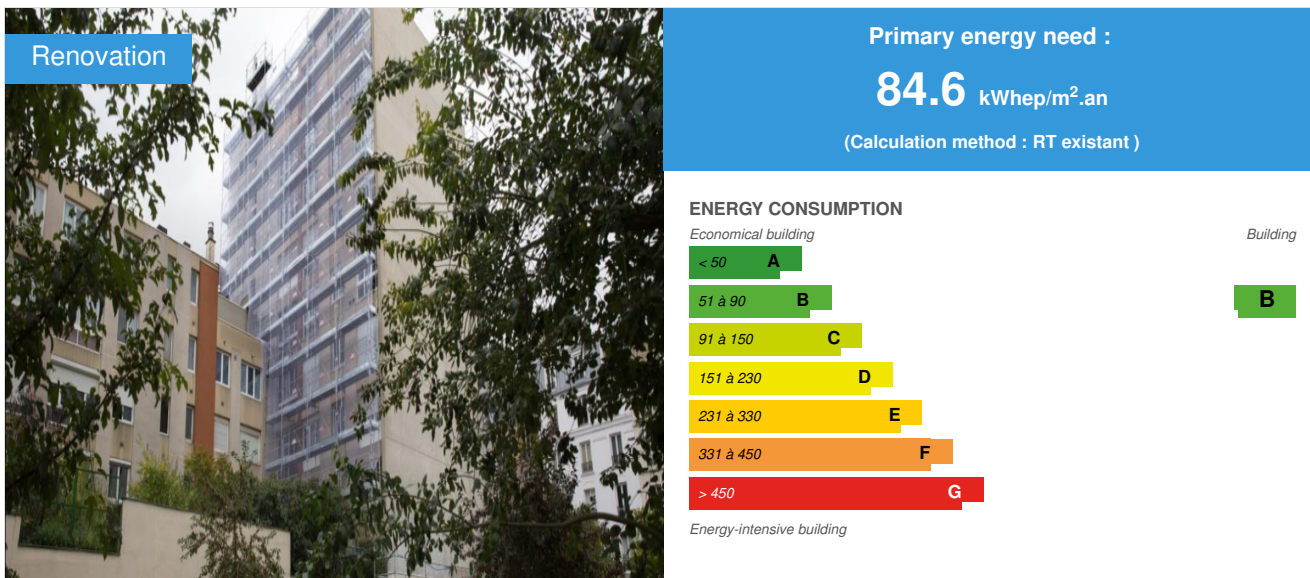


Condominium rue Stephenson

by Benjamin Le Guennec / 2019-01-23 15:14:35 / France / 5219 / FR



Building Type : Collective housing < 50m
Construction Year : 1970
Delivery year : 2018
Address 1 - street : 3-5-7 rue Stephenson 75018 PARIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 3 308 m² SHON
Construction/refurbishment cost : 1 000 000 €
Cost/m2 : 302.3 €/m²

Certifications :



General information

This condominium of the 1970s in concrete structure wanted to embark on a process due to the fact it is an ancient building (frontal facade damaged in particular) and a significant heating consumption (energy budget 80 000 €). Before voting favorably for the low-energy building renovation project, the condominium began this process in 2014 with a contact with the Paris Climate Agency (APC).

Accompanied by the APC, the condominium has gone through a global audit phase (architectural, energy and financial) to make a complete assessment of maintenance and renovation needs. Steps driven by a very dynamic condominium manager, the design office has highlighted the need to intervene heavily on buildings in order to aim for an important energy performance:

The building thus wraps the passage from a label D to a label B.

Consult the map of renovated condominiums on the Paris metropolis
<https://paris.coachcopro.com/pages/carte-des-coproprietes-renovees>

Sustainable development approach of the project owner

Faced with the loss of heat felt in use and found on the primary energy bill, the condominium, represented by the firm Valotaire, undertakes the realization of an energy audit in April 2015. The company Reanova establishes a complete diagnosis envelope and proposes four renovation scenarios. Following a collective questionnaire, the establishment of detailed statistics on the expectations of each owner, the best-performing scenario was retained. Aiming for a BBC renovation performance, the condo has put together a series of renovations:

- waterproofing and thermal insulation of roofs
- exterior wall insulation (ITE) on all facades and gables
- improved heating and ventilation system
- replacement of private radiators, thermostatic valves, adjustment tees, balancing; insulation
- setting up a humidity-controlled VMC
- 30% replacement of windows in single glazing
- layout of external entrances

Architectural description

On the edge of a Parisian public garden in the 18th arrondissement, access is from Stephenson Street, parallel to the entrance to the garage located in the basement. From the simple studio to the ground floor, the ascent of 9 floors leads us from T2 to T4 in building A, and has only five floors for the other two buildings. The ensemble has 83 dwellings.

