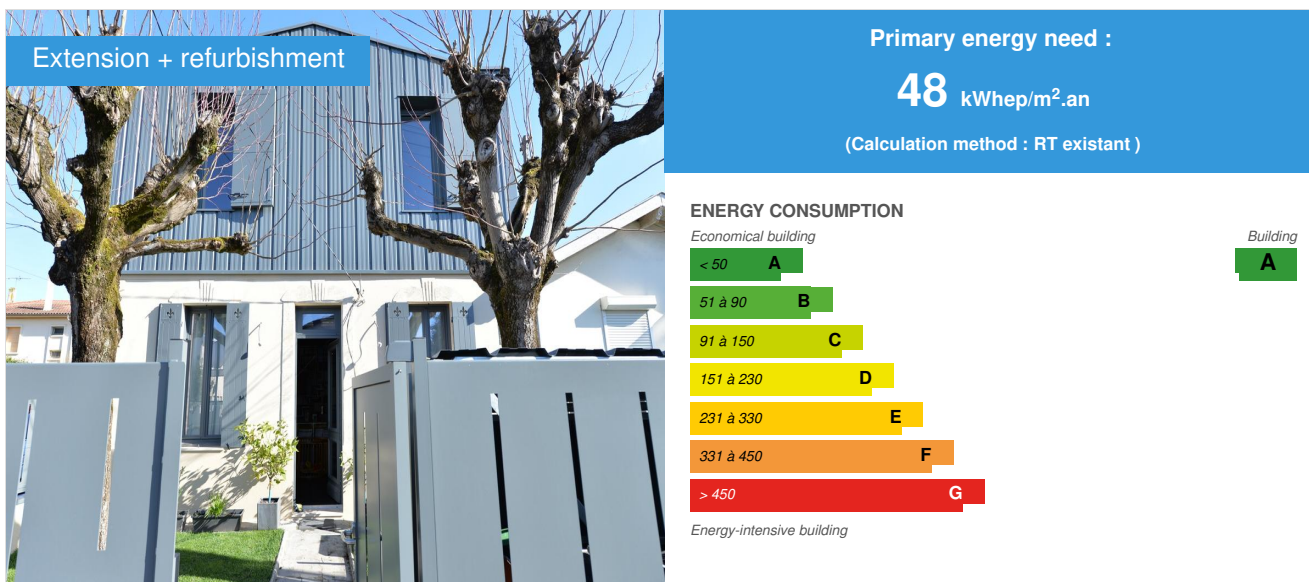


# "Maison des charmilles" : rehabilitation of a stone house and metal heightening

by Justine REVERCHON / 2020-03-24 21:56:53 / France / 4503 / FR



**Building Type** : Isolated or semi-detached house  
**Construction Year** : 1900  
**Delivery year** : 2015  
**Address 1 - street** : 29, rue des charmilles 33400 TALENCE, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 140 m<sup>2</sup> SHON RT  
**Construction/refurbishment cost** : 200 000 €  
**Cost/m<sup>2</sup>** : 1428.57 €/m<sup>2</sup>

## General information

The house of the charmilles is a renovated stone house, with an entirely metallic heightening. The structure of the heightening is placed intramural on six micropiles, the stone facade is therefore free of any additional weight. Talence being a city built for the most part on very plastic clays, a heightening is only possible with a soil study, and a structure study for implantation. The heightening has therefore, structurally, been completely detached from the existing.

The outside part of the ground floor is rehabilitated in the old style : wood joinery and restaured stone. A small town garden completes the set, with its steel bicycle shelter. The interior has an industrial style : black waxed concrete on the floor, the framework of the visible heightening. The floor of the second floor is visible in the living area.

The heightening is all metal: steel and aluminum. The aluminum joinery is inserted between cladding trays supporting the steel facade. The steel shutters protect these joinery.

The quality of the insulation is perfect: the insulation passing through the slab, 25cm plus 10cm on the upstairs frontage, the house goes to A for the energy diagnosis, which is very rare for old ones.

A little nod is made to Mondrian with the colors of the storage wall and the kitchen / staircase. The storage wall (with wardrobe, library, kitchen) hides full height doors separating the living area from the master suite and the pantry. The staircase is a central element of the house, it separates the spaces and releases the kitchen space which finds place below. The staircase is suspended from the upstairs hopper by its all-steel guardrail, the steps are folded, and the whole is powder-coated.

