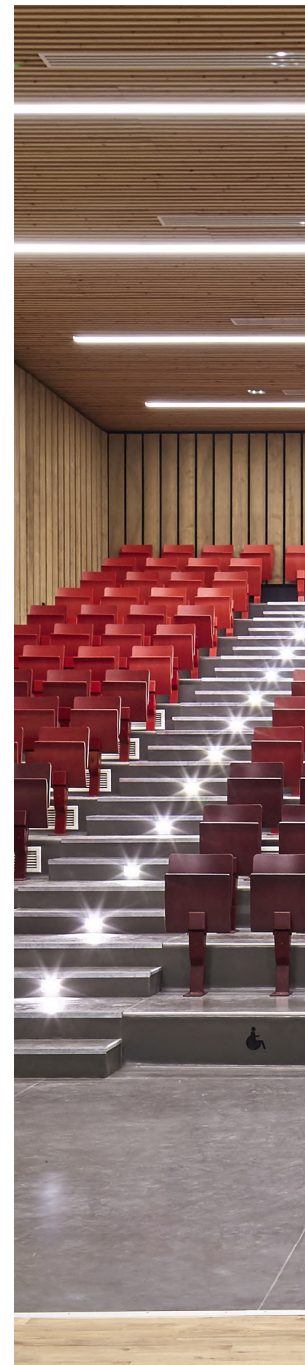


**DE-SO & TERRENEUVE**  
ARCHITECTS AND URBAN DESIGNERS

REFURBISHMENT AND EXTENSION  
**LYCÉE ROBERT DOISNEAU**  
CORBEIL-ESSONNES / FRANCE





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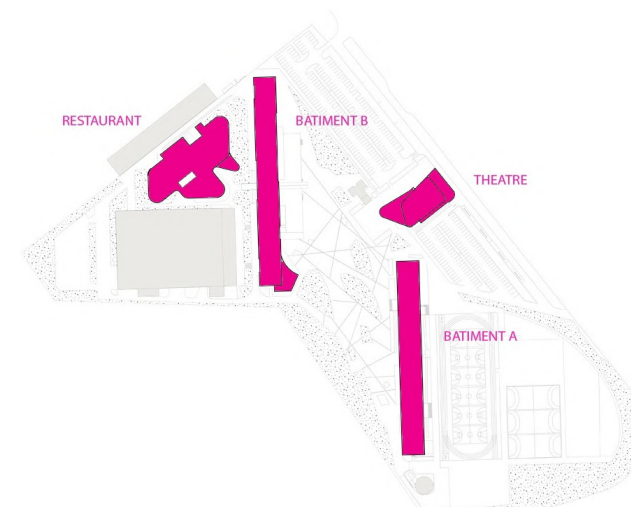
## BACKGROUND

In 2009, the Île-de-France Region launched an architecture competition for the renovation and extension of Lycée Robert Doisneau in Corbeil-Essonnes, which was obsolete with respect to both function and safety. The winners of the competition were the architecture grouping DE-SO & TERRENEUVE.

A symbol of social diversity because of its educational scope – general, vocational and technical – and its artistic specialities, Robert Doisneau is one of the biggest lycées in the Île-de-France Region. Located on the edge of the RN7 trunk road, opposite the Tarterêts district in Corbeil-Essonnes, it has a student population of almost 2800 young people. Registered in the 2000s as a Zone Urbaine Sensible (Vulnerable Urban Zone) and as a Zone d'Éducation Prioritaire (Priority Education Zone), it is a symbol of social diversity and the pursuit of educational excellence. In addition, it is recognised as a model school, a place where pupils can come even outside class times in order to study in peace.

Opened in September 1958, initially with a single four-storey building erected in six months, in 1959 the lycée had grown to cover a surface area of 35.000 m<sup>2</sup> across five buildings on a plot of almost eight hectares. Apart from some maintenance work in the 1990s, the two main teaching blocks – 150 m and 165 m long and five storeys high – had remained in their original state.

The school refurbishment and extension operation was completed in 2019.







2009



2019

## DESCRIPTION / PROGRAMME

The two blocks, one 150 m long, the other 165 m, had undergone partial renovation in the 1990s, firstly with the addition of reflective curtain walls with decorative mouldings opposite the stairwells, and secondly extensions to their ground floors, for the school canteen in Building A and for the Documentation and Information Centre in Building B.

The initial programme for the partial remodelling and extension of Lycée Robert Doisneau reflected the school's multiple needs

### REMODELLING

- refurbishment of the façades of the 2 teaching buildings (blocks A and B),
- upgrades to comply with fire safety standards,
- reorganisation of the school's administrative offices,
- creation of language laboratories,
- renovation of staff accommodation,

### EXTENSION

- creation of a 250-seat theatre,
- creation of a food court with 3 self-service cafeterias.

As regards the existing fabric, the principle of the programme consisted of a minimum level of internal functional reorganisation, i.e. rearrangement of the partitions and the electric wiring, combined with all the necessary compliance upgrades relating to access and safety.

For the new parts – extension of the restaurant for additional capacity of 1000 meals per day, i.e. a total of 2500 meals, and creation of a 250-seat theatre auditorium with tiered seating – the competition programme proposed new ground for extensions, involving expansion into part of the central courtyard.



## MODE OF COLLABORATION DE-SO / TERRENEUVE

The main outlines of the project were designed collectively in the competition phase, whereas the final submission for each new building was divided: the theatre was designed by DE-SO and the restaurant by TERRENEUVE.

Then, during development of the designs and monitoring of the works, each agency took charge of the refurbishment of one block – Building A for DE-SO, Building B for TERRENEUVE – along with “its” new building.

Regular communication between the two firms ensure that the project advanced in parallel and with overall coherence. Since the work began with the refurbishment of Building B and the restaurant, the prototype façade designs were developed on Building B, then transposed to Building A.

