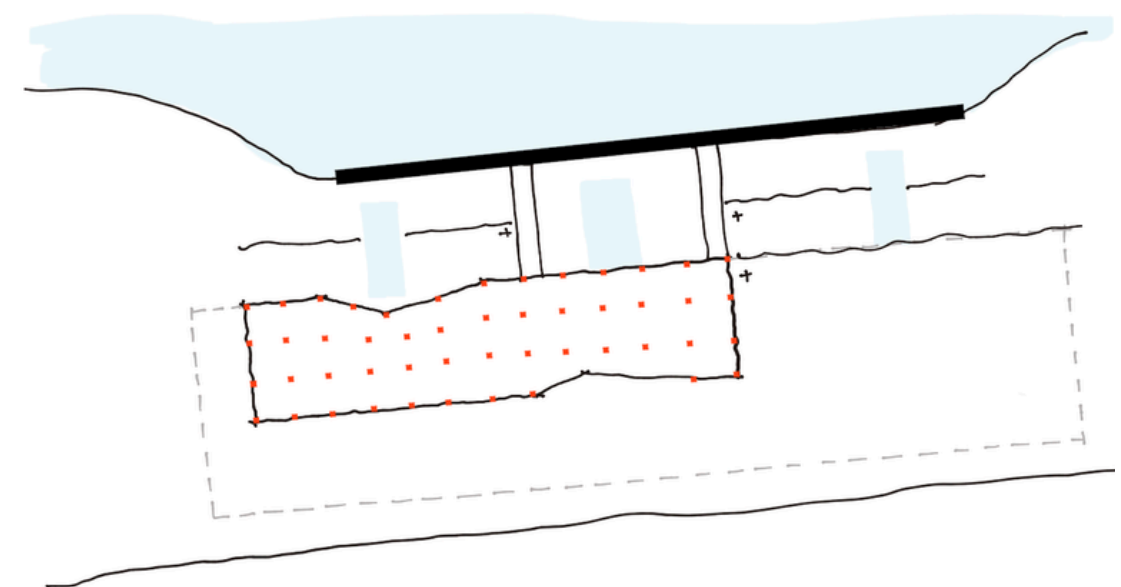
At the next stage, the building blocks are shifted and connected by a network of circulation walkways that organize the project. These elevated connections become generators of movement, bringing lightness and fluidity to the overall composition. A deliberate break is introduced in the linear alignment of the walkways, replacing rigid geometry with a more dynamic configuration inspired by the movement of water. This inflection creates varied spatial sequences while directing views toward the wadi and the surrounding landscape.

