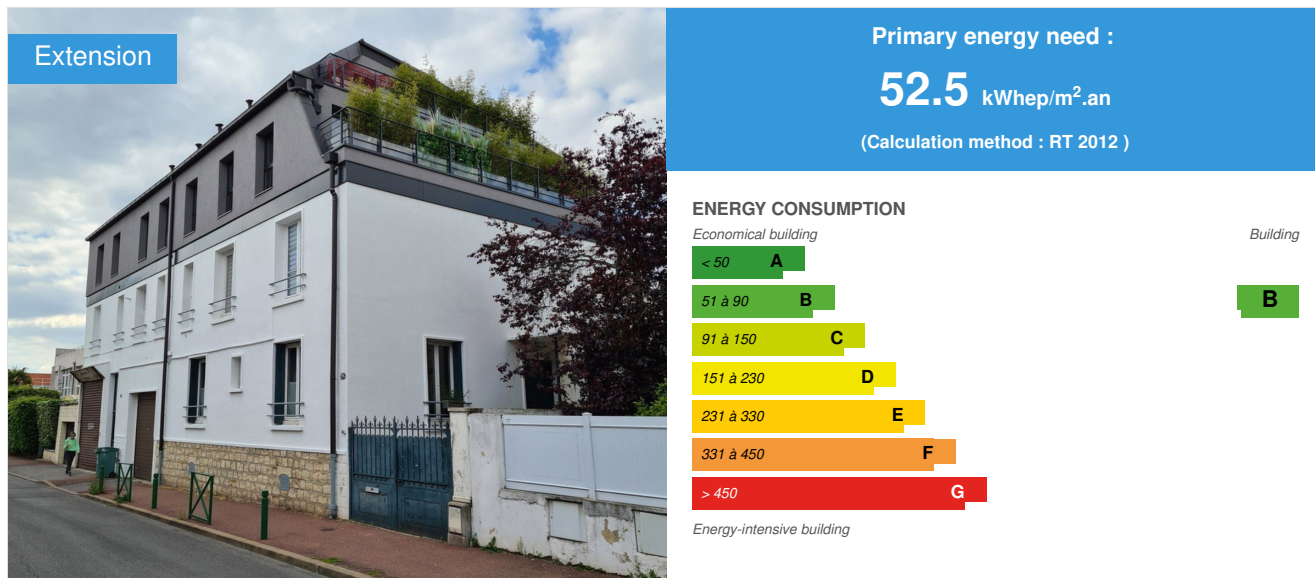


Elevation at Malakoff

by [Caroline Courteau](#) / 2021-11-08 00:00:00 / France / 2378 / FR



Building Type : Collective housing > 50m
Construction Year : 1900
Delivery year : 2021
Address 1 - street : 98 rue Paul Vaillant Couturier 92240 MALAKOFF, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 288 m² SHON RT
Construction/refurbishment cost : 610 000 €
Cost/m2 : 2118.06 €/m²

Proposed by :



General information

Located in Malakoff, a municipality just outside Paris, this project made it possible to transform a small apartment building by raising it. Two duplexes with terrace could then be built. This initiative responds to the need to redensify this part of Malakoff in order to fight against the artificialization of soils in the town, but also in the surrounding area. It is therefore part of a renovation and rehabilitation of the heritage taking into account the particular urban heritage of this type of municipality close to Paris.

Fast construction, on an occupied site

Technically, the building had a structure that did not allow for an elevation in traditional materials. It was therefore created in wood with a solid wood construction system, called CLT (laminated timber). The frame of the covered enclosure was manufactured entirely in the workshop (off-site), then installed directly with a mobile crane. This made it possible to build the covered enclosure in 10 days and to limit the nuisance for the inhabitants of the building.

Restore value to the attic

The work made it possible to give value to the attic and thus increase the value of the property. The owners Mr. and Mrs. MEYER bought a studio, the raw attic and the right to raise. The operation cost € 847,000 in total, including € 215,000 for land purchase. After work, the value of the property is estimated at € 1,250,000. This long-lasting economic equation makes it possible to promote spaces that are usually neglected.

