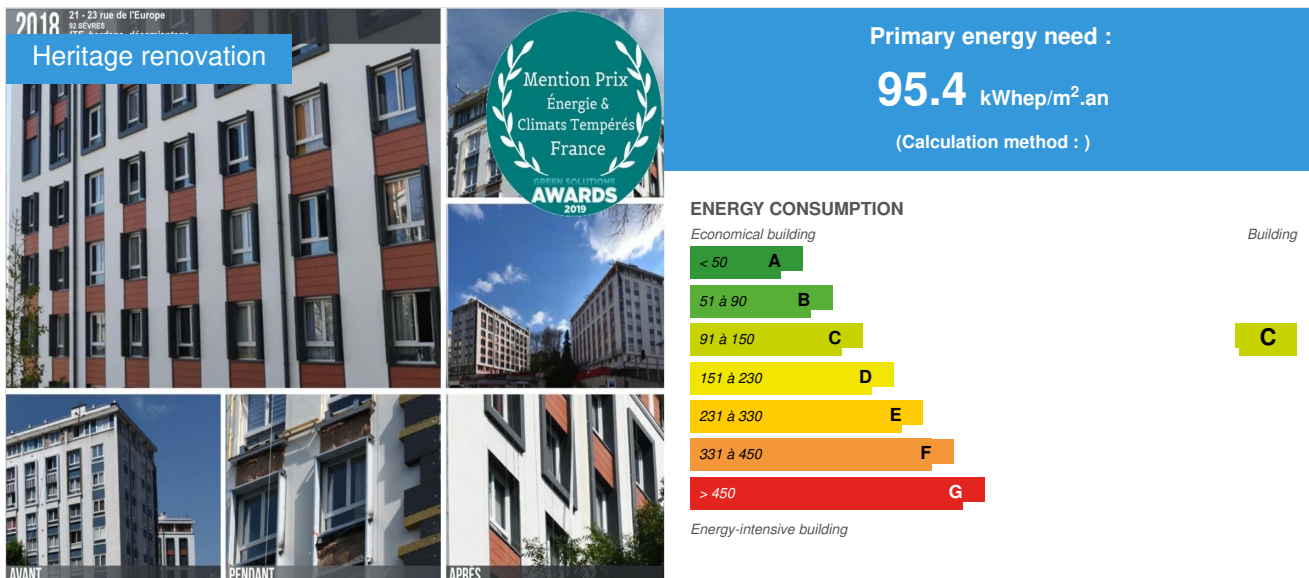


Energy renovation in Sèvres Residence

by Eric Balech / 2019-03-29 09:19:48 / Francia / 5849 / FR



Building Type : Collective housing > 50m
Construction Year : 1962
Delivery year : 2019
Address 1 - street : 21-23 avenue de l'europe 92 310 SEVRES, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 2 806 m²
Construction/refurbishment cost : 850 000 €
Cost/m2 : 302.92 €/m²

Certifications :



General information

The project concerns the rehabilitation of 2 buildings, of 102 dwellings in total, located Avenue de l'Europe in Sèvres.

It is an energy renovation project in the heart of the city of ceramics, which houses the workshops of the prestigious Manufacture Nationale de Sèvres and the National Museum of Ceramics, an area that is today the subject an ambitious development project.

An ambitious project that conflicts with the conventional architecture of social housing in the "Glorious Thirty" (1946-1975) sad and austere, demonstrating that it is possible to reconcile thermal performance, solution to asbestos problem, improvement of the living environment and innovation.

The goal of this renovation is to reduce the consumption of heating, domestic hot water, ventilation and auxiliaries to pass from the label F to C.

But that's not all, it is imperative to encapsulate asbestos present in the facade following a procedure consistent with the legislation in force on busy site (waste management, protection of companions etc ...).

The guiding ideas : Improve the energy performance of the residence while bringing color and relief. The construction site is still in the architectural environment

of the city of Sèvres.

Technical constraints: Installation of 3 different types of cladding + classic thermal insulation on each facade. Regulatory constraint: presence of asbestos on lighters

The two buildings composing this co-ownership having different energetic performances, we will present here the data concerning the building 21, which is the most exemplary.

