


Alphonse BAUDIN School Group - Bourg en Bresse

by Philippe Herbulot / 2018-05-03 18:07:35 / France / 7391 / FR

Extension + refurbishment



Primary energy need :

124 kWh_{ep}/m².an

(Calculation method :)

ENERGY CONSUMPTION

Economical building

< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Energy-intensive building

Building **A**

Building Type : School, college, university
Construction Year : 1950
Delivery year : 2016
Address 1 - street : 01000 BOURG EN BRESSE, France
Climate zone : [Cbc] Mild, dry winter, warm and wet summer.

Net Floor Area : 1 645 m²
Construction/refurbishment cost : 2 000 000 €
Number of Pupil : 120 Pupil
Cost/m² : 1215.81 €/m²

Certifications :



Proposed by :



General information

Renovation of the Baudin school group hosting nursery and elementary classes and a school restaurant. The challenge of this rehabilitation is to reach the BBC level for an overall energy saving of around 60%. The project involves the demolition and reconstruction of part of the building. with big stakes around energy, environmental and comfort aspects.

As part of the management of its heritage, the City of Bourg-en-Bresse is engaged in an energy saving program, in partnership with the SPL (Local Public Corporation), OSER (Regional Energy Services Operator). The studies carried out led to the signing at the end of 2014 by the SPL of a "works and services" CPE with a guarantee of results corresponding to a 60% reduction in energy consumption (all uses). The renovated building will comply with the BBC-renovation level. an emphyteutic lease of 20 years has been signed between the city and the SPL. The amount of the work will be paid by the SPL, and the City will reimburse this amount in the form of an annual rent including the price of the work, the fees and the maintenance. More than 90% of services in this market are provided by local small and medium-sized businesses. The representative, Climsanit, is surrounded by 2 local SMEs (Sarl Juillard for thermal insulation and asbestos removal and Prodalou 01 for the replacements of joinery), as well as the design office SINTEC NEPSSEN group, Bertrand Feinte (architect) and Dalkia, for the operation of thermal equipment

Sustainable development approach of the project owner

As part of the management of its heritage, the City of Bourg-en-Bresse is engaged in an energy saving program, in partnership with the SPL (Local Public Corporation), OSER (Regional Energy Services Operator). At the end of 2013, the city entrusted the overall energy renovation of school groups to the SPL, including the BAUDIN school group. The studies carried out led to the signing at the end of 2014 by the SPL of a "Works and Services" CPE with a guarantee of results corresponding to a 60% reduction in energy consumption according to the buildings.

The renovated buildings comply with the BBC renovation level, with a desire from the Client to promote quality and healthy products for children and staff, as well as to improve comfort (visual, acoustic, ventilation, ...). Environmental requirements for the materials used have been incorporated, in particular for those having an impact on the quality of the indoor air. Users were involved in the initial diagnosis during the program phase and sensitization workshops were organized with all staff. A dynamic energy simulation was performed to simulate several scenarios and treat the discomfort of winter and summer.

A 20-year long emphyteutic lease was signed between the City and the SPL. The amount of the work will be paid by the SPL, and the City will reimburse this amount in the form of an annual rent including the price of the work, the fees and the maintenance.

More than 90% of market services are provided by local small and medium-sized businesses. The representative, Climsanit is surrounded by 2 local SMEs (Sarl Juillard for thermal insulation and asbestos removal and Prodalou 01 for the replacements of joinery), as well as the Sintec design office, Bertrand Feinte (architect) and Dalkia, for the operation of thermal equipment.

Early 2016: Meetings with teachers and school officials were organized to involve building users upstream and take into account their needs and proposals.

The work started in the summer of 2015, for a period of one year (delivery scheduled for the start of the school year 2016/17).

The energy renovation operation

The operation was launched in a global market for design, implementation and maintenance operations for a period of 8 years. The performance objectives are to reduce energy consumption by 60% and to reach the BBC renovation level.

Architectural description

The school group Baudin, with a surface of 1,580 m², includes a kindergarten, a primary school and a dining room. A yard has been laid out but is not heated.

The old buildings date from the 1900s and the extension of kindergarten was put into operation in 1984.

This school group consumed before renovation more than 372 MWh per year or an energy budget of 28 000 €.

