

"Urban Barn ": two university auditoriums revitalize a city block

This project which includes the construction of two 200-seats lecture halls and teaching spaces, was an opportunity to realize a successful transformation of a city block court. It reveals an urban place which users, residents, visitors or passers appropriate; and meets the requirements of coherence and simplicity, between functional and aesthetic sense.

The urban court, addressed the 143, avenue de Versailles in the 16th district and belonging to the University Paris Descartes, was seen as a crowded space, resulting from an accumulation of buildings and shrines on top of a parking floor occupying the whole court. The challenge of its transformation lay in the ability to turn it into a functional desirable space.

The compact and minimalist definition of the new building, the simplicity of its design, the level of finish and the choice of materials, aim to strengthen the own identity in the heart of Parisian block, with an image reminiscent of workshop-barns. The architecture, reflected by maximum optimization, responds to structural, regulatory and economic constraints.

To minimize the impact on the infrastructure of the existing parking, we had to make a slight elevation in volume. The construction system with metal standardized elements, allows the crossing large spans and some feats of the superstructure. To the south, the top of the amphitheater is cantilevered over the ground floor spaces, which gives free spaces for classrooms and offices.

In order to control the costs of the operation and specific facilities, but also to go the way of the constraints imposed by the site, we made accessible and walk-all open to the public areas by grouping them into ground floor.

Conversely, all the technical installations rooms are housed at the top, under the roof and made invisible and inaccessible to the public. This distribution frees up precious space on the ground floor, to make it transparent and continuous with the deck.

Although the development of the surroundings was initially outside the program, we managed to integrate the project budget by proposing uniform treatment of wood, which aims to extend the interior space of the rooms to the court which becomes a space of life and conviviality.

In the design of amphitheaters we sought optimal layout, more compact in plan and elevation. Each amphitheater consists of eight tiers high and nine rows. The distance from the back of the room on the screen is significantly reduced, benefit from better visibility and a distance of about 14.5m projection. The width of the steps is 0.90m and each seat has a width of 0.56m.

The first row is 5.0m from the table, the disabled occupy five seats in the axis of the lower part of the room. The horizontal and vertical angles of visibility are respected. The acoustic comfort is ensured by the choice and positioning of the inner envelopes, micro perforated steel tray and perforated wooden panels.

All auditoriums envelope is made of steel tray elements with reinforced breathable thermal insulation having a low thermal amplitude ratio and ensuring a phase shift of not less than twelve hours.

Heating, ventilation and cooling amphitheaters are provided by independent units heat pumps type air / air. These thermodynamic systems consist of a compartment for renewal and air treatment, an extraction compartment for energy recovery from exhaust air and a technical compartment grouping and refrigeration components regulatory bodies.

The high-efficiency heat exchanger, allows a first heat recovery the warm extract air. These calories are transferred fresh air side. Recovery is then completed by the operation of the heat pump. In summer, the refrigeration cycle is reversed. The advantage of such systems is that they generate the energy performance compared with a traditional heating solution associated with a group of refrigeration production.