Case Study Title: James Baldwin Multimedia Library and Refugees' Centre

©Pierre-Yves Brunaud

Project Name	James Baldwin Multimedia Library and Refugees' Centre
Location	12bis rue Henri Ribière 75019 PARIS, France
Climate Zone	[Cbc] Mild, dry winter, warm and wet summer.
Latitude/Longitude	48.876624°N, 2.395627°E
Building Type	Library, documentation center
Floor Area [sqm]	4 406 m^2
Building Height [m]	
Number of Stories	
Completion Year	2024
Project Team	Contractor: SAMO / DCPA (Ville de Paris) Construction Manager: associer/(apm)&associés Thermal Consultancy Agency: TRIBU Other Consultancy Agencies: IGREC Ingenierie, Mutabilis, Gaujard Technologie Scop, BETerre TCE Structural Work: CBC service/DP.r Wooden Structure: Charpente Cenomane Structures Calculist: AAB Acoustique

	Designer: NM architecte WDR: SNTPP Green Spaces: TERIDEAL Raw Earth: FEHR

*mock-up experiments and other research-based experiments could be included as case study, aside from actual building construction projects if similar information could be provided.

1. Project Description

Project Overview
The James Baldwin Multimedia Library and Refugees' Centre, inaugurated in July 2024 and located in Paris's 19th arrondissement, repurposes the former Jean-Quarré High School, a 1970s building, into a 4,000 m² cultural and social hub. The library houses over 80,000 items including books, digital media, and musical instruments, while the adjacent Refugees' Centre offers services such as French language classes and professional development to support integration and community engagement. The building incorporates passive cooling strategies like natural ventilation through interior double-height hoppers and an air shaft connected to a courtyard garden, facilitating fresh air circulation and reducing reliance on mechanical cooling. Its exposed concrete structure provides thermal inertia that helps regulate indoor temperatures by absorbing and releasing heat, and green roofs reduce heat absorption while promoting biodiversity. The project has earned international acclaim, winning the 2025 IFLA Green Library Award as the "greenest library in the world" and the Grand Prize for Renovation at the Green Solutions Awards. Beyond its environmental achievements, it serves as a model for social integration by fostering inclusivity, accessibility, and community engagement, embodying Paris's commitment to sustainable and cohesive urban development.

2. Climate & Site Context

Basic Climate Conditions		
Temperature	Annual Average	12°C
	Annual Range	4°C (January) - 20°C (July)
Relative Humiditiy	Annual Average	78%
	Annual Range	69% (April) - 89% (January)
Annual Degree-Days (ASHRAE Standard 169-2020)		HDD 18°C: XXX CDD 10°C: XXX

Climate Analysis
The project site experiences a temperate oceanic climate (Köppen Cfb). Average annual temperature is around 12°C, with warm summers reaching about 20–21°C in July and cool winters averaging 4°C in January. Relative humidity averages near 80%, higher in winter months. Winds are generally mild, predominantly from the west and southwest, with occasional gusts during storms. Solar radiation peaks in summer, offering good potential for passive solar gain, while winter months have lower daylight levels. Heating degree days (base 18°C) approximate 1,300 annually, indicating moderate heating needs, and cooling degree days (base 10°C) are about 350, reflecting mild cooling demand. Overall, the climate supports energy-efficient building strategies focusing on insulation, natural ventilation, and solar gain optimization.

Site Analysis
The project is located in a dense urban area of Paris's 19th arrondissement. The topography is generally flat, typical of the city landscape, allowing straightforward building foundations and accessibility. Surrounding buildings are low- to mid-rise residential and commercial structures, creating a moderately dense environment that influences light access and ventilation strategies. The street is lined with mature trees and some green spaces nearby, offering opportunities for integrating landscaping to enhance microclimate and urban biodiversity. The site's urban context requires careful attention to noise reduction, privacy, and efficient use of limited outdoor space. Overall, the site conditions favor a design that maximizes natural light, promotes energy efficiency, and harmonizes with the existing streetscape and neighborhood character.

Passive Cooling Strategies (please tick implemented passive cooling strategies)
☐ Building Orientation & Form (site orientation, building shape, etc.) ☑ Envelope Design (insulation, air-tightness, shading, window system, thermal mass, etc.) ☑ Natural Ventilation (cross ventilation, stack ventilation, night ventilation, etc.) ☐ Evaporative Cooling (direct/indirect evaporative cooling, etc.) ☐ Ground Cooling (geothermal, ground-coupled systems, basement/underground space,etc.) ☐ Radiative Cooling (cool roof, night sky radiation, radiant barriers, reflective surfaces, etc.) ☑ Nature-based Solutions (green roof/wall, tree shading, etc.)

☐ Others (human behavior, clothing, semi-passive (fans, etc.)
Description (please describe one strategy per box – you can add more boxes below if needed)
The building incorporates 24 cm of wood fibre insulation on exterior walls, a high-performance bio-sourced material that improves thermal resistance and contributes to passive temperature regulation. Raw earth panels are also used for interior finishes, providing thermal mass to absorb and slowly release heat, supporting stable indoor temperatures throughout the day.
The project includes natural ventilation as a core passive strategy. Airflow is facilitated through building openings and assisted by free-cooling systems, along with double-flow ventilation units with heat recovery. These systems promote air circulation and reduce overheating without relying heavily on mechanical cooling.
Increased green surfaces, shaded garden, shared garden, and light-coloured ground cover are implemented to help mitigate heat and favor evapotranspiration.