3. FINAL ARCHITECTURAL CONCEPT



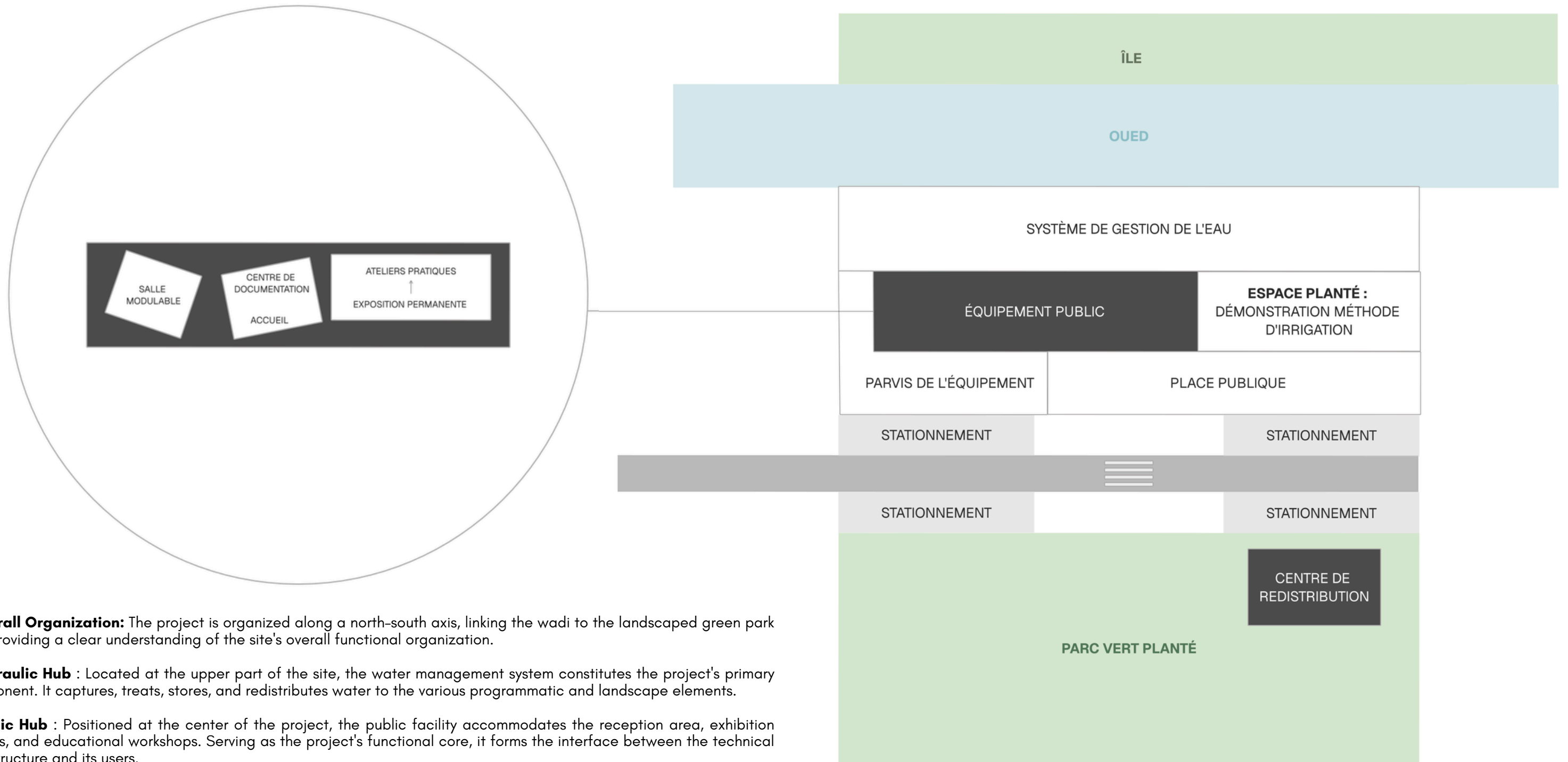
The final proposal reinforces the fragmented composition and fully embraces the changes introduced in the circulation system. The walkways evolve beyond simple connecting elements to become architectural features that shape the visitor's experience throughout the project. Their carefully controlled geometry creates a balance between tension and harmony while optimizing daylight, natural ventilation, and visual connections with the wadi.

4. BUILDING ON PILOTIS



The final stage elevates the building on pilotis, freeing the ground level and allowing both floodwaters and natural ecological flows to pass beneath the structure without obstruction. This elevated configuration enhances the building's visual lightness while responding directly to the hydraulic constraints of the site. The open space beneath the building contributes to flood resilience and expresses an architectural approach that respects both the landscape and the natural dynamics of the wadi.

PROJECT FUNCTIONAL DIAGRAM



- **Overall Organization:** The project is organized along a north-south axis, linking the wadi to the landscaped green park and providing a clear understanding of the site's overall functional organization.

- **Hydraulic Hub :** Located at the upper part of the site, the water management system constitutes the project's primary component. It captures, treats, stores, and redistributes water to the various programmatic and landscape elements.

- **Public Hub :** Positioned at the center of the project, the public facility accommodates the reception area, exhibition spaces, and educational workshops. Serving as the project's functional core, it forms the interface between the technical infrastructure and its users.

- **Outdoor Educational Hub :** Adjacent to the main building, the landscaped demonstration area extends the educational experience outdoors by showcasing traditional and contemporary irrigation techniques within a planted environment.