Sustainable development approach of the project owner

Decrease the heating consumption, hot water, ventilation and auxiliaries to pass the label of energy consumption from F to C. This renovation allowed in particular:

- Exterior insulation made of expanded polystyrene graphite
- Metal louvers in thermo-lacquered aluminum + cladding and framing of zinc berries
- The **replacement of the boiler room**

Architectural description

The buildings are constructed of reinforced concrete, with slab system, posts / beams and concrete sails. Access to the buildings is via ramps and stairs from the street to the ground level. This level corresponds to the high level of the base (roof terraces) which forms the massive base of the two buildings. This base is about 2,40 m above the lowest point of the street. The height is variable depending on the position of the building. The entrances are located on the respective forecourt of the buildings. The base of the forecourt of building No. 21 contains businesses.

Building users opinion

Very satisfied with the improvements made

If you had to do it again?

We would do the same procedure again.

See more details about this project

<https://www.construction21.org/france/articles/fr/renovation-dune-residence-dhabitation-a-sevres.html>



Stakeholders

Contractor

Name : 3F

Contact : M.DELLA-GUARDIA (thibault.della-guardia@groupe3f.fr)

<https://www.groupe3f.fr/>

Construction Manager

Name : FLORET-SCHEIDE Renée

Contact : FLORET-SCHEIDE Renée

<https://www.floret-scheide.com/>

Stakeholders

Function :

SPEBI

Eric BALECH

<http://www.spebi.fr>

Building company specializing in refurbishment, ITE, Bardages.

Function : Thermal consultancy agency

Wor Ingénierie

contact (a) bet-wor.com

Thermal study

Contracting method

Other methods

Energy

Energy consumption

Primary energy need : 95,40 kWh/m².an

Primary energy need for standard building : 128,00 kWh/m².an

Calculation method :

Breakdown for energy consumption : Bat 21 (there are two buildings, but we decided to focus more on building 21, more iconic)

CH: 50.7 VS 255.8

ECS: 31.8 VS 39

Wind: 4.3 VS 0

Light: 6.3 VS 6.3

Aux. : 1.7 VS 16.2

Bat 23 =

CH: 56.7 VS 232.5

ECS: 31.8 VS 38.9

Wind: 4.3 VS 0

Ecl: 6.3 VS 6.3

Aux. : 1.8 VS 15.1

Envelope performance

Envelope U-Value : 0,97 W.m⁻².K⁻¹

More information :

U-bat of the envelope

Bat 21 = 0.972 W.m-2.K-1

Bat 23 = 1.149 W.m-2.K-1

U-bat before work:

Bat 21 = 3.202 W.m-2.K-1

Bat 23 = 3.326 W.m-2.K-1

Air Tightness Value : 1,00

More information

Consumption of primary energy

Bat 21 = 95.4

Bat 23 = 101.6

Conso of standard primary energy:

Bat 21 = 128

Bat 23 = 128.4

CEP before works:

Bat 21 = 255.8 kWEP m² / year

Bat 23 = 232.5 kWEP m² / year

Renewables & systems

Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Condensing gas boiler
- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- humidity sensitive Air Handling Unit (hygro A)

Renewable systems :

- Heat pump

Heating production is provided by two gas condensing boilers, with fixed hours programming and room control. The work allowed the insulation of the heating pipe.

Environment

Urban environment

Land plot area : 3 451,00 m²

The operation concerns the 2 buildings of the parcel located in dense urban environment along the avenue of Europe, main road crossing the commune of Sèvres. This co-ownership is part of a set of 4 buildings with similar architecture. They are located in height comparing with the avenue and on the southern flank of the valley which goes up towards the forest of Meudon. The area between Avenue de l'Europe, rue Pierre Midrin and rue Leon Cladel is characterized by the presence of large complexes, bars and constructions similar to those of the operation. Going up the hillside, the buildings become mainly pavillions, scattered between the trees and the dense green vegetation. The site of the operation is between Avenue de l'Europe, rue Pierre Midrin in the North and rue Léon Cladel in the South. The terrain of the operation has a significant difference in level between the northern limit and the southern limit. The difference in height is about 19 m. The buildings were built on a slab above street level at about 2.40 m high.

