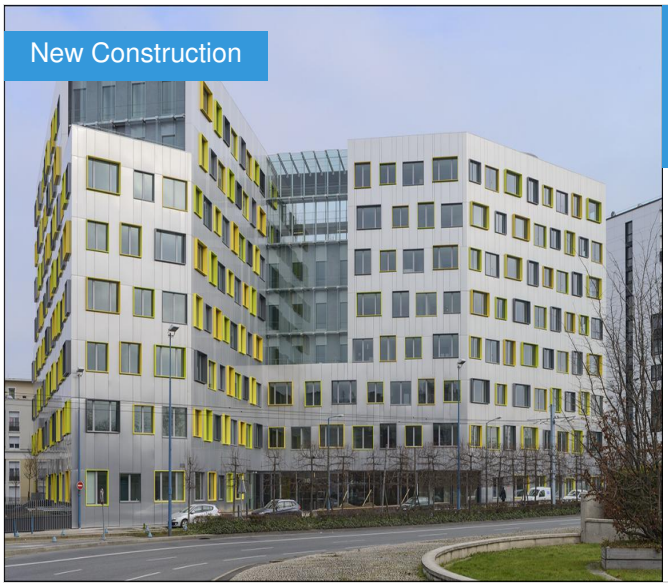
The Butterfly

by Romain SWIDERSKI / 2015-06-22 23:31:49 / Francia / 15088 / FR

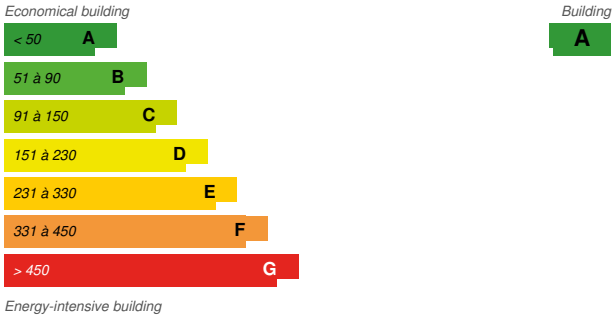


Primary energy need :

73.5 kWhep/m².an

(Calculation method : RT 2012)

ENERGY CONSUMPTION



Building Type : Office building < 28m
Construction Year : 2015
Delivery year : 2015
Address 1 - street : 225 avenue Paul Vaillant Couturier 93000 BOBIGNY, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 13 500 m²
Construction/refurbishment cost : 33 500 000 €
Number of Work station : 600 Work station
Cost/m2 : 2481.48 €/m²

Certifications :

Proposed by :

General information

RT2012-30% for geothermal probes offices

Called **"The Butterfly"** because of its shape, the building is adorned with colored frames tart berries in green and yellow tones. It has about 13,500 m² of floor space spread over 7 floors and comprises just over 600 employees in the County Council Seine-Saint-Denis since its delivery early 2015. Last lot ZAC Jean Rostand in Bobigny in Seine-Saint- Denis, Le Papillon is certified **HQE passport Excellent level** and reaches energy consumption levels **RT2012-30%.** Its design was very thoughtful upstream in a logic of **passive efficiency,** enabling the realization of a virtuous building envelope favoring the efficient and innovative technical features in an **easy-care and operating at low loads.** In addition, **80% of 99% in hot and cold requirements needs are covered** so unlimited through geothermal probes coupled to a heat pump. Exemplary in its design and in its ecological footprint, **The Butterfly was supported by ADEME.**

Sustainable development approach of the project owner

The Papillon is a continuation of a systematic and sustainable approach Sodéarif SEQUANO and Development in achieving virtuous operation. Since the delivery of the headquarters of Bouygues SA in 2006, the first office building delivered in Paris who received HEQ certification - Commercial Building, Sodéarif continued its development by making its commitment to sustainable building design a trademark. Sodéarif has seen particularly recognized for its commitment with the Australia building in Montigny-le-Bretonneux, which was awarded the Trophy Constructeo 2010 at the SIMI (the Commercial Property Exposition) which rewards the most efficient building of the year in energy and environmental plan. Le Papillon for the building, the objective was to achieve an economical building at RT2012-30%, particularly inexpensive to use by the introduction of geothermal probes providing hot and cold in the building. The aim was also to demonstrate that achieving these environmental objectives is possible in compliance with a neat architecture and qualitative, to Parisian standards, in a mastered project economics.