If you had to do it again?

ENR: solar panels on the roof

See more details about this project

<https://paris.coachcopro.com/fiche-de-site/9504acd6-8d2c-4d1d-ab69-a130ff47f311#sitesheet-freecontent25>



Stakeholders

Contractor

Name : Cabinet Valotaire
Contact : syndic (at) cabinetvalotaire.fr
<http://www.cabinet-valotaire.fr>

Construction Manager

Name : REANOVA
Contact : Mr. Hugonenc
<http://www.reanova.fr/>

Stakeholders

Function : Assistance to the Contracting Authority
Urbanis

<http://www.urbanis.fr>
municipal AMO participation

Function : Company

Harmonie

Mr. Aubry

<http://www.harmonie.fr>
Thermal insulation from the outside

Function : Company

Grosfillex Fenêtres

Mr. Kocak

<https://www.grosfilex.com>

replacement of joinery

Function : Company

Fermatic

Mr. Colman

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

locksmith

Function : Company

Axe Etanchéité

Mr. Duthe

<http://www.axe-etancheite.fr/>

cover and sealing

Function : Thermal consultancy agency

Pouget consultants

Mr. Uberquoi

<http://www.pouget-consultants.eu/>

Energy Audit and Thermal Study

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 84,60 kWh/m².an

Primary energy need for standard building : 96,00 kWh/m².an

Calculation method : RT existant

Breakdown for energy consumption : Consumption after works: 84.6 kWh/m² / m²SHON.an

Heating: 39.1

ECS: 34.5

Auxiliaries: 4.9

Lighting: 6.1

Initial consumption : 231,00 kWh/m².an

Real final energy consumption

Final Energy : 96,00 kWh/m².an

Envelope performance

Envelope U-Value : 0,81 W.m⁻².K⁻¹

More information :

Concrete masonry wall is partially covered with insulation from the outside of $R = 4.2 \text{ m}^2 \cdot \text{K} / \text{W}$, the thermal bridges are cut during the renovation by the implementation of an external insulation

The index U_p varies from $0.23 \text{ W} / \text{m}^2 \cdot \text{K}$ to $1.68 \text{ W} / \text{m}^2 \cdot \text{K}$ and the floor is composed of 20 cm of concrete of $R = 3.0 \text{ m}^2 \cdot \text{K} / \text{W}$

$U_w = 1.4 \text{ W} / \text{m}^2 \cdot \text{K}$; $U_{jn} = 1.00 \text{ W} / \text{m}^2 \cdot \text{K}$;

ITE facades and gables: rockwool - $R = 3.7 \text{ m}^2 \cdot \text{K} / \text{W}$

Roof insulation: polyurethane foam - $R = 5.45 \text{ m}^2 \cdot \text{K} / \text{W}$

Replacement of 30% of the windows with a performance of $U_w < 1.3 \text{ W} / \text{m}^2 / \text{K}$

Indicator : I4

Air Tightness Value : 1,70

More information

The BBC Effinergie Rénovation consumption level is reached, according to the THCE-Ex method taking into account the five uses, the gain after works is 55%. Heating production is provided collectively by two gas boilers of 380 kW each. Their 100% load efficiency is 98% on PCI for a power consumption of 470 W. The production of DHW is linked to heating and semi-instantaneous type with a 500l buffer tank. The private radiators have been replaced and thermostatic faucets put in place, as well as new adjustment tees, balancing and thermal insulation of the installation to ensure thermal performance. In addition, the installation of a Humidity-Controlled Mechanical Ventilation (VMC) contributes to the circulation of indoor air and thus to the optimization of the heating system.

Renewables & systems

Systems

Heating system :

- Gas boiler

Hot water system :

- Gas boiler

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B)

Renewable systems :

- No renewable energy systems

Other information on HVAC :

Replacement of private radiators, thermostatic valves, adjustment tees, balancing, thermal insulation, installation of a humidity-controlled Mechanical Controlled Ventilation (VMC). Cventil ? 0.25 Wh / m³

No renewable energy

The installation of solar thermal panels for the production of domestic hot water has been studied. This solution was rejected by pragmatism because of the insufficient surface on the roof of building A because of the presence of kiosks and antennas, many masks on the roofs of buildings B and C, as well as a lack space in boiler room for efficient hot water storage.

Solutions enhancing nature free gains :

Remplacement de 30% des fenêtres avec une performance de $U_w < 1,3 \text{ W/m}^2\text{K}$

Smart Building

BMS :

These sensors are equipped with two electronic sensors to measure the temperature of the radiator and another to measure the temperature in the room.