The finishes of the two new buildings, the theatre and restaurant, show greater variation, with differences in the treatment of the wooden façades and interiors, with their different functions, reflecting the tastes and aesthetic choices of the two design firms.

Ultimately, this alliance had a twofold impact.

It gave the architects more resources to tackle and resolve the complexity, duration and contingencies of this operation, and to manage the final result.

It meant that the client enjoyed the benefit of total personal commitment from each firm’s partner architects, because of the modest size of their structures (between 10 and 20 people), a very different approach to that found in the architecture firms with staff numbers in excess of 50 that are usually commissioned to tackle “big projects” valued at more than 30M.







## A SUSTAINABLE RESPONSE

The winning project by the DE-SO & TERRENEUVE architecture grouping is modelled on the concept of the landscaped campus, and conveys a vision that encompasses the site as a whole. This is particularly apparent in the treatment and preservation of the high-quality external landscape arrangements, upgraded in the 2000s, which play an important role as a unifying space between the school's different entities.

Moreover, the existence of an unused plot behind one of the teaching blocks offered a valuable land reserve, albeit with a relatively unobtrusive access route.

In contradiction with the assumption of the programme, the extensions were then moved to new, freestanding structures, thereby protecting the central courtyard and the fine landscape qualities of the 8 ha campus.

Contrasting with the linear mass of the classroom buildings, the curvaceous, fluid form of the new theatre and restaurant buildings generates protected but open spaces – transitional in-between spaces – in the embrace of the curves. Distinctive for their supple, almost organic geometry, and their wooden façades, which are measured in scale compared with the imposing 1960s blocks, they are situated on the boundaries in order to preserve the courtyard areas and landscape spaces in their entirety.

Likewise, rather than being renovated, the dozen staff accommodation units located at each end of the two blocks were grouped in an autonomous cluster to the south of Building B, with their own access routes, thereby preventing the mix of pupil and resident traffic and meeting fire safety requirements.

Finally, on the same principle, the conversion of the existing entry halls into through areas had the effect of making movement across the entire site more fluid.

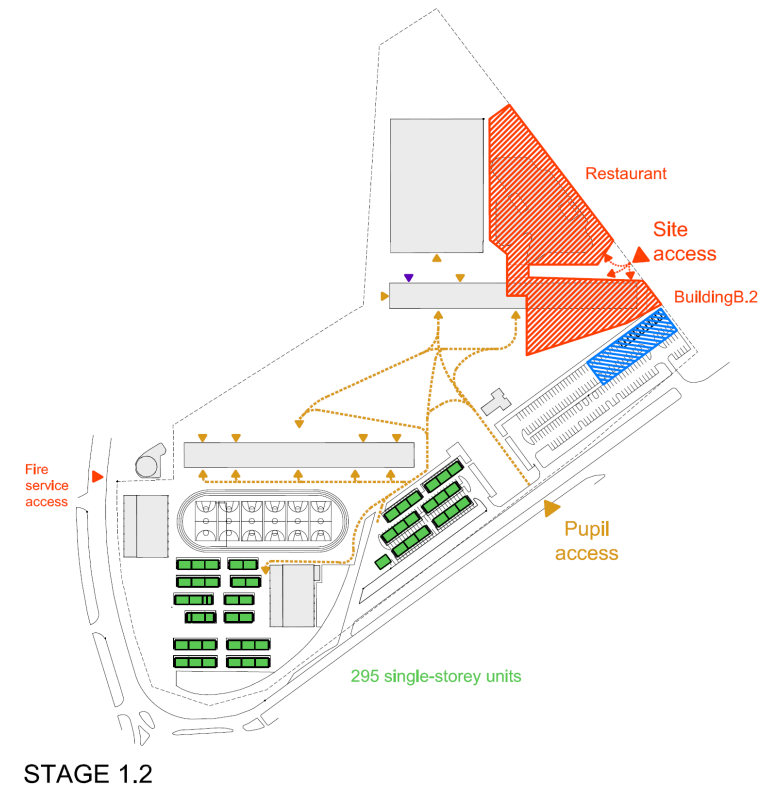
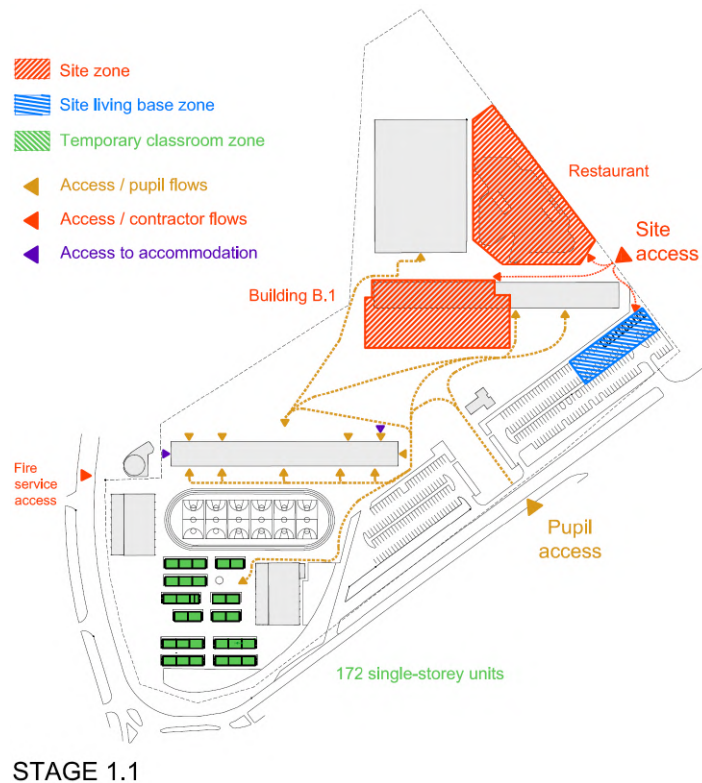
In this way, the multiplicity of disparate programmatic requirements, whether technical, functional or regulatory, was met with a global architectural response that radically transformed the site, while limiting the scale and cost of the works, to make a sustainable project.

