

# IOHSC

## Design and construction of the Indian Ocean Health Simulation Center in Saint-Pierre, Réunion Island.

### CLIENT

Developer  
Name of private / public client  
Bart I Patriarche (project owner)

### TEAM

Patriarche (Architecture, Interior Architecture  
Autumn | Patriarche (General Contractor)

Partners:  
Intégrale (Engineering), OBA (Architecture)

Credits:  
3D visualizations: © Patriarche

### KEYPOINTS

Level 3 (HAS).  
Training and simulation.  
Education.  
Clarity and separation of flows.  
Climate engineering.

The Indian Ocean Health Simulation Center (CSSOI) is part of a broader transformation of pedagogical practices in healthcare, driven by the University Hospital of La Réunion.

Located in Saint-Pierre, at the heart of the TechSud area and in immediate proximity to the university campus (IUT, ESIROI, Faculty of Health), the project contributes to structuring an ecosystem of pedagogical and hospital excellence, in constant evolution.

Designed as a level 3 simulation center (HAS), it addresses a growing need for immersive and secure training, enabling students and professionals to practice in realistic environments without risk to patients, while fostering research and innovation.

The project is developed through a global contract integrating design, construction, and maintenance, led by a consortium including Patriarche and OBA (architecture), Intégrale (engineering), along with specialized partners.

Three main principles structure its design:

- use: with strong integration of feedback from future users
- design: based on functional and technical optimization
- environment: aiming for overall efficiency and controlled impact.



Typology  
**Healthcare**

GFA  
**3 815 m<sup>2</sup>**

Construction cost  
**15.3 M€**

Location  
**Saint-Pierre, France**

Status  
**In process**

Type of contract  
**Design-Build**

## Architectural intent – Design principles

The project is based on a founding principle: making nature the very origin of the architectural composition. The building's layout is directly guided by the site's characteristics—prevailing winds, sunlight exposure, plot geometry, and the presence of a protected wooded area—which become true drivers of the design.

The ensemble is organized into three main volumes: teaching units, administration, and a conference hall, connected by a central structure—the “knowledge pathway”, the project's true backbone.

This large inhabited walkway goes beyond simple circulation: it embodies a learning journey, where every movement becomes a pedagogical experience. Non-linear, punctuated by sequences and expansions, it encourages exchange, preparation, and observation.

The project's architectural expression is conceived as contemporary, organic, and distinctive, characterized by:

- clean, sinuous lines, evoking technological innovation,
- a porous and transparent architecture, fostering visual and functional interactions,
- a strong relationship between interior and exterior spaces, typical of the Réunion Island lifestyle.



Distinctive elements further reinforce this identity, notably the conference hall (auditorium), conceived as a landmark volume—visible and easily identifiable—capable of operating independently and hosting events at a territorial scale.

## Engineering and technical approach

An extremely advanced climatic and technical approach, conceived from the very outset of the project, to harness the site's natural conditions rather than constrain them.

The design choices are based on:

- **aerodynamic optimization of volumes**, creating pressure differentials that promote cross-ventilation,
- a **spatial organization that encourages internal airflow**, capable of reducing the perceived temperature by several degrees,
- **wind tunnel modeling**, ensuring the performance of systems (notably for the auditorium),
- **the integration of louvers, porous façades, and solar protections** adapted to each orientation.

The project favors simple, robust, and durable construction solutions, combined with a regular structural grid (1.35 m) ensuring flexibility and adaptability of spaces. Furthermore, engineering supports the complexity of uses related to health simulation, integrating high-fidelity immersive environments, advanced digital systems, and observation and analysis tools for professional practices.