Gain health and comfort

The project design team focused on the issue of health and comfort. Maximum exposure to daylight was sought through generous openings and skylights, while respecting the original architecture of the building. Reconciling the attic has also made it possible to optimize ventilation, by coupling the single flow system to VELUX motorized roof windows. The bedrooms and the bathroom thus benefit from automatic or programmed openings in order to reduce more quickly the peaks of humidity or pollution of the indoor air. This solution, which has proved its worth in establishments open to the public, is here adapted for private use. It offers a frugal alternative to traditional fully mechanized ventilation solutions.

A highly replicable demonstrator

The process of technological innovation and optimization of space and comfort developed for this project makes it a demonstrator for other projects, as the architect of the project testifies: " *We scanned the assets of an Oralia manager - which is a major manager of condominiums throughout the metropolis of Lyon and on the Ile de France covering 5,000 assets - and in 10 days we were able to analyze all these buildings and offer them 217 projects, in which the co-owners will be able to sell their roofs to finance renovation works. A real acceleration, all these ideas came from Malakoff's small project, initiated in 2016 and delivered in 2021.* "

Sustainable development approach of the project owner

It is truly a progressive project without artificialization of the land, or parking space in order to promote soft mobility. **The wooden structure, the use of bio-sourced materials and the off-site construction process** reflect a desire to apply the latest sustainable innovations in the sector. In addition, **concerns for the comfort and health** of residents are part of a holistic conception of construction issues.

Architectural description

The objective of the work was to modernise this old suburb house which had several apartments and needed to be renovated.

The building now consists of two duplexes, each with a terrace. The first is 76m² and its terrace is 25m². The second is 67m² with a 32m² terrace.

An additional objective was to demonstrate on a small project the effectiveness of the architectural devices that are the VELUX windows to improve the comfort and the quality of these two dwellings. The realization is therefore motivated by the search for a reproducible architectural approach.

Finally, this elevation blends in perfectly with the landscape visually thanks to its wooden structure.

Photo credit

Antoine Mercusot

Stakeholders

Contractor

Name : Monsieur et Madame Meyer

Construction Manager

Name : Didier Mignery - UpFactor (AMOA et conception de projet), Zoom Factor (maîtrise d'oeuvre)

Contact : d.mignery@upfactor.fr

<https://upfactor.fr/> et <https://www.zoomfactor.fr/>

Energy

Energy consumption

Primary energy need : 52,50 kWhep/m².an

Primary energy need for standard building : 70,40 kWhep/m².an

Calculation method : RT 2012

Breakdown for energy consumption : - Distribution auxiliaries: 1.1 kWhEP / m².year, i.e. 2% of consumption - Heating: 25.2 kWhEP / m².year, i.e. 50% of consumption - DHW: 19.9 kWhEP / m².year, i.e. 38% of consumption - Lighting: 3.6 kWhEP / m².year, i.e. 6% of consumption - Fans: 2.7 kWhEP / m².year, i.e. 4% of consumption

Envelope performance

More information :

Bbio of 55.1 points for a Bbio max of 72 points.

SARKING insulation on 132mm foam type CLT panel (TERREAL NRJ +).

Thermal resistance R = 6 [m²K / W]

Thermal conductivity λD = 0.022 W / (m.K)

Renewables & systems

Systems

Heating system :

- Individual gas boiler
- Water radiator

Hot water system :

- Individual gas boiler

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Single flow
- Humidity sensitive Air Handling Unit (Hygro B)

Renewable systems :

- No renewable energy systems

Environment

Urban environment

The project is located in an urban area, in the Hauts de Seine (Ile de France region). The urban environment is residential, with a rather high density. Many services, including the metro, are located near the building.

Products

Product

VELUX roof windows

VELUX

VELUX France 1 rue Paul Cézanne 91420 Morangis

<https://www.velux.fr/>

Product category : Gros œuvre / Structure, maçonnerie, façade

Motorized roof window.

VELUX products provide benefits for ventilation and natural light. The owners say they feel the benefits. In addition, they can enjoy a beautiful view of the town of Malakoff.

Costs

Construction and exploitation costs

Total cost of the building : 847 000 €

Additional information on costs :

Cost of land purchase: € 215,000

Cost of works and equipment: € 610,000

Cost of the renovation of the condominium (payable by the contracting authorities): € 22,000, includes the facade, the renovation of the common areas and the VMC of the building

Health and comfort

Indoor Air quality

Natural ventilation thanks to motorized roof windows

Comfort

Health & comfort :

Very good air quality and light thanks to the roof windows.

Contest