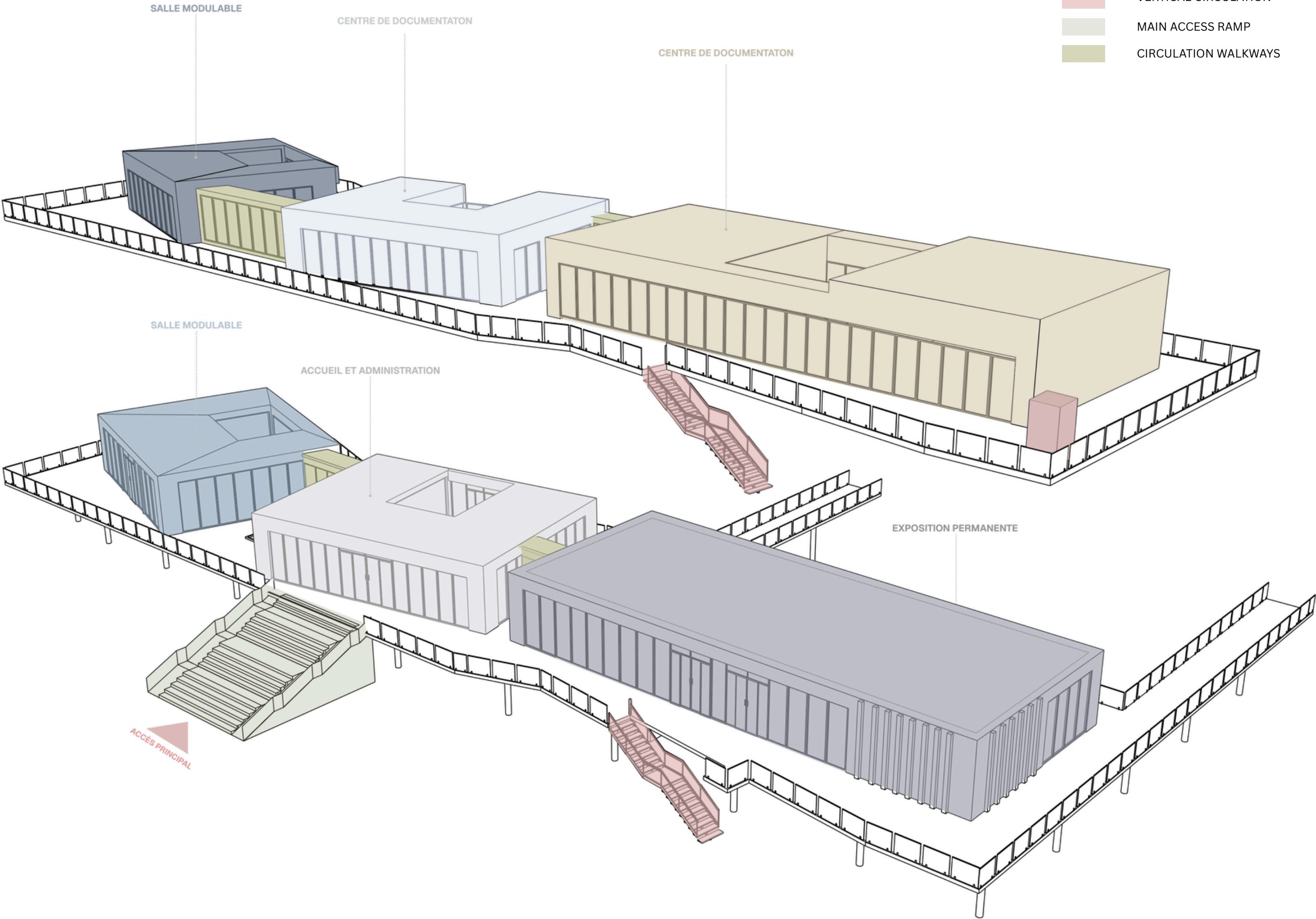
- **Transition Spaces :** The entrance plaza and public square articulate the relationship between the building and the surrounding open spaces while structuring pedestrian circulation throughout the site.

- **Logistics Hub :** Parking facilities are located along the site's perimeter to separate vehicular traffic from pedestrian movement, ensuring safe and efficient circulation.

- **Water Redistribution Hub :** Located within the landscaped green park at the lower part of the site, the redistribution center completes the project's water management cycle by supplying treated water to the designated landscape and building uses.