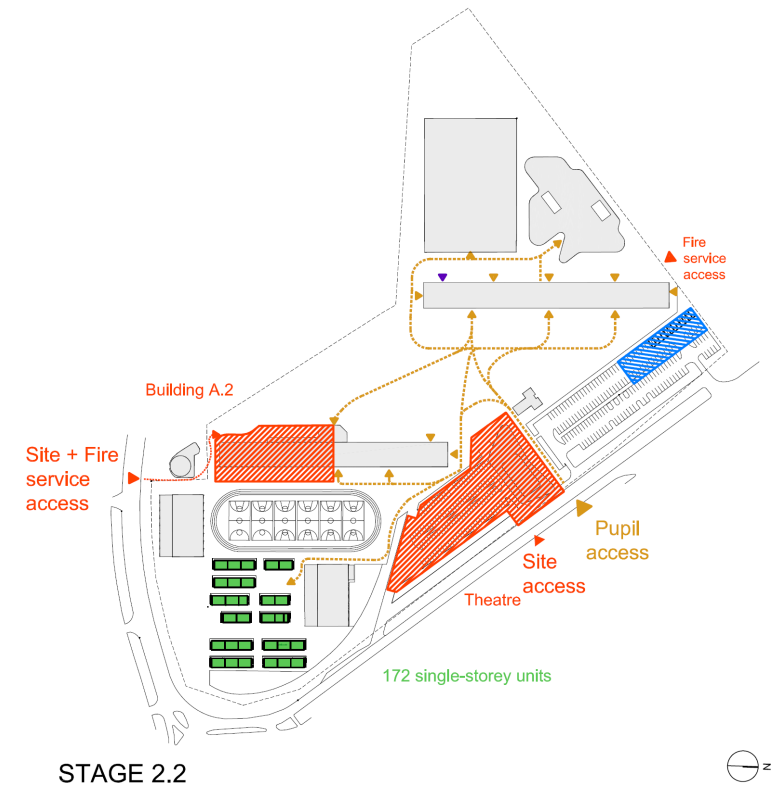
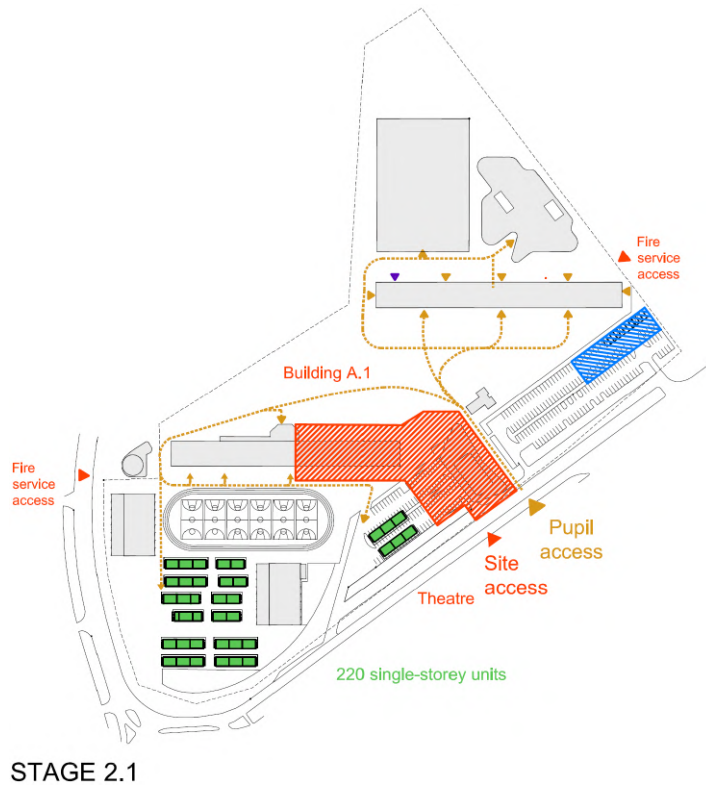


## A COMPLEX PROJECT

After the architecture competition organised in 2009 by the Île-de-France Region, it took 10 years to complete the renovation-extension project: three years of design work and two tender campaigns with a reassessment of the programme and initial budget, five years of construction work on the occupied site, the erection and dismantlement of more than 20 temporary teaching buildings, eight partial acceptance processes, with final delivery in 2019.

The phasing – gradual evacuation of the buildings, moving the pupils into temporary classrooms – was particularly tricky, given the large numbers of pupils, the diversity of subjects taught, including technical and artistic subjects, and the need to avoid interruption to the teaching programme and to adhere to a very tight budget, which was initially set too low.







## REFURBISHMENT OF THE FACADES

The total refurbishment of the façades of both teaching blocks, totalling more than 12.000 m<sup>2</sup> and floor area of some 24.000 m<sup>2</sup>, was the largest and most expensive operation.

The dilapidation of these façades, with their single glazed windows and uninsulated spandrels, demanded full dismantlement and asbestos removal, in half-building sections, on a site that was still occupied.

An efficient thermal shell, with external insulation, and the addition of vertical canopies to block out the sun's rays in the morning and evening on the long east and west facing façades, punctuate the walls. These canopies create a new energy, conveyed by the golden shades of the metal surfaces, and enter into a dialogue with the matt and grey tones of the new buildings.