All steel and stone project!

## Sustainable development approach of the project owner

The client wanted to go further than thermal regulations, and have as little loss as possible.

## Architectural description

The house of the Charmilles was originally a freestone and brick house. The heritage character has been preserved by keeping and highlighting the freestone, and by reinstalling wood joinery, but of quality.

The heightening requested by the client, in addition to the issue of the basement, also had to be as efficient as possible thermally. The insulation, inside the ground floor, therefore runs on the floor which is in metal framework and suddenly in distributed insulation! No thermal bridge.

The insulation of the roof was made by sandwich panels of 120 mm (to avoid a dew point on the underside), and an addition of insulation while crawling.

The client wanted an industrial spirit, the choice of the heightening therefore fell on a steel structure, with metal cladding.

## Building users opinion

Quote from the owner: "An old but contemporary house with its metal elevation in which it is very pleasant to live. "

## If you had to do it again?

The question of phase shift! If it had to be done again, we would rather prescribe wood fiber or other interesting phase-shifting insulation, for summer comfort!

## See more details about this project

<https://www.justinereverchonarchitecte.archi/page15.html>

## Photo credit

IOS photographies

## Stakeholders

### Contractor

Name : Particulier

Contact : /

<https://www.justinereverchonarchitecte.archi>

### Construction Manager

Name : JRA

Contact : Justine Reverchon 0611423792 jra[a]architectes.org

<https://www.justinereverchonarchitecte.archi>

### Stakeholders

Function : Thermal consultancy agency

LBM énergie

Céline Lefevre-Thivet 06 82 16 30 48

Thermal engineering office

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Function : Company

SOLTECHNIC

Mr Carmagnat +33 6 19 14 24 38

<http://www.soltechnic.com>

Micro-piles

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Function : Other consultancy agency

ALIOS

Mme Abrachy +33 6 12 05 26 56

<http://alios.fr>

Soil studies office

## Type of market

Global performance contract

## Energy

### Energy consumption

Primary energy need : 48,00 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 150,00 kWhep/m<sup>2</sup>.an

Calculation method : RT existant

CEEB : 0.0005

Breakdown for energy consumption : Heating: 3291 Domestic hot water: 3372

Initial consumption : 400,00 kWhep/m<sup>2</sup>.an

### Real final energy consumption

Final Energy : 6 663,00 kWh<sub>ep</sub>/m<sup>2</sup>.an

## Renewables & systems

### Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Condensing gas boiler

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B)

Renewable systems :

- No renewable energy systems

## Environment

### Urban environment

Land plot area : 110,00 m<sup>2</sup>

Built-up area : 70,00 %

Green space : 40,00

Urban context.

## Products

## Product

Micro-piles

SOLTECHNIC

SOLTECHNIC Mr Carmagnat

<http://www.soltechnic.com>

Product category :

Micro-piles within the right-of-way, as close as possible to the existing.

Validated by the client



## Costs

### Construction and exploitation costs

Cost of studies : 30 000 €

Total cost of the building : 460 000 €

Additional information on costs :

The costs are as follow:

- purchase of the house: 230,000 euros
- engineering: 30,000 euros
- renovation: 200,000 euros