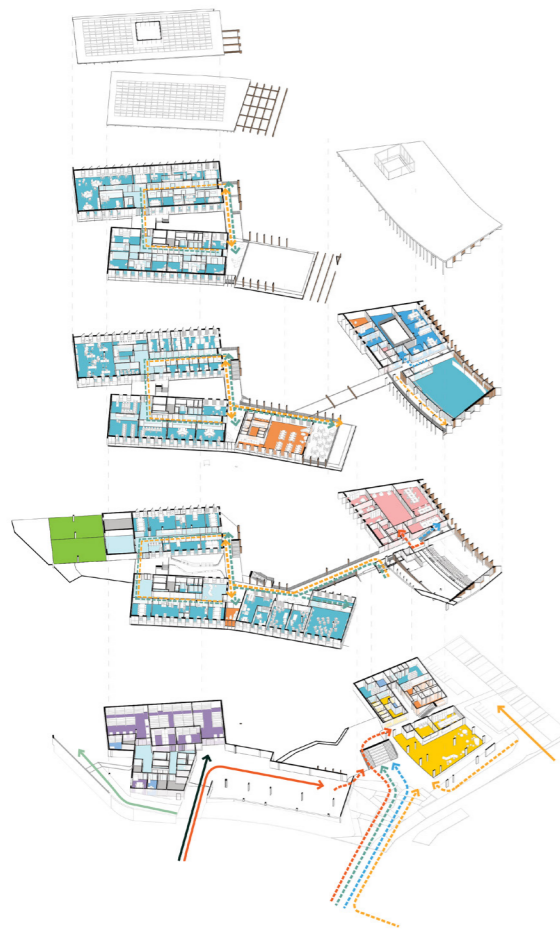
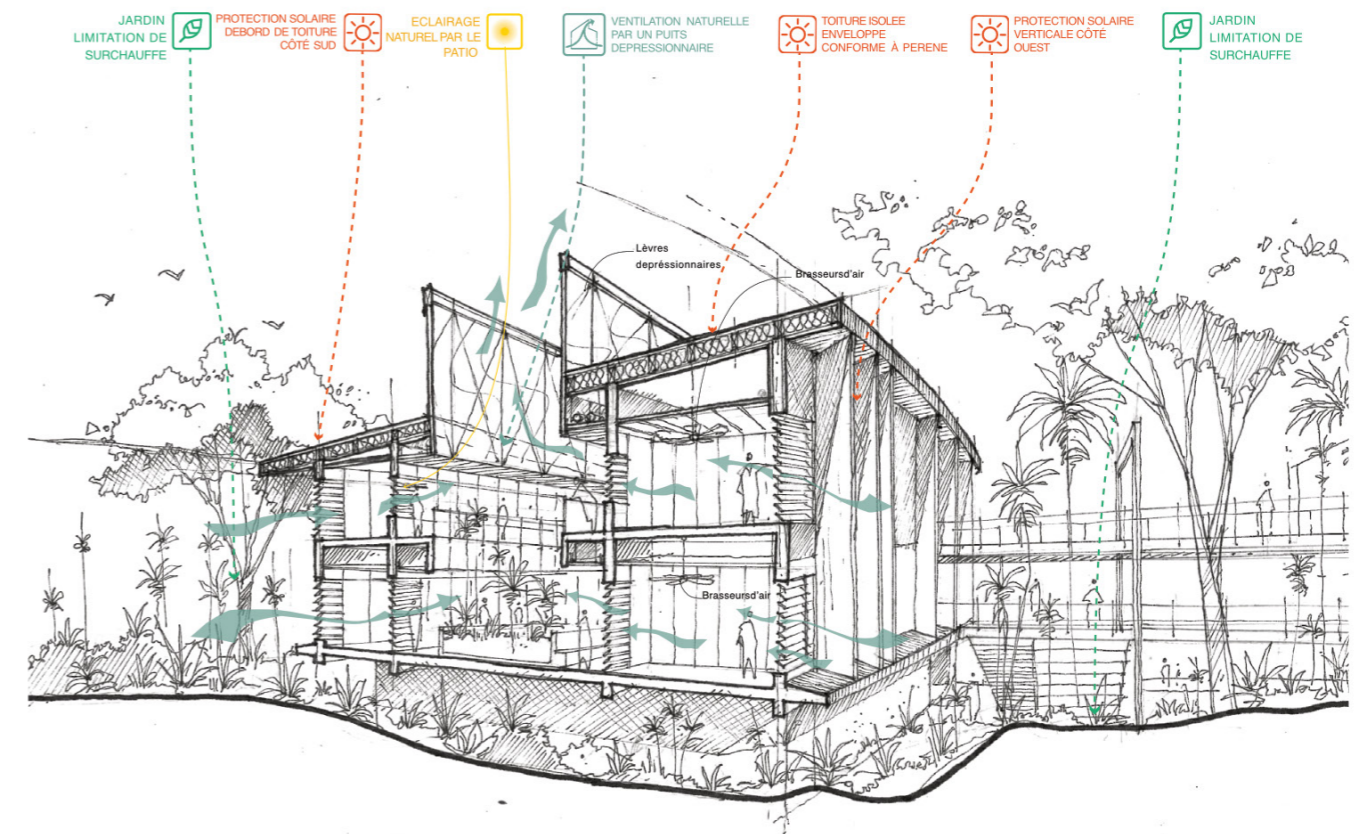
### Healthcare specific features