On the ground floor, the window bays in the interior are set in raw concrete, combined with 50% ribbed perforated sheet panels mounted on metal frames, which provide effective protection against sunlight and unauthorised entry. The classrooms continue to receive natural ventilation from the facade windows, as required by the Île-de-France Region.

In the standard sections, the new façades consist of a rendered spandrel, insulated on the outside and protected by thermolacquered corrugated sheet steel cladding. Cost considerations led to the original tipping steel windows to be replaced by white PVC swing windows.

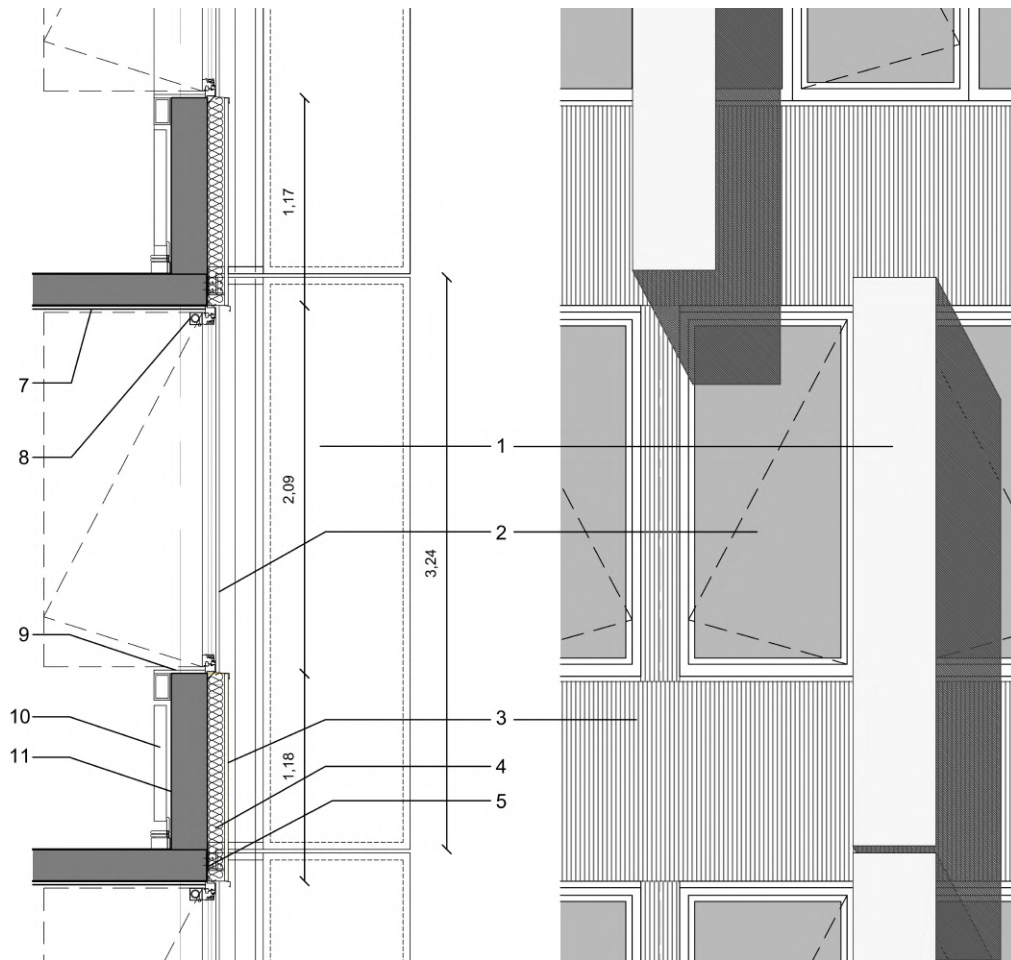


2009

2019

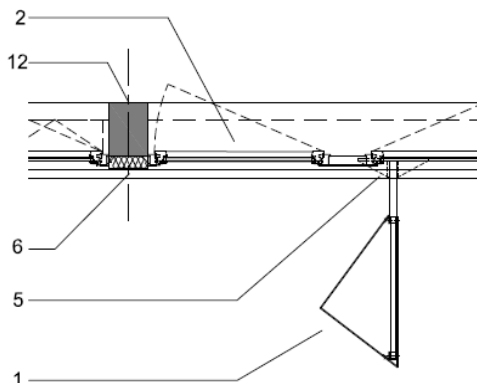






- 1 Alucobond composite folded canopy panels on ladder beam structure
- 2 PVC fittings
- 3 Vertical corrugated lacquered steel cladding
- 4 10 cm mineral wool insulation
- 5 Canopy to slab fixing clamp
- 6 Lacquered aluminium sheet casing+7 cm thick polyurethane insulation
- 7 Acoustic false ceiling on underside of slab
- 8 Interior blind fitted to door frame
- 9 Painted MDF
- 10 Radiator
- 11 Coated concrete spandrel with paint finish
- 12 Existing concrete posts with paint finish

0 1 m



The addition of interior blinds completes the sunscreen arrangements, which provide permanent protection throughout the year regardless of the angle of the sun's rays.

The canopies have a tubular steel structure fixed to the concrete floor nosings, clad with composite aluminium/resin folded panel.

Their optimised shape meets the need for both solar protection and for natural light, capturing light while at the same time bringing life to the imposing façades. They are spaced in such a way as to provide free access to the emergency exits, verified in situ by the fire services using their long ladders.

Finally, the existing steel roof cladding, added in the 1990s to the original flat roofs, have been entirely removed and replaced with efficient and watertight thermal insulation, marking a return to the purity of the flat roofs.





## RESTRUCTURING OF INTERNAL AREAS

The refurbishment of the façades of the teaching buildings was accompanied by targeted internal remodelling. First, work to bring technical installations into compliance with standards – heating, electricity, IT, fire safety – was carried out in almost all the buildings. Second, targeted modifications were made in the allocation of space to adapt to changes in needs and practices.