Smartgrid :

It will be possible to record individual heating consumption without entering the dwellings. (mandatory reading-statement)

Users' opinion on the Smart Building functions :

Splitters of heating costs are spread throughout the condominium.

Environment

Urban environment

Land plot area : 3 308,00 m²

Built-up area : 87,00 %

The condominium is located in the 18th arrondissement of Paris. This situation east of the Montmartre hill, easily accessible from the Gare du Nord is served by the boulevard de la chapelle. The inhabitants are near a kindergarten, a square and a Vélib 'station, as well as the cultural, sporting and commercial offer of this changing district. They are also close to the railway tracks (noise).

Product

Rockwool

Rockwool

(+33) 1 40 77 82 82

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

Product category : Second œuvre / Cloisons, isolation

Rock wool as insulating material has advantages over its entire life span: its effective thermal resistance is complemented by additional acoustical insulation proportional to the thickness of the insulation. The mineral property of the materials adds excellent resistance to fire and water. At the end of use, rock wool can be recycled from the manufacturer as a secondary resource for the production of new rockwool.

This product is very widely used in the energy renovation market for its ease of use and good value for money.



Joinery common parts

Lorillard

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

Product category : Second œuvre / Menuiseries extérieures

Replacement of original windows and windows with thermal break PVC:

- Double glazing 4/16/4 low emissive with argon blade
- $U_w \text{ \& lt; } 1,3 \text{ W / m}^2\text{K}$ - $S_w \text{ \& gt; } 0,36$
- Replacement of the entrance door of 7 rue Stephenson with an aluminum unit aligned with the facades.

This product has been implemented in the common areas.



Private joinery

Lorillard

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

Product category : Second œuvre / Menuiseries extérieures

Replacement of windows and original windows with PVC with thermal break (30% of single glazed windows before work):

- Double glazing 4/16/4 low emissive with argon blade
- $U_w \text{ \& lt; } 1,3 \text{ W / m}^2\text{K}$ - $S_w \text{ \& gt; } 0,36$

Improved insulation



Roof terrace waterproofing

SOPREMA

Soprasistance

<https://www.soprema.com/en/>

Product category :

The waterproofing of the roof terrace consists of a tarred membrane heat sealed to a rigid insulation and a layer of surface protection aggregate exposed to the weather.

Installation of an insulation during the repair of the waterproofing of the roof terrace, with 12 cm of polyurethane ($0,023 \text{ W / mK}$) under the waterproofing membrane: $R = 5,2 \text{ m}^2\text{K / W}$ and $U_p = 0,18 \text{ W / m}^2\text{K}$



Construction and exploitation costs

Total cost of the building : 1 000 000 €

Subsidies : 650 000 €

Health and comfort

Comfort

Health & comfort :

The orientation of the buildings and the high proportion of glazing can be sourced of important solar contributions in summer. Nevertheless, many homes are not working. Night ventilation by window opening is therefore limited and the presence of SNCF tracks can also discourage occupants from opening their windows because of noise. Thermal comfort has been improved by the insulation of the envelope:

- Sealing and thermal insulation of roofs. Polyurethane foam $R = 5.45 \text{ m}^2\cdot\text{K} / \text{W}$
- Thermal insulation of walls from the outside (ITE) on all facades and gables. Rockwool $R = 3.7 \text{ m}^2\cdot\text{K} / \text{W}$

The renovation project included the painting of the common areas and the layout of the exterior entrances.

Measured thermal comfort : 30.76

Acoustic comfort :

The insulation of the low boards considerably enhances the internal acoustic comfort for the user. In addition, the change of joinery partly common and especially in the private parts improves the soundproofing of the building, including the replacement of 30% of existing single glazed frames before renovation.

Carbon

GHG emissions

GHG in use : 20,00 $\text{KgCO}_2/\text{m}^2/\text{an}$

GHG before works: 54 $\text{kg eqCO}_2 / \text{m}^2$, a decrease of -63%

Contest

Reasons for participating in the competition(s)

Access to the monitoring of the project management phase is an important point in the success of the project:

Continuity of support by professionals. Indeed, the coordination of the stakeholders makes it possible to harmonize the coherence of the project. This is represented by a manager of condominium mobilized, a Project Manager with a strong knowledge of renovation co-ownership and existing aid.

Winner of the operation Eco-Rénovons Paris since October 21, 2016, the condominium benefits from support in the setting up and mobilization of various financial assistance, both in the direction of the syndicate of co-owners and individual owners.

Building candidate in the category



Energie & Climats Tempérés





Prix du public



Prix des Etudiants



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