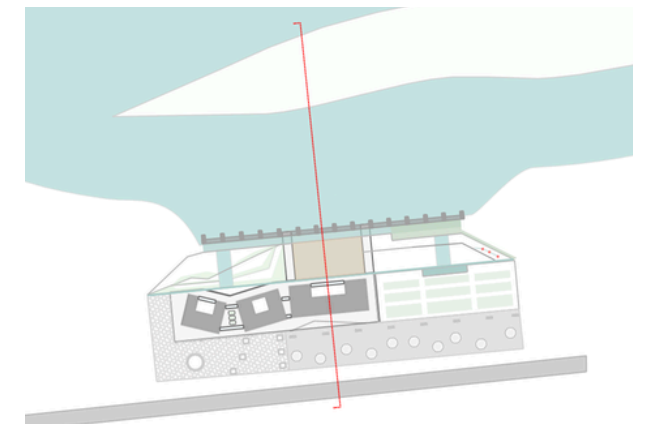
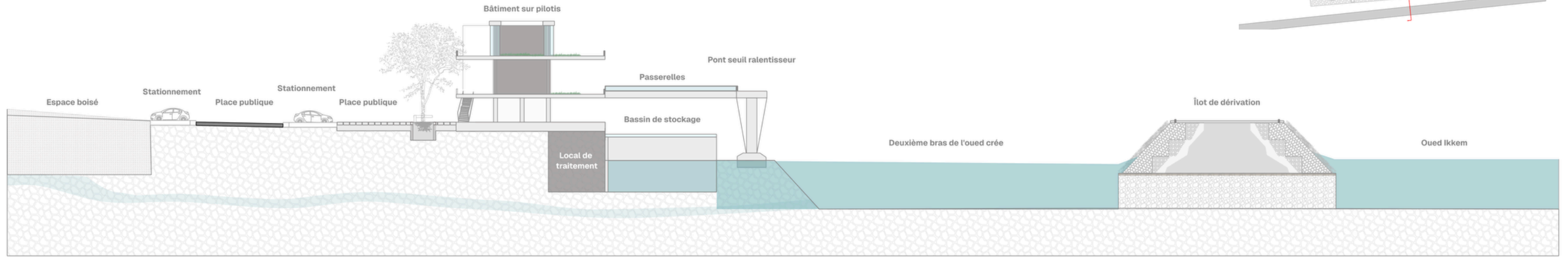
BUILDING FUNCTIONAL DIAGRAM

- VERTICAL CIRCULATION
- MAIN ACCESS RAMP
- CIRCULATION WALKWAYS



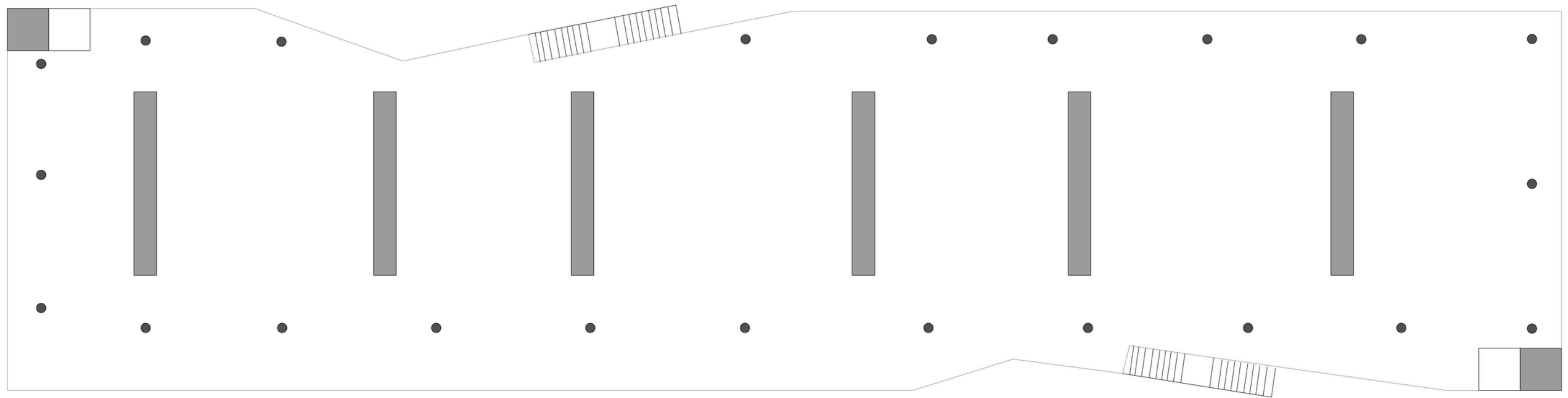
SUPPLEMENTARY DOCUMENTS

CROSS SECTION THROUGH THE CENTER OF THE PROJECT



Plan conceptuel de la structure

Structures sur pilotis avec voiles (plan de structure)