Main works carried out:

- Thermal insulation from the outside for the facades on the courtyard and from the inside for the main facade.
- Replacement of exterior joinery by high-performance wood joinery equipped with adjustable sunshades or shutters. Replacement only glazing on newer joinery.
- Installation of two condensing boilers.
- Establishment of a centralized technical management
- Installation of double flow mechanical ventilation in the refectory, the motor room and the dormitories.
- Related work: creation of an extension and a yard, relocation of the school restaurant, accessibility accessibility PMR (creation of an elevator, access ramp, ...)

Building users opinion

Owner very satisfied, occupants perfectly satisfied.

See more details about this project

[🔗](https://www.construction21.org/france/data/sources/users/2240/be--0300692---ville-de-bourg---3-gs---bourg-en-bresse.pptx) [Projet de restructuration, démolition, extension, avec optimisation des performances thermiques](https://www.construction21.org/france/data/sources/users/2240/be--0300692---ville-de-bourg---3-gs---bourg-en-bresse.pptx)

<https://www.construction21.org/france/data/sources/users/2240/be--0300692---ville-de-bourg---3-gs---bourg-en-bresse.pptx>

Stakeholders

Contractor

Name : SPL OSER

Contact : Aurélie DUPARCHY

[🔗 http://spl-oser.fr/](http://spl-oser.fr/)

Construction Manager

Name : BELEM

Contact : Antoine ROGER

[🔗 http://www.nepsen.fr](http://www.nepsen.fr)

Stakeholders

Function : Company

CLIMSANIT

Christophe PUJOL

<http://www.climsanit.fr/>

Agent of the group of companies

Contracting method

Other methods

Energy

Energy consumption

Primary energy need : 124,00 kWh_{ep}/m².an

Primary energy need for standard building : 153,00 kWh_{ep}/m².an

Calculation method :

Breakdown for energy consumption : - 83% Heating - 17% Electricity

Initial consumption : 269,00 kWh_{ep}/m².an

Real final energy consumption

Final Energy : 102,00 kWh_{ef}/m².an

Real final energy consumption/m² : 61,00 kWh_{ef}/m².an

Year of the real energy consumption : 2 016

Envelope performance

Envelope U-Value : 0,10 W.m⁻².K⁻¹

More information :

Walls Thermal insulation of the walls from the outside (R = 5.2 m².K / W) of the facade on the courtyard and the interior on the street.

Joinery Replacement with wood or aluminum joinery (extension, restaurant) with double glazing (U = 1.4 W / m².K) with adjustable screens or sunshades.

Building Compactness Coefficient : 2,41

Renewables & systems

Systems

Heating system :

- Condensing gas boiler
- Water radiator

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Double flow heat exchanger

Renewable systems :

- No renewable energy systems

Other information on HVAC :

Heating Installation of two condensing boilers. Hydraulic separation of school / restaurant heating networks.

Natural ventilation (opening by user with CO₂ sensor in the elementary course) and VMC double flow in the new extension, the restaurant, the library and the

master room.

T5 lighting in restructured premises.

Regulation Establishment of a GTC for HVAC positions and energy management.

Sensitization Users associated with the initial diagnosis during the program phase. Awareness plan planned.

Other accessibility accessibility PMR including creation of an elevator.

ERP security work.

Environment

Urban environment

The school Baudin is located in the heart of the city of Bourg en Bresse, near the train station. The renovation / extension of this school allowed to give a perspective of the main facades to the wooded park located nearby.

Products

Product

A real human adventure

l'ensemble des collaborateurs des différentes PME ainsi que leur dirigeants

NEPSEN

<https://www.nepsen.fr>

Product category :

This operation is a first in France because it is entirely carried out by local SMEs and craftsmen who have managed to form a temporary business group (GME) and trust each other to meet the energy performance contract (CPE) of the BAUDIN school in Paris. Bourg en Bresse for 8 years.



After a period of hesitation and questioning, the companies carried out under the impetus of a shock duo made up of Christophe PUJOL from the CLIMASANIT representative company and Antoine ROGER from the SINTEC design office managed to forge links and involve all the companions, team leaders, project manager of the group. This project mobilized a total of about 40 companions during the project year.

