



## Aga Khan Award for Architecture

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### W I N N I N G P R O J E C T S

#### **Alioune Diop University Teaching and Research Unit**

Bambey, Senegal

*Architect:* IDOM, Bilbao, Spain

*Client:* ACBEP, Ministry of Urbanism & Ministry of Higher Education, Dakar, Senegal

#### **Project description**

Alioune Diop University was founded in 2007 as part of the Senegalese government's efforts to decentralise higher-education provision, seeking both to encourage youth to stay in rural areas and to provide educational programmes appropriate to these contexts. By 2012 it was functioning beyond capacity, so an extension project was launched, of which this building formed the major part.

The structure comprises a 500-seat lecture hall, five 50-student classrooms, eight 100-student classrooms, three laboratories, ten lecturers' offices and two meeting rooms. It was the architects' choice to combine all of these into a single mass with an identity and presence worthy of its university status – unlike the campus's pre-existing small, scattered blocks. Although single storey, its slanting roof soars to almost 10m on the north side. Its south side is distinguished by a lattice screen running the full 203m of its length, made of perforated breezeblocks manufactured on site by local masons. At the east end, a sweeping entrance ramp and outdoor stair create a connection with the rest of the campus.

The lattice wall – echoing similar, smaller features on local buildings – is one of the strategies for passive cooling in a location where temperatures can exceed 40°C. A broad corridor separates this from the accommodation behind, which is arranged into five sub-units with staircases in the voids between them. Their standard post-and-beam concrete construction is organised on a 3.6m structural grid, facilitating on-site prefabrication. Each sub-unit has an insulated roof; while the heat-reflective metal outer roof runs the whole length of the building mass and extends out to form a giant loggia to the north, drawing hot air up and away. This loggia is supported by thin metal columns of a varying three-branched form, recalling the solitary trees in whose shade locals commonly gather. Other ecologically minded measures include a series of stone-lined basins filled with gravel and vegetation, where both rainwater from the roof and filtered wastewater are directed.

By employing locally familiar construction techniques and following sustainability principles, the project succeeded in keeping costs and maintenance demands to a minimum, while still making a bold architectural



statement.

### **Jury Citation**

As buildings have a direct impact on climate change and the environment, the Alioune Diop University Lecture Building represents a commendable example of how fundamental principles of sustainability and energy efficiency are translated into a well-integrated and elegant design that also has a low impact on its surroundings.

These principles, which were utilized early in the concept's development, were guided by information about specific climate data needed to optimize the skin of the building. They also included energy use, material depletion and water pollution. Layering, water management and the use of construction technology and materials were also incorporated in the design.

The organization of the building is structured around a generous shaded space on the north side of the building, allowing for social interaction and a well-organized linear circulation. Building elements have multiple functions. For example, the breezeblocks allow ventilation and reflect direct sunlight.

Comfort, energy use and the building's overall environmental legacy are well represented in this project. The building demonstrated how good design that integrates environmental principles can result in quality spaces that allow a building to be bound by local environmental and site-specific conditions.

The construction technology also allowed for repetition and possible use in other buildings. The sustainability principles and processes utilized have the potential to serve as model for implementing environmentally conscious design.

### **Project data**

#### Clients

Ministry of Urbanism, Senegal

Ministry of Higher Education, Senegal

Agence de Construction des Bâtiments et Édifices Publics (ACBEP), Dakar, Senegal

Socé Diop Dione, *director*

Moussa Sarr, *project manager*



Gorgui Gueye, *secretary-general*

Ministère de l'Enseignement Supérieur et de la Recherche (MESR), Dakar, Senegal

Mary Teuw Niane, *former Minister of Higher Education*

Maguette Kebe Doumbouya, *project director*

Université Alioune Diop de Bambey (UADB), Bambey, Senegal

Lamine Gueye, *rector*

Matar Mour Seck, Abdoullah Cissé, *former rectors*

Papa Ibrahima Faye, Senghane Mbodji, *vice-rectors*

Sidy Camara, *environmental manager*

Omar Diouf, *domain manager*

Abdoulaye Mbow, *former domain manager*

Banque Mondiale (BM) / World Bank (WB), Dakar, Senegal

Atou Seck, *resident representative in Djibouti*

Sémou Diouf, *architect*

Mbaye Faye Mbengue, *environmental expert*

#### Architects

IDOM, Bilbao, Spain:

Federico Pardos Auber, *partner, project director and director of IDOM Senegal*

Javier Pérez Uribarri, *partner and project director*

Beatriz San Salvador, *partner and project architect*

Blas Beristain, *sustainability architect manager*

Ana Robles, *main cost engineer*

Iñaki Zabala, *draughtsman manager*

Joseba Andoni, *cost engineer*

Arturo Cabo, *services engineer*

Francisco-José Sanchez, *services engineer manager*

Fernando Lopez, Miguel Angel Corcuera, *structural engineers*

Mario Torices, *acoustic engineer*

Ignacio Olague, *geologist*

Juan-Carlos Gomez, *planning engineer*

Roberto Fernandez, Alfonso Alvares, *3D designers*

Clarisse-Manuela Guiraud, *administration management*

IDOM SENEGAL SA, Dakar, Senegal

Fally Diop, Papa Djibril Kane, *engineers and project supervisors*



### Consultants

Cabinet d'Architecture Alioune Sow (CAAS), Dakar, Senegal

Alioune Sow, *architect*

Optima Ingénierie, Dakar, *Senegal*

Tandakha Ndiaye, *services engineer*

### Building Inspector

Alpages, Dakar, Senegal

Bruno d'Erneville, Charles Sambou Antoine, *technical inspectors and managers*

Nourou Gueye, Sylla Mansour, *technical inspectors and on-site supervisors*

Mounirou Fall, Baye Faye Sam, *technical inspectors and engineers*

Jean François Faye, Boubacar Keita, *geologists*

Ndéné Ndiaye, *head of the supervision of technical construction*

Maley Han, Lamine Diouf, *technicians*

### Contractor

Compagnie Sahélienne d'Entreprises (CSE), Dakar, Senegal

Samba Diop, *technical construction director*

Mamadou Gaye, *construction manager*

Moustapha Keindé, Abdoulaye Kane, Abdou Ndiaye, *builders*

Abdoulaye Kane, *construction site overall director*

Abdou Ndiaye, *construction work lead*

### Project Data

Site area: 11,500 m<sup>2</sup>

Built area: 6,895 m<sup>2</sup>

Outdoor landscape (basins and rainwater canals): 4,316 m<sup>2</sup>

Cost: 6,700,000 USD

Commission: November 2012

Design: February 2013 – September 2013

Construction: May 2015 – December 2017

Occupancy: December 2017

### IDOM



IDOM is an independent professional services company providing solutions in a wide range of sectors, including architecture, civil engineering, industrial engineering, project management, consultancy, environment, energy and telecommunications. It was founded in 1957 in Spain. Today, more than 3,500 professionals carry out their activity from 39 offices in four continents.

A multi-disciplinary team allows IDOM to cover all the specialisms that the practice of architecture entails today. They are able to take on all work – whether big or small, and no matter how complex the situation – in a truly holistic manner, providing solutions suited to the reality of the context they are building in. The team spirit is enriching and sets new challenges every day, while at the same time inviting each member to find their own place and to develop a true personal trajectory.

IDOM seeks a new sensibility, a new methodological approach, a different view to more freely confront a different balance between praxis and theory, between creative and executive process, between urgent daily decisions and those transcendent motivations that everyone faces in their professional and personal development.

Website

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