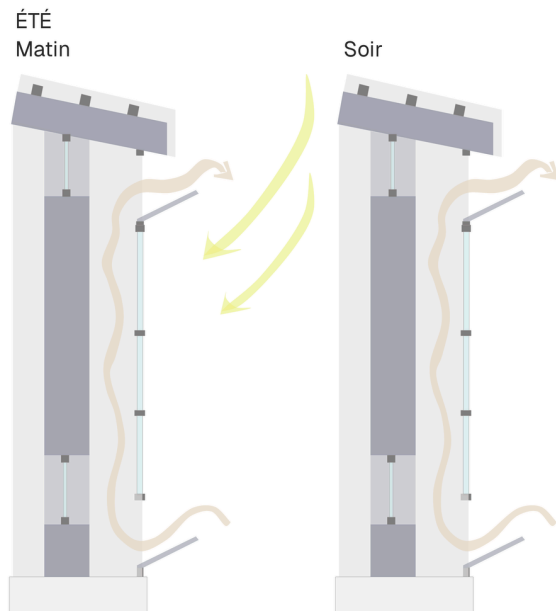


SUPPLEMENTARY DOCUMENTS

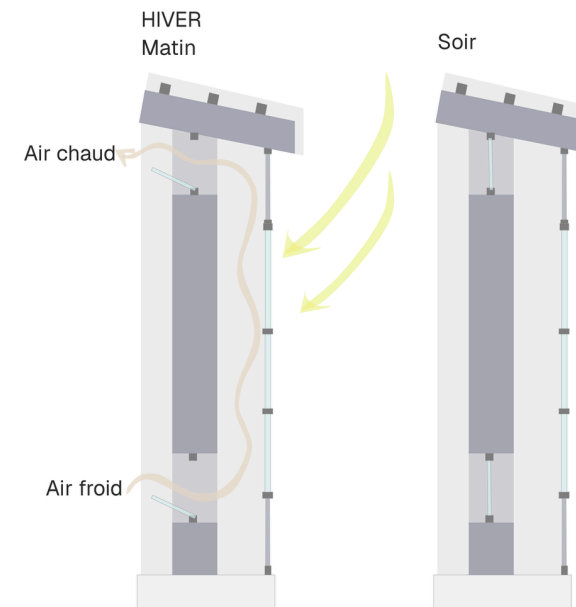
APPLIED BIOCLIMATIC PRINCIPLES

MUR TROMBE

Régulation thermique passive



- The openings in the earthen wall remain closed.
- During the day, the glazed façade openings are kept open, allowing natural ventilation while limiting heat accumulation within the rammed-earth wall.
- Having cooled overnight, the wall releases its stored coolness into the interior, improving thermal comfort. External shading devices may be installed in front of the glazed façade (or the earthen wall) to reduce solar gains and prevent overheating.
- At night, the glazed façade openings remain open to promote night-time ventilation and cool the earthen wall. Without solar radiation and with lower outdoor temperatures, the wall dissipates the heat accumulated during the day.



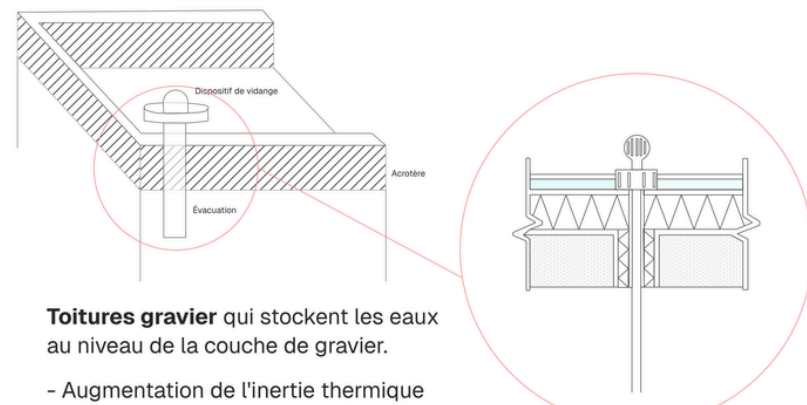
- The glazed façade openings remain closed.
- During the day, the openings in the earthen wall are opened, creating a thermosiphon effect between the wall and the glazed façade. Air is naturally heated within this cavity before being released into the interior spaces, providing passive solar heating.
- At night, the earthen wall openings are closed to minimize heat loss. Thanks to its high thermal mass, the wall gradually releases the heat stored during the day, maintaining indoor thermal comfort.