The entry halls were also enlarged and converted into through spaces, with the creation of a double elevation to encourage pupils to use the stairs, which were retained, and to bring natural light into the first-floor circulation zones.

These expanded and well-lit spaces accommodate communal functions linked with school life.

On the upper floors, the corridors have been widened in places through the removal of a few classrooms, and receive natural light from the façade.

The bathrooms, paintwork, floor coverings and classroom lighting have been redone, and acoustic false ceilings added in the classrooms.

The science rooms have been moved, and their equipment and furniture upgraded.

In Building A, the top floor, formerly consisting of long redundant boarding accommodation, has been entirely restructured and converted to new classrooms.

Accessible cable channels in the corridors make it easy to maintain the different technical systems.









## THE THEATRE, NEW FOCUS

A flagship building that gives a new look to the lycée's main entrance by the former RN7 trunk road, the curves of the new theatre also accommodate the caretaker's lodge and a large covered yard dedicated to school activities, alongside the students' entry and exit flows.

A central meeting space, this structure is used for artistic activities offered at the school. Fulfilling a previously missing function, it contains 250 seats and an enclosed control room.

Built of concrete for optimum inertia and acoustic insulation, its facades are set off by timber cladding, with overlapping geometrical curves that vary in radius and width.

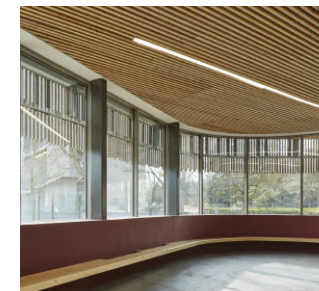
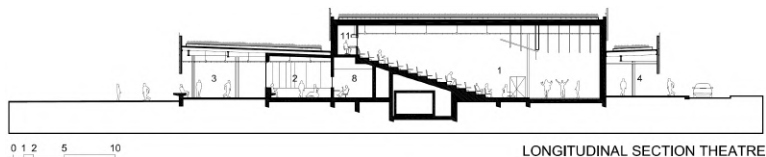
The ribbon is formed of the wooden strips also vary in their profile, giving a musical pattern to the theatre's walls, based on a very simple construction principle.

The building attracts the eye throughout the day because of its changing reflections and shadows, which create a permanent iridescence and bring life to the outer walls.

Inside, acoustic wall cladding made of raw pine planks, sometimes reflective, sometimes absorbent, and a false ceiling made of openwork wood, give the theatre an intimate and warm ambience.

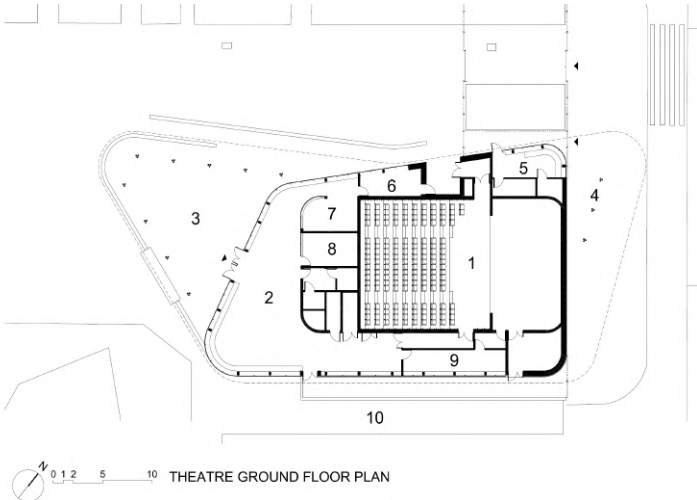
The stage has a sprung floor suitable for a variety of disciplines, from dance to music to theatrical performances.

A well-lit foyer, simultaneously the school's central information point and an exhibition space, opens onto the expansive roofed yard. The only outdoor area of the school with weather protection, it also acts as a third place with broad seats suitable for multiple activities.





- 1 THEATRE AUDITORIUM
- 2 HALL
- 3 COURTYARD
- 4 AWNING
- 5 CARETAKER LODGE
- 6 OFFICE / EDUCATION
- 7 OFFICE / MONITORS
- 8 REFERENT'S OFFICE
- 9 BOXES / CLOAKROOMS
- 10 POUND
- 11 TECHNICAL STAGE





## A RESTAURANT FOR AN ENLARGED CAMPUS

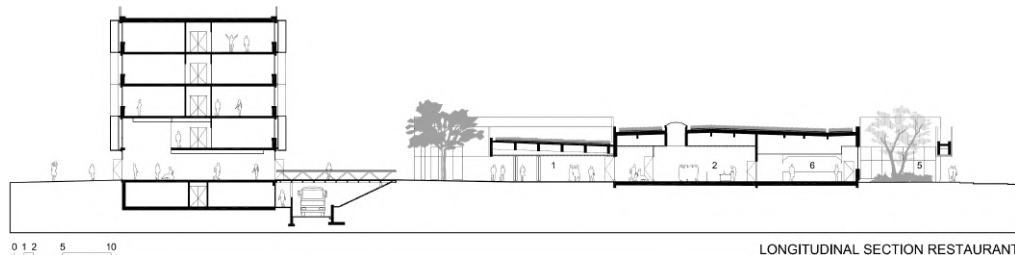
Situated behind Building B, the restaurant is set within trees in the formerly unused space opposite the workshops. Away from the noise of the main road and the car park, it is able to operate autonomously with direct service access from rue Paul Maintenant.

Converting this restaurant into an independent building was also a way to distribute the flows and to maintain the school's category 2 ERP classification, remaining below the threshold of 1500 people per building, which would otherwise have required making both facades of the blocks accessible to the emergency services.

