20 Boétie

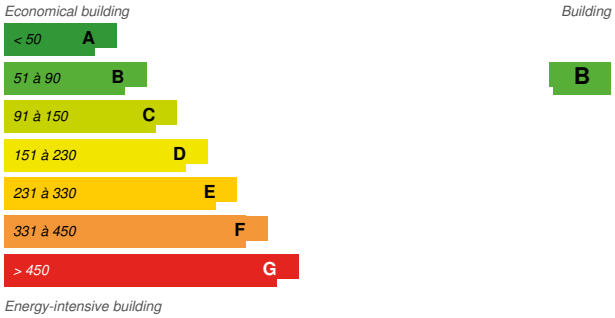
by Rodolphe Deborre / 2015-05-20 14:28:15 / Francia / 15076 / FR

Primary energy need :

66 kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION



Building Type : Office building < 28m
Construction Year : 2013
Delivery year : 2014
Address 1 - street : 20, rue Boétie 75008 PARIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 3 961 m²
Construction/refurbishment cost : 11 800 000 €
Number of Work station : 250 Work station
Cost/m2 : 2979.05 €/m²

Certifications :

Proposed by :

General information

Located in the Central Business District, thisbuilding built in 1878 displays its new identity and fits perfectly into itsenvironment by combining historic facades to contemporary glass elements;Haussmann of roofs vegetated roof terrace; heritage spaces with elementspreserved and modern spaces.

Redesigned in a logic consistent with the ambitions ofthe Grenelle II Environment and fully restructured in order to make a building"new": effective insulation on roof, reversible heat pumps,optimization of energy management via centralized building management, recoveryof rainwater, revegetation of the inner courtyard terraces and roof terraces:building 20 Boétie is certified NF Tertiary buildings HQE NF certificate No.380-12 / 1022 and certified HPE Effinergie Rénovation® certificate No.2015/555.
ADEME Ile-de-France wanted to support developers inachieving BBC® building through a grant awarded to the winner of a call forprojects BBC.
Renovation: After renovation, the buildingreached a draft Cep Cepref below -50%, GHG emissions have been lowered to less 5kgCO2/ m².year the air permeability of the casing is 1.2 m3 / h *m². Its performance allows it to be certified HQE NF Tertiary BuildingsCertificate No. NF 380-12 / 1022 and certified HPE Effinergie Rénovation®Certificate No. 2015/555.
Smart Building: Over 200 sensors were installed on the building tomeasure the different data (temperature, humidity, air quality, lighting,presence detectors ...) and

optimize the operation of the building viaa specific GTB in operation.

Sustainable development approach of the project owner

Nacarat is a developer fully committed to sustainable development. That's why an eco-design approach is consistently applied for all Nacarat programs since 2011. This project in downtown Paris is emblematic of this approach. The objective is to always go as far as possible in terms of performance, in the largest number of possible fields of action while keeping the operation within market prices.
In the 20 Boétie operation, the strategy consisted in pushing energy efficiency as if the building was newly constructed, while keeping it invisible or at least elegant. In addition, user comfort was increased by GTB controlled indoor air quality and by revegetation of a very constrained site (inner courtyard and high walls)

Architectural description

The 20 Boétie building is now modern and efficient office building that preserves the memory of the past thanks to the conservation of heritage areas and historic features. It is also a building where it feels good to work in, because the roof tops and the courtyards have been revegetated, thus creating pleasant environment for the inoccupants but also for local residents while reducing the leakage flow of rainwater and the the heat island effect.

Building users opinion

The building was sold but not yet occupied in June 2015.

If you had to do it again?

Nacarat is quite ready to replicate such innovative projects: energy renovations are fascinating.

See more details about this project

http://immobilier-entreprise.nacarat.com/index.php/fr/immobilier-d-entreprise/nos-realisations?view=detail&id=42

Stakeholders

Stakeholders

Function : Developer

Nacarat, agence Ile de France, groupe Rabot Dutilleul

Sophie Galmard

http://www.nacarat.com
Director of corporate real estate programs

Function : Thermal consultancy agency

CORE ETUDE

Creative

Function : Designer

Atelier 234

http://www.a234.fr/

Function : Others

Tracer

http://www.tracer.fr/
Green roof business

Function : Others

Function : Structures calculist

GAMBA Acoustique

René Gamba

http://www.gamba-acoustique.fr/

Contracting method

Other methods

Energy

Energy consumption

Primary energy need : 66,00 kWhep/m^2.an

Primary energy need for standard building : 148,00 kWhep/m^2.an

Calculation method :

Breakdown for energy consumption : Heating: 25.5
Cooling: 3.5
Hot water: 0
Lightiing: 13.45
Auxiliaries: 24.2

