ENERGY PERFORMANCE CONTRACT:
THE VICTOR HUGO MULTIMEDIA LIBRARY
IN MONTMÉLIAN (73)

As part of its heritage management efforts, the City of Montmélian launched an energy savings programme. At the end of 2015, the city selected the SPL (publicly-owned local corporation) OSER (regional energy services operator) to conduct the energy retrofit of its multimedia library. The expected reductions in energy consumption are guaranteed by an Energy Performance Contract (EPC).

> Location

Since 1983, the City of Montmélian has been a pioneer in the use of solar energy. Thanks to its energy-climate policy, it was one of the first French municipalities to obtain the Cit’ergie (European Energy Award) label in 2007. In 2014, it also received the European Urban and Regional Planning Award for its solar eco-distinct project, and the Solar Heating and Cooling Award for its policies to promote thermal solar energy over the past 30 years.

Along with the Cœur de Savoie association of municipalities, Montmélian has undertaken the “Positive Energy Territory” (TEPOS) and “Positive Energy Territory for Green Growth” (TEPCV) initiatives and is drafting a Territorial Climate Air and Energy Plan (PCAET).

> The project in brief

- **Energy performance target**
  Energy consumption: -50%
  GHG emissions: -52%
- **Duration**
  8 years
- **Investment**
  €673 k Ex. VAT
- **Type of EPC**
  Works and services
- **Contracting authority**
  SPL OSER
- **Consortium representative**
  Bati.P (energy service company)
- **Type of building**
  1 cultural facility dating from 1988 — the multimedia library — covering 690 m².
> Objective

In 2015, studies for the Victor Hugo Multimedia library resulted in the signature of a “Works and Services” EPC with a results guarantee for 8 years. This corresponds to an annual 50% reduction in energy consumption at the BBC Rénovation level. The renovations to the building were designed to improve its energy efficiency and comfort in the summer. They also included work to comply with standards for accessibility (installation of an elevator) and fire safety, as well as functional improvements.

The work was completed in 2017 and should result in cost savings of €1,400 Inc. VAT/year, with an estimated consumption of 59 MWh/year, or 87 kWhPE/m²/year (€3.5 k Inc. VAT of energy costs per year) and annual CO₂ emissions estimated at 13 kg CO₂e/m².

> Implementation

The project was able to monetise Energy Savings Certificates (ESC) and received co-financing from the European Union (ERDF).

The city signed a 20-year emphyteutic lease with the SPL OSER. OSER is financing the work, and the city will pay fees for 20 years upon completion of the work.

All the services in the contract are being carried out by small and medium-sized companies in the Auvergne-Rhône-Alpes Region: the consortium representative, Bati.P, is working with the architectural firm Inextenso Kopac & Girard, the design office Cena Ingénierie, as well as Rosaz Énergies, Eolya, and Azimut Monitoring for the installation and operation of thermal equipment and performance monitoring.

As part of this contract, 115 work hours in September 2016 were performed by a participant in a job integration programme (the coordinator of the work).

Ahead of the retrofit, the library personnel surveyed the desires and needs of users in terms of thermal comfort. The following energy retrofit work was carried out:

- Thermal insulation from outside the walls and insulation of the roof with wood wool (biosourced material)
- Replacement of all the joinerries (installation of wooden joinerries) and installation of movable or fixed Venetian blinds, depending on exposure to the sun
  - Renovation of the heating system (installation of a condensing boiler with a simple integrated regulation system, replacement of the chimney casing, simplification of the heating network, replacement of the fan coil units with radiators)
  - Installation of a double-flow air handling unit with heat recovery and free cooling
- Renovation of the lighting (LED lights with presence detectors)

A plan to raise awareness about energy savings is in place, with distribution of flyers and discussion groups with personnel.

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1 In primary energy, compared to an annual baseline consumption level.
2 Price of energy in 2014 taking into account extra maintenance costs due to the new ventilation systems.
3 119 MWh/year or 172 kWhPE/m²/year before the work.
4 €6.9 k Inc. VAT before the work.
5 27 kg CO₂e/m² before the work.
In addition to improving the library’s energy efficiency, the project includes **expansion of the surface area** on the top floor and **remodelling of indoor spaces** to address changes in use, while maintaining the same heated volume.

Every year, the service provider will measure the building’s energy performance to check whether the EPC’s energy performance guarantee has been achieved.

If it has, the service provider receives a bonus corresponding to 5% of the investment amount. Otherwise, the service provider is subject to penalties that increase each year\(^1\) as long as the targets set by the EPC are not met.

The verifications are done according to the IPMVP protocol.\(^2\) The adjustment formula is based on degree days.\(^3\) Conditions under which the baseline situation may be revised have been established in the event of a change in use.

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\(^1\) They correspond to the amount of excess consumption the first year of operation, double this amount the second year, and five times the amount in the following years if the building is unable to reach the targets set.

\(^2\) International Performance Measurement and Verification Protocol: a method to measure energy savings in the building sector.

\(^3\) Degree day: difference between the outside temperature and a base temperature. It is used to estimate the thermal energy consumption required for user comfort according to the weather conditions.

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**An interim report in mid-2018**

> **Results**

The first year, there was a steep reduction in consumption (around **-42% in primary energy**), but the target (-50%) did not appear to have been met. However, the data remains partial and must be confirmed over an entire year. Users (personnel and the public) say they are very satisfied with thermal comfort in the library since the work was completed.

> **Difficulties**

Significant overheating in the first winter and unfavourable weather conditions (heat wave) in the summer of 2018 reduced the efficiency of the free cooling system (cooling of the building via ventilation using free energy from the outside air when the outside temperature is lower than the indoor room temperature).

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**Stakeholders involved**

- City of Montmélian
- Project Management Assistance: SPL OSER
- EPC representative: Bati.P
- Architectural firm: Inextenso Kopac & Girard
- Design office: Cena Ingénierie
- Thermal equipment (installation and maintenance): Rosaz Énergies, Eolya, and Azimut Monitoring

**Information and contacts**

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