### Energy bill

Forecasted energy bill/year : 624,00 €

Real energy cost/m<sup>2</sup> : 4.46

Real energy cost/Dwelling : 624

## Carbon

### GHG emissions

GHG in use : 11,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

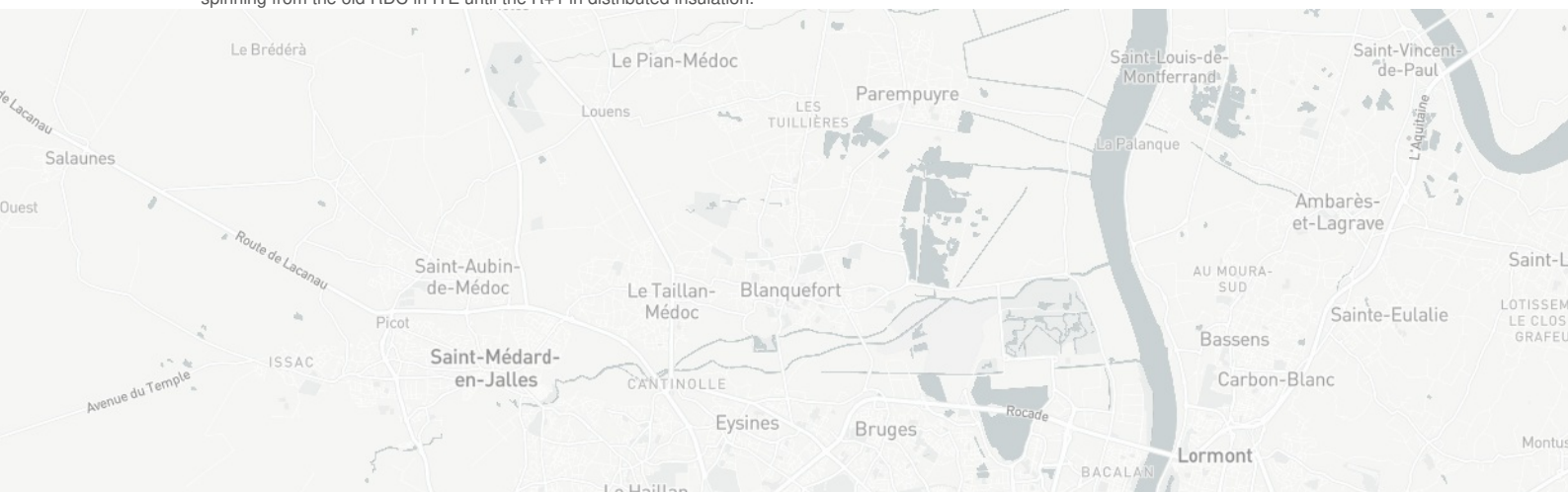
## Contest

### Reasons for participating in the competition(s)

The house of charmilles is proof that it is possible to renovate, and even expand an old house with the standards of new construction today!

The house of charmilles has thus allowed to enhance a stone heritage, while providing the necessary comfort to its users.

- Renovation for a project now all steel and stone.
- Quality of insulation: the house passes in A in the energy diagnosis which is very rare for the old, thanks in particular to an insulator passing in nose of slab, spinning from the old RDC in ITE until the R+1 in distributed insulation.



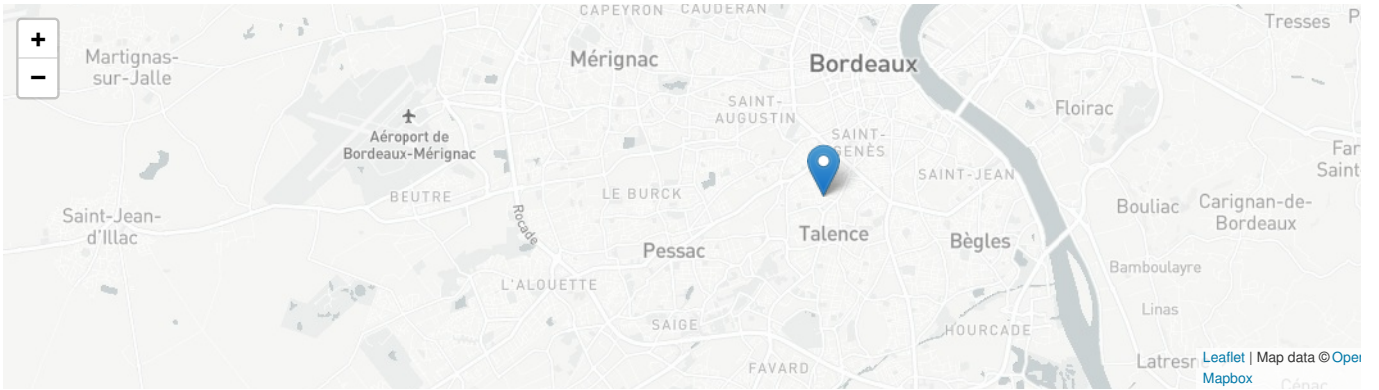


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**AWARDS**

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