The creation of an access walkway from the central hall of Building B also provides more direct access to the technical education workshops the need to walk around the block.

With three self-service cafeterias and eating areas, and two washing-up facilities, arranged around a patio, the restaurant is able to produce and serve more than 2000 meals a day in an "all wood" ambience: façade structure and cladding, beams and false ceiling.

Previously perceived as an unattractive no man's land, a source of security problems because of its inoccupancy, this site has now been turned into an attractive space, notably with the retention of the existing trees around the new building.

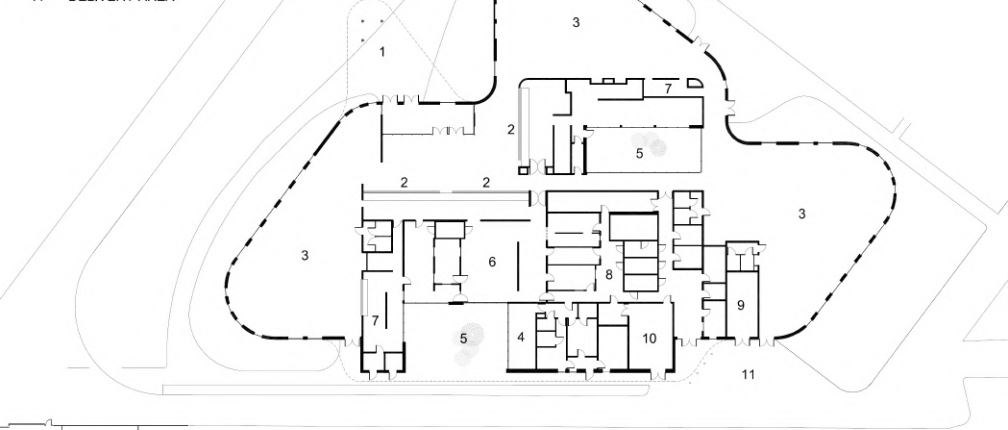


LONGITUDINAL SECTION RESTAURANT





- 1 COURTYARD
- 2 SELF-SERVICE CAFETERIA
- 3 DINING ROOM
- 4 GUEST DINING ROOM
- 5 PATIO
- 6 KITCHEN
- 7 WASHROOM
- 8 COLD ROOM
- 9 LAUNDRY
- 10 WASTE ROOM
- 11 DELIVERY AREA



0 1 2 5 10 RESTAURANT GROUND FLOOR PLAN





## MATERIALS

### RESTAURANT AND THEATRE

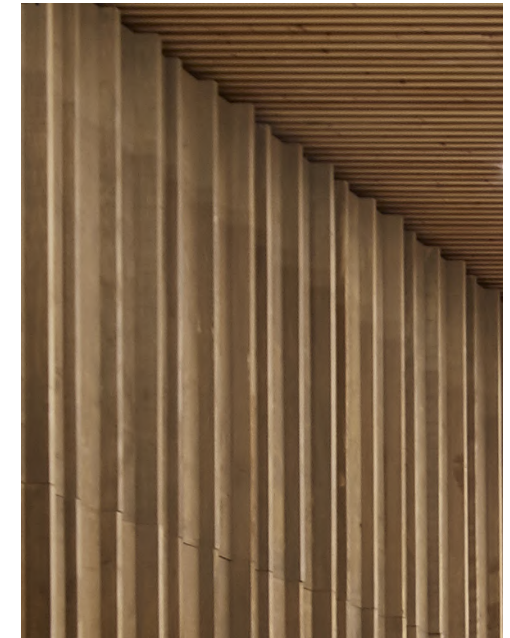
The two new buildings place are characterised by the presence of wood, in a variety of forms

- for the structure, large span – 17 m – glulam wood frame, and wood frame façades for the restaurant ;
- for the facades, solid Douglas strip openwork vertical cladding – reconstituted solid wood – follows the curved design of the two buildings’ facades. Variations in the length and depth of the strips – 140x45 mm or 45x45 mm – punctuate the facades and produce a play of vibration with different light ;
- inside, the false ceilings of the theatre auditorium and of the three restaurants are made up of openwork 40x40 mm larch strips with mineral wool for the acoustic qualities and integrated strips of lighting ;
- in the theatre, wood once again plays a primary role for the quality of the sound ambience through three different uses of the same pine strips: diffusion walls, absorption walls and deflector panels.

### TEACHING BLOCKS

The restructuring of the two teaching blocks, five-storey buildings respectively 150 m and 165 m long, includes

- total refurbishment of the facades: removal of asbestos, dismantling of windows, demolition of spandrels and intermediate structural reports, creation of rendered spandrels, installation of insulating PVC frames, external insulation, corrugated metal cladding, vertical external canopies in folded aluminium composite, protection of ground floor windows with perforated corrugated sheet metal ;
- interior alterations: creation of a “building” with independent circulation at the end of one of the two blocks for all the staff accommodation units originally located at the two ends of the upper floor corridors; creation of double-height through halls, creation of a footbridge with a ground level metal frame structure, complete replacement of roofs, creation of rainwater capture tanks.