TOITURE STOCKANTE

Régulation thermique et récupération de l'eau de pluie

TOIT PLAT

Adapter à la récupération des eaux de pluie

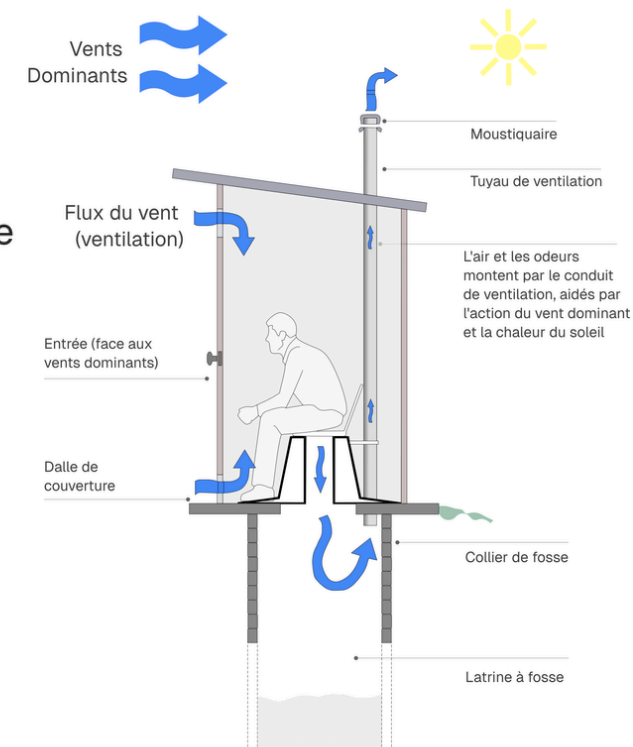
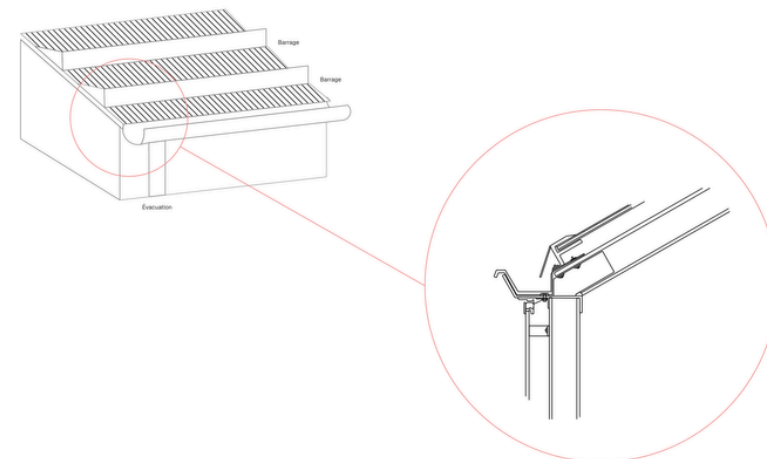


Toitures gravier qui stockent les eaux au niveau de la couche de gravier.

- Augmentation de l'inertie thermique
- Lutte contre la surchauffe estivale,
- Développement de la biodiversité
- Protection des membranes d'étanchéité contre les UV,
- Réduction du ruissellement de l'eau,
- Filtration partielle de l'eau,

TOIT EN PENTE DOUCE

Régulation thermique et récupération de l'eau de pluie



Passive Bioclimatic Ventilation – Ventilated Pit Latrine

The ventilated pit latrine operates through natural draft, combining the prevailing winds with the solar chimney effect to continuously extract stale air without mechanical energy.

- **Oriented air inlet**
→ promotes natural airflow through the cabin.
- **Solar-heated vertical ventilation shaft**
→ continuously extracts odors.
- **Insect screen and raised structure**
→ improve hygiene while reducing moisture accumulation.