After a few weeks, the sum of the speakers was turned into a close-knit team. Each of the companions felt concerned by the issue and the level of quality requested. A real esprit de corps where everyone was a force of proposition: where respect, listening and concerns of each were taken into account from the design phase to the implementation. During the opening of the school, issues of safety, logistical construction, were also a crucial element for the companions as well as the daily cleaning of the site where everyone contributed.

The companies involved are proud to have been able to carry out this renovation / extension both from a technical point of view and from a human point of view. All the staff of the school and the municipality consider this building site as exemplary thanks to the quality implementation that the comforts of daily use that these buildings bring. The satisfaction of the users is total thanks to the improvements of spaces, of the comforts that with the energetic results in accordance with the objectives of the contract of performance.

This beautiful story confirms that beyond the technical performance achieved by the companies, they are also able to get along and join forces for an adventure of 8 years. Thanks to this complicity and trust developed during this project, new opportunities have been seized to collaborate on new renovation projects in the area.

Costs

Construction and exploitation costs

Total cost of the building : 1 792 377 €

Carbon

GHG emissions

GHG in use : 24,00 KgCO₂/m²/an

Methodology used :

Energy label

Building lifetime : 50,00 année(s)

GHG emissions before renovation: 52

Contest

Reasons for participating in the competition(s)

- Innovation in terms of financing: the project is supported by a delegated developer: a public company Locale SPL, a first in France.
- Innovation in terms of involvement for craft companies to engage in a CREM, few operations in France involve craft companies in a performance guarantee contract
- A collaborative approach: teamwork and a strong collaboration which made it possible to respect the deadlines of the building site, to make emerge the relevant solutions while controlling the costs and favoring the quality of the renovation.
- A pragmatic and optimized approach in the architectural proposal of the team which made it possible to improve the comforts:

- thermal (Improvement of the compactness of the building by the extension) - acoustic-visual (destruction of a wart building which allowed a better contribution in natural light of the premises, and to give a very beautiful perspective on the park for the whole occupants) - well-being: expansion of the course for children and creation of a semi open courtyard to enjoy the outdoor space at all times

Other performances:

- An energy performance labeled BBC renovation (- 40% / Cep ref) A contractual commitment, within the framework of a CREM, with a reduction in all-purpose consumption of - 60%. A group of local craft companies and established on the territory.
- Rehabilitation, complex restructuring managed over 12 months a record in terms of project management
- An approach of implication and sociological approach towards the users of the buildings
- Winning operation with the call for projects "PREBAT Demonstration buildings with low energy consumption"

Building candidate in the category



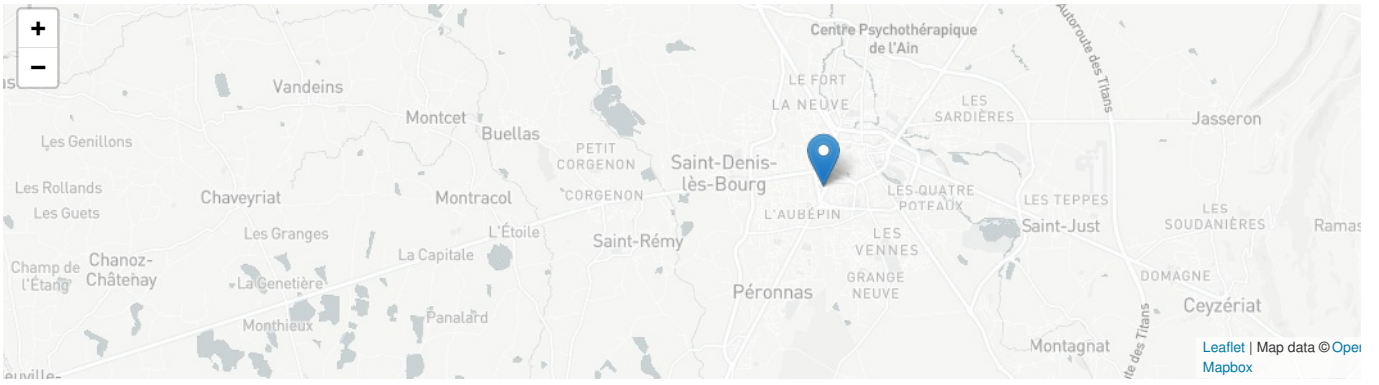
Energie & Climats Tempérés



Coup de Cœur des Internautes



Prix des Etudiants



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