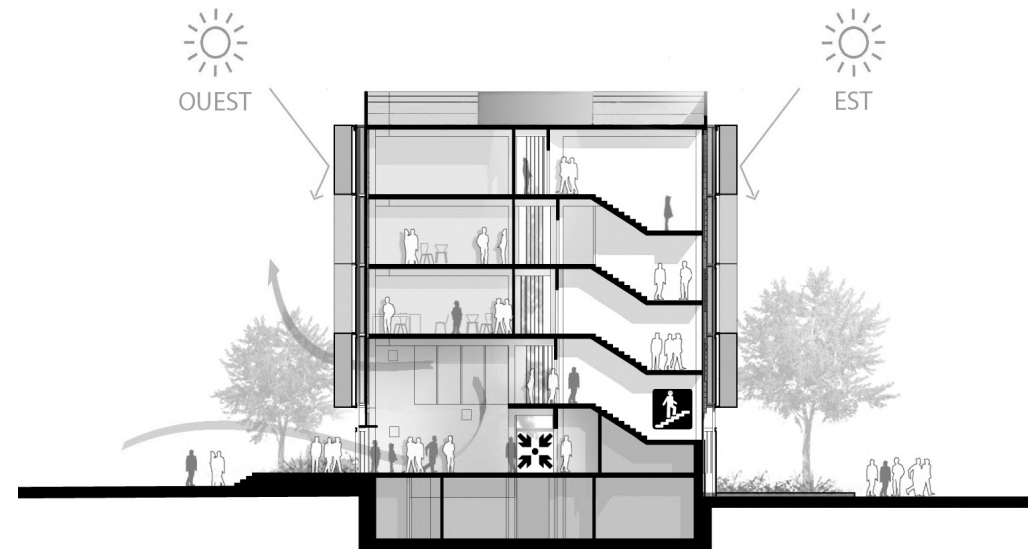
## SUSTAINABLE DEVELOPMENT

### REFURBISHED BUILDINGS

- creation of rainwater recovery tanks under each existing building to supply the new toilet flush systems,
- passive solar protection: canopies on the east and west facades.

### NEW BUILDINGS

- theatre : wooden facades and internal acoustic cladding / wooden acoustic false ceiling / green roof with rainwater retention and overflow outlet to a landscaped pond at the foot of the theatre ;
- restaurant : wood frame construction, large span glulam wooden roof frame / wooden acoustic false ceiling / green roof and rainwater retention tank under the patio with plantings / planted patio in the centre of the restaurant / trees preserved through the curve of the facade.

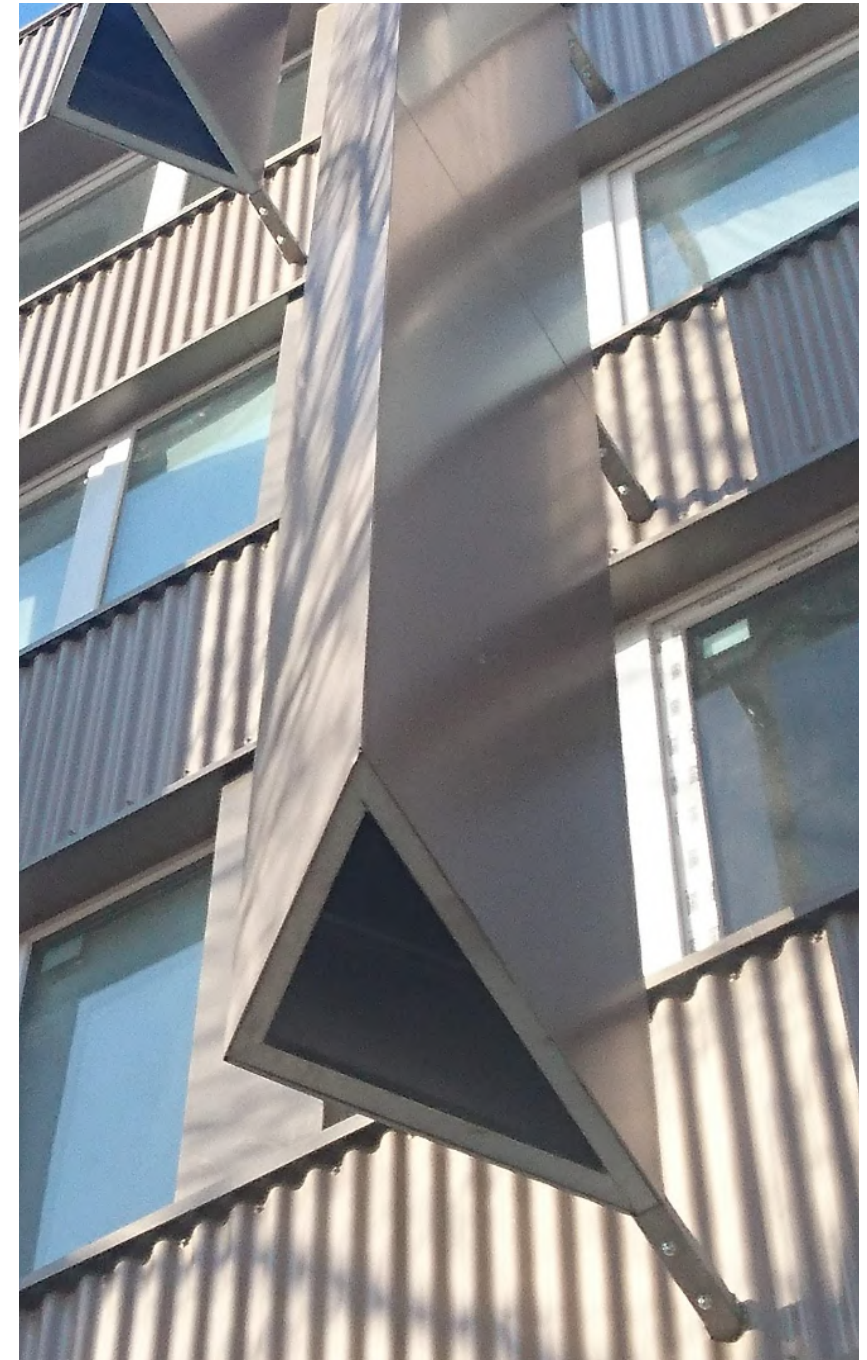




## FACT SHEET

- Client Région Île-de-France
- Represented by Essonne Aménagement
- Programmed by Région Île-de-France
- AMO Dev.Sustainability INDDIGO
- Project management **DE-SO** lead architects  
**TERRENEUVE** associate architects
  