Initial consumption : 1 027,00 kWhep/m^2.an

Envelope performance

Envelope U-Value : 0,52 $W.m^{-2}.K^{-1}$

More information :
All architectural arrangements have been made to limit the energy needs, in particular, those of cooling. As such a dynamic thermal simulation was conducted by thermal BET CORETUDE to work on the following:
• Sunscreens windows and solar factor of the glazing according to their different orientations,
• implementation of a ventilated roof on roofs East, West and South Zinc

Indicator : EN 13829 - q50 » (en m3/h.m3)

Air Tightness Value : 1,20

Renewables & systems

Systems

Heating system :
- Heat pump
- Low temperature floor heating

Hot water system :
- Individual electric boiler

Cooling system :
- Reversible heat pump
- Fan coil

Ventilation system :
- Nocturnal Over ventilation
- Double flow heat exchanger

Renewable systems :
- No renewable energy systems

Solutions enhancing nature free gains :
Surtoiture en zinc à + 15 cm, perforée qui protège la toiture "réelle" et surtout les locaux sous toiture: gain calculé 2°C.

Smart Building

BMS :
YES. Hardware Trend, a software specifically developed by the companies CORE STUDY and HSP

Environment

Urban environment

Land plot area : 1 135,00 m^2

Built-up area : 82,00 %

Green space : 200,00

Ultra modern refurbishment of a XIXth century building a few hundred meters from the Champs Elysées. Parisian hypercenter, totally mineral-out at the beginning of the project. The revegetation of some areas (roof and walls) provides significant benefits. Paris Mobility: high functional diversity; strong automotive difficulty; easy gentle mobility even if the use of bicycles can be complicated given the trafic.

Products

Product

Vertiflore

Tracer

Responsable Commercial

http://www.tracer.fr/

Product category : Table 'c21_italy.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 = '6'

The advantages of VERTIFLORE facades:
• Aesthetics
• Sound Attenuation: B3 / Rw = 61db (test by CSTB)
• Sound absorption: A4 / Dla = 14DB (aw = 1.00 Class A) (test by CSTB)
• Thermal insulation (limitation of the effect of urban heat island)
• Reintroduction of biodiversity
• Pollution Control of ambient air (oxygen release and retention of CO2 and dust)
• Fire resistant (M1) (test by CSTB)
• Resists seismic waves : can be installed in Zone 5
• Maintenance consumes little water and no fertilizer

No problem

Costs

Construction and exploitation costs

Total cost of the building : 11 800 000 €

Subsidies : 120 000 €

Carbon

GHG emissions

GHG in use : 5,00 $KgCO_2/m^2/an$

Methodology used :
via the regulation calcultation by CORE STUDY

GHG before use : 240,00 $KgCO_2$ $/m^2$

Building lifetime : 100,00 année(s)

, ie xx in use years : 48
Rabot Dutilleul proceeded in 4 Carbon Footprint scope3. More than 2/3 of emissions come from reinforced concrete. This ratio can't be used here because it is a full refurbishment.

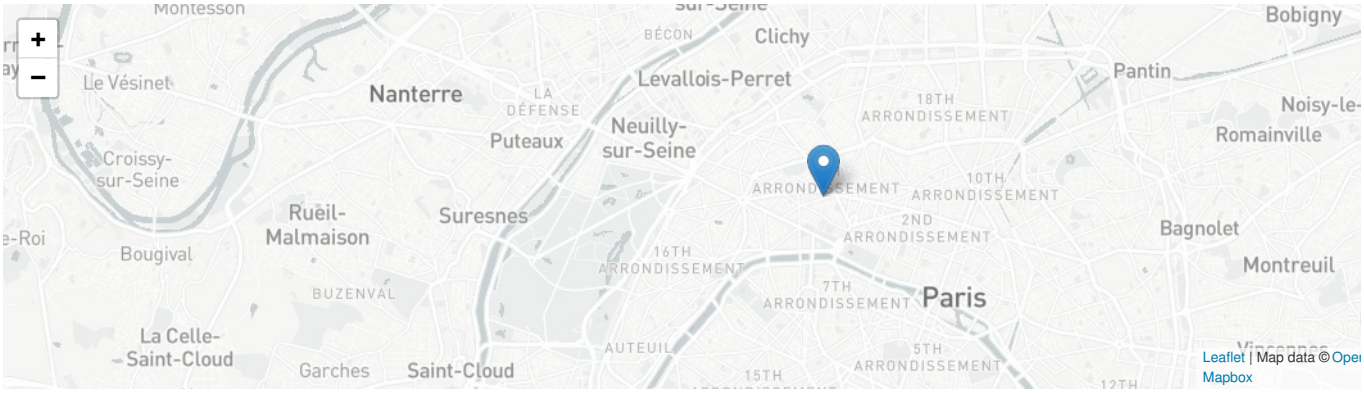
Life Cycle Analysis

Eco-design material : More than 90% of deconstruction and construction waste was recovered.

Contest

Reasons for participating in the competition(s)

Ancient building in downtown Paris, refurbished to a low consumtion level: a great and beautiful adventure.
3rd Industrial Revolution:- Energy Efficiency



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