Products

Product

Cladding TERREAL

TERREAL

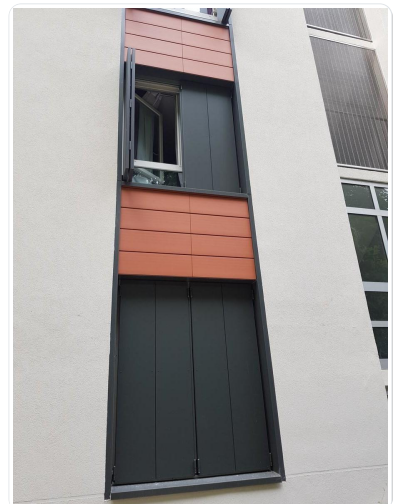
commerciale

www.terreal.com

Product category : Table 'c21_spain.innov_category' doesn't exist SELECT one.innov_category AS current,two.innov_category AS parentFROM innov_category AS oneINNER JOIN innov_category AS two ON one.parent_id = two.idWHERE one.state=1AND one.id = '9'

Product cladding terra cotta finish

The difficulty lies mainly in the setting up of the various frames



AQUAPLANEL

KNAUFF

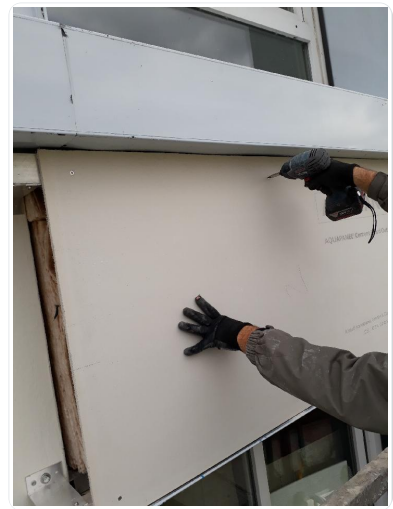
commercial

www.knauff.com

Product category : Table 'c21_spain.innov_category' doesn't exist SELECT one.innov_category AS current,two.innov_category AS parentFROM innov_category AS oneINNER JOIN innov_category AS two ON one.parent_id = two.idWHERE one.state=1AND one.id = '9'

Product allowing us to cover the asbestos spoilers

The difficulty lies mainly in the setting up of the various frames

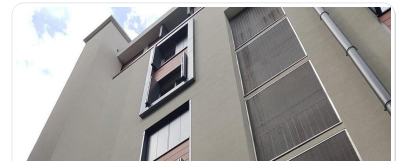


mechanical shutters ERHET

ERHET

www.erhet.com

RAS



Costs

Construction and exploitation costs

Total cost of the building : 850 000 €

Carbon

GHG emissions

GHG in use : 19,00 KgCO₂/m²/an

GHG before use : 69,00 KgCO₂ /m²

, ie xx in use years : 3.63

GHG in years of use: 3.63 years

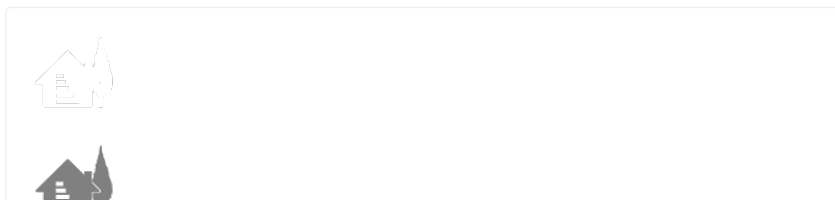
Contest

Reasons for participating in the competition(s)

The main idea of this operation was to improve the energy performance of the residence while providing relief and color in the architectural environment of the city of Sèvres.

To do so, SPEBI had to carry out this energy renovation project with teams specialized in External Thermal Insulation on the one hand and cladding on the other.

Building candidate in the category





Energie & Climats Tempérés



Prix du public



Prix des Etudiants



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