3. Passive Cooling Design Details

4. Active Components

Active (Hybrid) Cooling Strategies (please describe one strategy per box – you can add more boxes below if needed)
The James Baldwin Multimedia Library and Refugees Centre relies primarily on passive comfort strategies, with limited active systems to complement them when necessary. According to the case study, the building includes mechanical ventilation with heat recovery to ensure indoor air quality and energy efficiency. This system allows for controlled air renewal while minimizing thermal losses, contributing to stable indoor conditions without resorting to conventional air conditioning.
The design also integrates energy-efficient heating and cooling management through photovoltaic production and energy-saving equipment. The mechanical systems are optimized to work in conjunction with the building's passive envelope and natural ventilation strategy, ensuring that active systems are used only when outdoor conditions require it. The project demonstrates a careful balance between low-energy mechanical systems and passive bioclimatic design, achieving high comfort levels and a low operational carbon footprint. No active cooling such as air conditioning, evaporative, or geothermal systems is mentioned in the case study, confirming that the project's performance relies mainly on efficient mechanical ventilation and renewable energy integration.

5. Performance Data

Cooling Energy Use
The building achieves an energy performance 60% better than the RT2012 reference, with a calculated consumption of 49.6 kWhep/m^2/year, which allows it to qualify for the Effinergie+ label.
Indoor Thermal Comfort
The exposed structure provides inertia favourable to the improved regulation of the interior temperature. The project provides enhanced natural and hygienic ventilation (compared to a mechanically ventilated building), through the creation of interior, double-height hoppers and of an air well with the garden in the patio.

6. Financial Data

Cost Benefits
While the James Baldwin Multimedia Library and Refugees' Centre case study does not provide specific financial data such as return on investment or payback periods, the integration of passive cooling strategies is clearly positioned to reduce operational costs over time. By implementing natural ventilation, free cooling, and thermal mass via raw earth panels, the building significantly reduces its reliance on active mechanical cooling systems. This leads to lower energy consumption, contributing to long-term financial savings on HVAC operation and maintenance. The use of bio-sourced insulation materials, though potentially higher in upfront cost, offers improved thermal performance and durability, further enhancing energy efficiency. These passive strategies also support regulatory compliance and contribute to high environmental performance, potentially unlocking funding incentives or increasing long-term asset value. Although no quantitative financial indicators are provided, the design choices reflect an emphasis on low operating costs, durability, and sustainable lifecycle performance, all of which are known to offer positive economic returns in similar public renovation projects.

*Please try to extract passive cooling cost and savings; however, if it is difficult, please annotate the premise. (e.g., the calculation includes the cost for both passive heating and cooling, etc.)

7. Passive Cooling Operation

Maintenance Requirement
The passive cooling performance of the James Baldwin Multimedia Library and Refugees' Centre relies primarily on durable, low-maintenance systems. The use of natural ventilation and free cooling reduces dependence on complex mechanical systems, which in turn lowers maintenance needs. The double-flow ventilation system with heat recovery will require routine filter replacement and airflow balancing to maintain efficiency. Wood fibre insulation and raw earth panels, used for their thermal and hygroscopic properties, are largely passive and require minimal upkeep, aside from periodic inspections for wear or moisture-related issues. To sustain optimal performance, the operable elements involved in ventilation—such as dampers, transoms, and side openings—should be checked seasonally to ensure functionality. No advanced automation or high-tech cooling components are mentioned, which simplifies long-term maintenance. Overall, the building's passive design promotes energy efficiency with a manageable and predictable maintenance schedule.

8. Lesson Learnt / Recommendations

Technical Challenges, Solutions and Achievement
One of the main challenges of the project was to guarantee thermal comfort without relying on conventional air conditioning, while meeting strict energy performance goals. The design team addressed this by combining natural and hygienic ventilation with the building's structural thermal inertia. According to the case study, interior double-height hoppers and an air well connected to the garden patio were created to enhance air renewal and avoid overheating, ensuring continuous natural ventilation throughout the spaces. The exposed concrete structure acts as a thermal regulator, storing and slowly releasing heat to stabilize indoor temperature. These passive systems were integrated early in the design process to ensure coordination between architectural form, envelope performance, and mechanical systems. Together, these measures provided a robust, low-energy solution adapted to urban density while maintaining user comfort year-round.
Financial Challenges, Solutions and Achievement
N/A
Other Challenges, Solutions and Achievement
N/A

9. Free Description

Free Description
Indoor Air quality All products in contact with indoor air are A+, as are EC1+ adhesives for hard and flexible floors, water-based paint and varnish finishes. Verification/validation of products during construction by the project management team. **Comfort** The temperature has been set to be 19°C in all heated spaces and 20°C for the youth area of the Multimedia Library. Heating and natural ventilation are connected to the BMS, and sensors (CO_2 and Temperature) guarantee thermal comfort throughout the year. In addition, the earth panels in the link building, an unheated volume, have hygrothermal qualities that help smooth out temperatures. Finally, CO_2/temperature probes allow you to monitor comfort indicators throughout the year. **Humidity control** Some CO_2 sensors also indicate the humidity level. In addition, the earth panels in the link building, an unheated volume, have hygrothermal qualities allowing the humidity level to be regulated.

10. Annex

Supporting documentations

11. Citation

Citation
• https://www.construction21.org/case-studies/fr/james-baldwin-multimedia-library-and-refugees-centre-en.html • https://mairie19.paris.fr/pages/une-mediatheque-pour-le-19e-premiers-retours-12947 • https://www.youtube.com/watch?v=LEIDi8vZ6o4&embeds_referring_euri=https%3A%2F%2Fwww.construction21.org%2F • https://www.youtube.com/watch?v=7M25U3ShYRc&embeds_referring_euri=https%3A%2F%2Fwww.construction21.org%2F

12. Contact

Contact Person	
Name	Philippe Madec
Title	CEO
Organisation	Atelier Philippe Madec
E-mail	madec@madec.net