DETAILED PROJECT PROGRAM

EDUCATIONAL & CULTURAL HUB

Level 01

ENTITY	SPACES	NB	UNIT AREA (m ²)	TOTAL AREA (m ²)
Espace d'exposition permanente	Exhibition Hall	1	135	135
	Immersive Exhibition Space	1	100	100
	Model Display & Interactive Area	1	35	35
	Storage Room	1	15	15
	Technical Control Room	1	15	15
Subtotal				300 m ²
Administration & reception	Reception & Orientation Hall	1	125	125
	Administrative Office	1	12	12
	Meeting Room	1	8	8
	Coordinators' Office	1	12	12
	Staff Room	1	8	8
Subtotal				165 m ²
Training Facilities	Flexible Training Room	1	120	120
Subtotal				120 m ²
TOTAL LEVEL 01				585 m²

Internal Circulation & Service Areas	stairs, elevators, walkways, bridges	300
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TOTAL AREA	1570 m²
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Level 02

ENTITY	SPACES	NB	UNIT AREA (m ²)	TOTAL AREA (m ²)
Ateliers pratiques	Construction Workshop	1	100	100
	Materials & Technical Workshop	1	70	70
	Preparation & Storage Area	1	15	15
	Changing Rooms & Restrooms	1	30	30
Subtotal				215 m ²
Documentation Center	Reading & Consultation Room	1	100	100
	Digital Resource Area	1	20	20
	Archives & Storage	1	15	15
	Documentation Office	1	15	15
Subtotal				165 m ²
Training Facilities	Flexible Training Room	1	120	120
Subtotal				120 m ²
TOTAL LEVEL 02				685 m²