- Project managers  
DE-SO  
Olivier Souquet / Francois Defrain  
Young Song Park, Competition  
Magali Lenoir, Designs and Site Works  
+ Alain Bruner and Mathieu Tran Nguyen for designs  
TERRENEUVE  
Nelly Breton / Olivier Fraise  
Géraldine Bouca and Joris Lipsch, Designs  
Alice Lévy-Leblond, Tender Documents and Works
  
- Cost of works € 32 million before tax
  
- Surface area  
3.362 m<sup>2</sup> net floor area new  
24.164 m<sup>2</sup> net floor area refurbishment  
14.250 m<sup>2</sup> exterior works
  
- Detailed surface areas
 

Building A	11.506 m <sup>2</sup> net floor area
Building B	12.658 m <sup>2</sup> net floor area
Theatre-reception	1.104 m <sup>2</sup>
of which	703 m <sup>2</sup> net floor area theatre
	401 m <sup>2</sup> yards/awnings
Restaurant	2.659 m <sup>2</sup> net floor area





- Competition 2009
- Designs 2009 – 2012
- Works 2014 – 2019
  
- HEQ procedure Région Île-de-France specifications
  
- Design order for competition and first tender documents  
 COTEC All building trades  
 for final tender at delivery  
 CRBA + IN4 Structure  
 SYNAPSE Fluids  
 PRCA Budget and works oversight  
  
 COSYREST Community kitchen  
 ALTIA Acoustics
  
- SCMC OMEGA ALLIANCE
- Inspection office BATIPLUS
- Fire Safety System coordinator SI PREV
- SPS coordinator CCR BTP
  
- Contractors All trades contracors EIFFAGE CONSTRUCTION  
 Electricity BRUNET  
 Plumbing HVAC SPIE BATIGNOLLES ENERGIE  
 Kitchen SÉSAR  
 RAGUENEAU
  
- Photographs DANIEL ROUSSELOT  
 HERVÉ ABBADIE



## DE-SO

After working together for 10 years, François Defrain and Olivier Souquet founded DE-SO in 2005.

A three-time winner of the European competitions and award winner with the Nouveaux Albums des Jeunes Architectes (NAJA), the practice has since developed a wide range of skills, ranging from urban design studies to public amenities.

In 2015, four new partners joined the team: Sandrine Charvet, Matthieu Labardin, Magali Lenoir and Philippe Reynes.

It is an in-depth understanding of the places where DE-SO's projects are situated that underpins the firm's architectural productions and urban projects.

The connections between uses, functions and materials are managed through outlining and assembly, a mix of geometry and geography.

Recent distinctions (including winning the National Wooden Construction Prize in 2013 and 2019, the Île-de-France Wood Trophies 2015, the Fibra Award 2019, the BDM Trophies 2019) reflect the meticulousness of its approach for exemplary projects.

DE-SO conducts projects in the cultural and educational sectors and housing, and remodelling projects in the service, industrial and health sectors.

DE-SO transposed its vision and expertise to Southeast Asia some 10 years ago and in 2016 opened its Vietnamese office in Ho Chi Minh City, DE-SO Asia, which employs 15 people.



**DE-SO**  
architectes - urbanistes



## TERRENEUVE

## TERRENEUVE

TERRENEUVE lays claim to a culture of diversity and of commitment to a better and sustainable living environment, in the fields of architecture, urban design and interior design.

Created in 2000, TERRENEUVE conducts projects in France and around the world, marked by a spirit of constant innovation that reflects the complementary backgrounds of the firm's creators and partners, Nelly Breton and Olivier Fraisse.

In their approach, they explore not just the territory, its resources, its uses, its potentials, but also its ambiguities and its contradictions. Every project is approached from a global perspective : technical and economic, social and human, adjusting to local practices and to sometimes small budgets, with a focus on simple bioclimatic construction principles.

Drawing on successful experiences of complex projects for institutional clients, TERRENEUVE has a portfolio of cultural amenities, museums, housing and educational locations, both new and refurbished live sites, in France, in Senegal, in Kenya, in Mauritania, in Algeria...as well as in Mayotte and Guyana.

Projects that have won distinction in the form of awards, publications and exhibitions :

- French Diplomatic Campus in Nairobi, Kenya, delivered in 2018, certified LEED Gold
- Ouangani College, Mayotte, delivered in 2018, Prix d'Architecture de la Réunion / Océan Indien 2018, Seismic Architecture Prize AFPS 2019
- International Tapestry Centre, Aubusson, delivered in 2016, Regional Wooden Construction Prize 2018

Lycée français Jean Mermoz, Dakar, Senegal, winner of the Grand Prix AFEX 2012, Nominated for the Aga Khan Prize









## PHOTOS CREDITS

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DE-SO & TERRENEUVE

## DE-SO

architecture and urban design

10, rue Bluets  
75011 Paris  
T. +33 (0)1 55 43 97 07  
contact@de-so.com

www.de-so.com



## TERRENEUVE

architecture and urban design

10, rue Vicq d'Azir  
75010 Paris  
T. +33 (0)1 43 70 64 70  
mail@terreneuve.fr

www.terreneuve.fr



## PRESS CONTACT

DOMINIQUE DU JONCHAY

T. +33 (0)6 16 17 11 14  
dduj@ipconseil.com

SANJA CINDRIC

T. +33 (0)6 03 99 55 41  
sanja@ipconseil.com

## IPC

IMAGE PROJET COMMUNICATION  
7, rue Barbette, 75003 Paris