The IOHSC is conceived as a scenographically designed teaching hospital, where architecture becomes a pedagogical tool in its own right. The project is based on several fundamental principles:

- **faithful reproduction of care environments**, to expose learners to realistic situations,
- **staging of learning processes**, enabling observation, analysis, and understanding of practices (transparency, cross-views, observation systems),
- a **logic of repetition**, essential for mastering procedures and protocols.

The spatial organization also addresses strong requirements: **clear separation and legibility of flows** (learners, staff, logistics, ambulances), **autonomy of the different programmatic units**, and **careful articulation between simulation, learning, and exchange spaces**.

The project thus reflects a contemporary vision of healthcare education, based on experimentation, immersion, and interdisciplinarity.



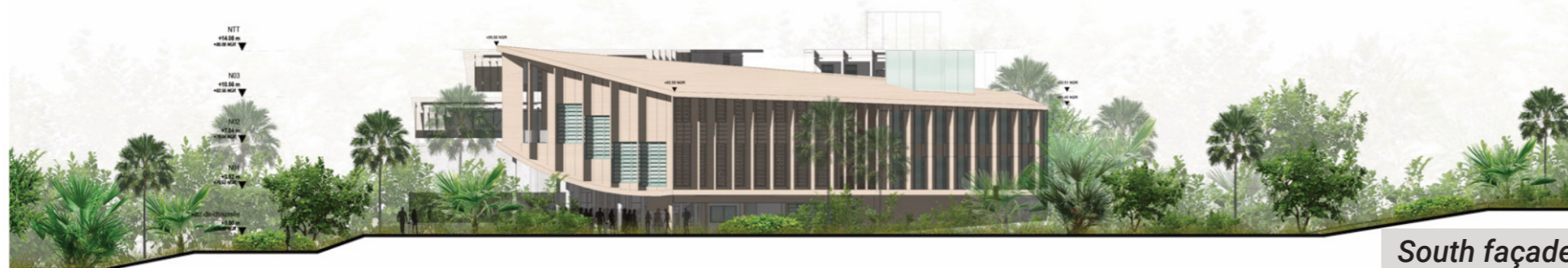
## Environmental approach



West façade



East façade



South façade



North façade

The increase in permeable surfaces also contributes to reducing its environmental impact.



The project embodies a strong environmental ambition, aligned with its tropical context. The entire design is based on an integrated bioclimatic approach aimed at maximizing natural ventilation, drastically reducing the need for air conditioning, and passively optimizing thermal comfort.

Landscape plays a key role in this strategy:

- preservation and enhancement of the existing protected wooded area,
- creation of gardens in continuity with the ravine,
- planting of endemic species that promote biodiversity and resilience,
- development of cool islands through layered vegetation,
- integration of green roofs to limit solar gain and regulate rainwater.



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