VISITOR CIRCULATION

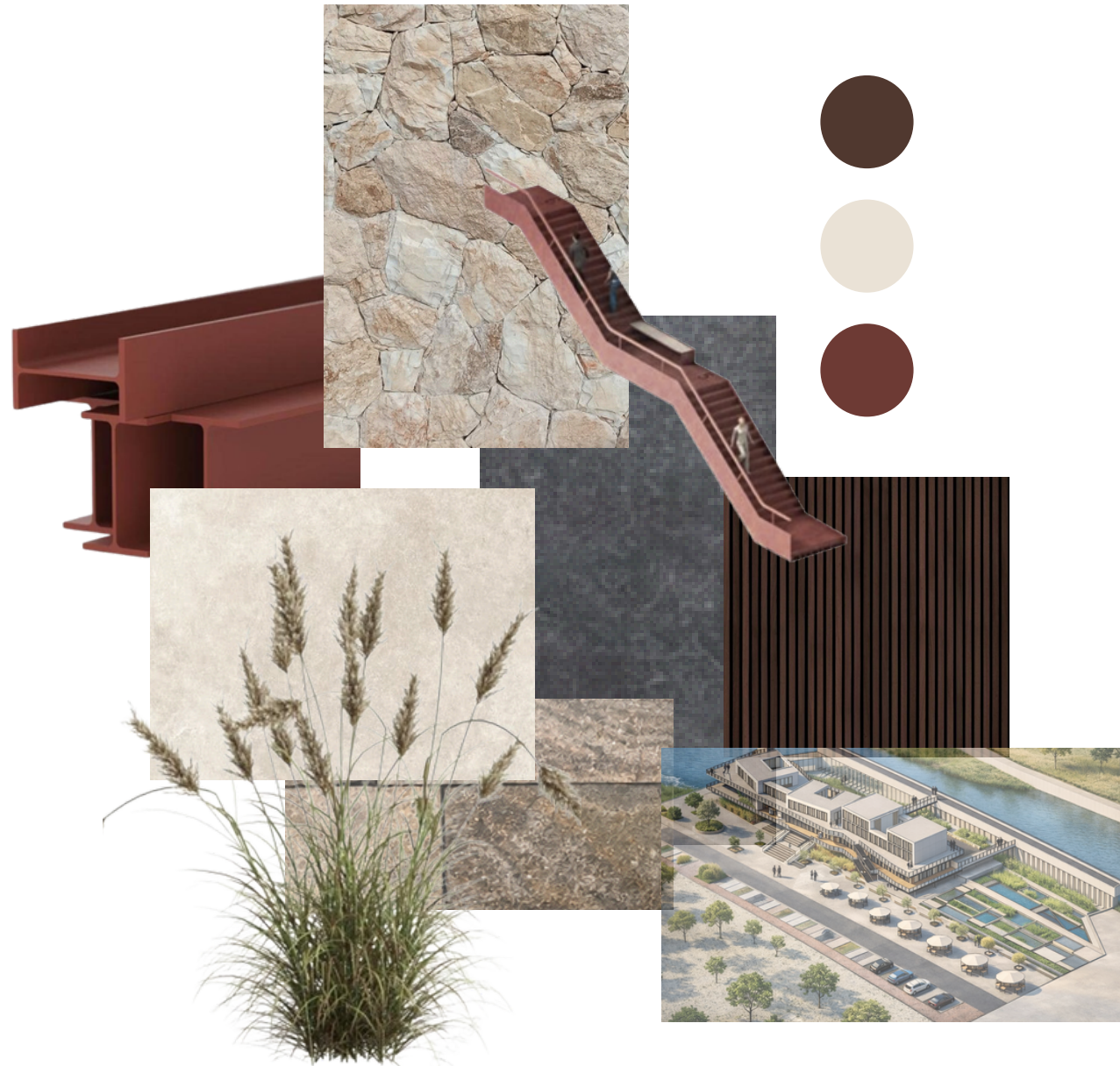


- 1. Parking Area
- 2. Main Entrance
- 3. Outdoor Exhibition
- 4. Terraced Seating
- 5. Bridges

- Site Access**
 The project is accessed from the main road through a clearly defined entrance forecourt, marking the transition between the urban environment and the public facility.
- Accessible Transition**
 A 14.5-meter access ramp provides a gradual, universally accessible approach while transforming the arrival sequence into a smooth spatial experience.
- Public Route**
 From the reception hall, visitors are naturally guided toward the exhibition spaces, training rooms, and educational workshops.
- Educational Journey**
 The circulation sequence connects theory and practice through the continuity between indoor learning spaces and outdoor demonstration areas.
- Relationship with the Hydraulic Landscape**
 Pedestrian pathways and viewing platforms open the project toward the water, integrating it as both an educational resource and a defining landscape element.
- Service Circulation**
 Service access routes are separated from public circulation to ensure efficient, discreet, and uninterrupted building operations.

NOTE EXPLICATIVE DU CHOIX DES MATÉRIAUX

MOODBOARD



Located on the banks of Oued Bouchane, the project adopts a **material palette that reflects the site's hydraulic and mineral landscape.**

EXPOSED CONCRETE defines the elevated structure, expressing solidity while evoking the image of a natural rock formation. Its thermal inertia contributes significantly to the building's passive environmental performance.

NATURAL STONE extends the geology of the riverbanks, rooting the project within its territorial context.

STEEL, used for **circulation elements and lightweight structures**, introduces a contemporary and refined character that contrasts with the building's mineral mass.

Together, these materials form a restrained, durable palette in which each component contributes to the narrative of the water cycle—bridging the memory of the land with the movement of the landscape.

La matérialité dialogue avec l'eau, l'humidité, la lumière, la minéralité du site et le temps.

EXPOSED CONCRETE (BÉTON APPARENT) → PRIMARY STRUCTURE & FAÇADE

- Light sand-tinted exposed concrete is used to avoid an excessively urban gray appearance.

→ Why ?

- Resistant to moisture and potential flooding.
- **Mineral appearance that complements the wadi landscape.**
- **High thermal mass**, → enhancing the building's bioclimatic performance.

NATURAL STONE PAVING (EXTÉRIEUR)

- Landscape retaining walls.
- Outdoor terraces facing the wadi.
- Exterior paving.

→ Why ?

- Strong connection to the local context.
- Continuity with the surrounding landscape.
- Ages gracefully when exposed to water.
- Excellent thermal regulation.
- Durable and resilient.
- Preferably sourced locally to reinforce the site's identity.

MÉTAL (CORTEN STEEL)

- Exterior staircases.
- Pedestrian bridges.
- Guardrails.

→ Why ?

- Creates a visual contrast with the mineral mass of the building.
- Provides visual lightness.
- Establishes a meaningful dialogue with water through its evolving patina.

WOOD → INTERIOR SPACES - WARMTH & CONTRAST

- Suspended ceilings in exhibition areas.
- Acoustic wall panels.
- Built-in benches.
- Handrails.
- Educational spaces.

→ Why ?

- Introduces warmth in contrast with exposed concrete.
- Helps regulate indoor humidity.
- Improves acoustic comfort.

NATURAL STONE FLOORING

- Bio-based and permeable material.
- Integrates seamlessly into the surrounding natural environment.