See more details about this project

http://www.sodearif.com/fr/produits/bureaux/references/le-papillon-93.html
http://www.sequano.fr/2015/05/22/inauguration-du-nouveau-siege-de-la-seine-saint-denis/
http://www.brenac-gonzalez.fr/fr/projet/bureaux-bobigny

Stakeholders

Stakeholders

Function : Contractor

SODEARIF

http://www.sodearif.com

Function : Assistance to the Contracting Authority

SEQUANO Aménagement

http://www.sequano.fr
Developer and Assistant Business Analyst

Function : Designer

Brenac & Gonzalez

http://www.brenac-gonzalez.fr/

Function : Assistance to the Contracting Authority

Amoès

http://www.amoes.com/
AMO HQE

Function : Construction company

BOUYGUES BATIMENT ILE-DE-FRANCE

http://www.bouygues-batiment-ile-de-france.com

Function : Investor

AMUNDI IMMOBILIER

https://www.amundi-immobilier.com/

Function : Certification company

Certivéa

01 40 50 29 09

http://www.certivea.fr/

Function : Other consultancy agency

ECOME

http://www.ecome.fr/
BET Geothermal

Contracting method

Off-plan

Energy

Energy consumption

Primary energy need : 73,50 kWhep/m^2.an

Primary energy need for standard building : 110,00 kWhep/m^2.an

Calculation method : RT 2012

Breakdown for energy consumption : Bioclimatic needs (heating, cooling and lighting): Bbio point = 73.5 (- 47.5% compared to a standard building, Bbio, max = 140 points) Primary energy consumption: Cep = 73.5 kWhEP / m² / year (- 30% compared to a standard building refreshed, Cep, max = 110 kWhEP / m² / year)

Envelope performance

Envelope U-Value : 0,69 $W.m^{-2}.K^{-1}$

More information :
Bioclimatic design: small glass surfaces and exterior solar protection, enhanced levels of insulation and air tightness neat (I4 of 0.72 m3 / h / m²) measured at reception over the entire building.

Building Compactness Coefficient : 0,10

Indicator : I4

Air Tightness Value : 0,72

More information

All positions consumption object is made an estimate in design in order to optimize the overall energy performance of the work. The project will be an energy monitoring over 2 years in order to support the operator in the building grip and sustain energy performance. This monitoring will also compare the actual consumption with the estimated consumption design. Calculation results RT: => bioclimatic needs (heating, cooling and lighting): Bbio = 73.5 dots (- 47.5% compared to a standard building, Bbio, max = 140 points) => Primary energy consumption: Cep = 73.5 kWhEP / m² / year (- 30% compared to a standard building refreshed, Cep, max = 110 kWhEP / m² / year) => Building insulation: U bat = 0.69 W / m / K

Renewables & systems

Systems

Heating system :
- Gas boiler
- Geothermal heat pump
- Fan coil

Hot water system :
- Individual electric boiler

Cooling system :
- Geothermal heat pump

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Heat Pump on geothermal probes

Renewable energy production : 20,00 %

Heating and cooling by a geothermal heat pump to dry probes. 36 100m depth probes under the influence of the building. The heat pump enables 80% coverage of hot needs and 99% of cooling needs, the extra is by gas boilers. The hot water is by electric balloons decentralized, more efficient than centralized production given the low puisages (avoids the loopback losses). The heat pump works with an average COP of 3.7. Issuance by heating low-energy fan coil units. The local refresh is provided by the "free cooling" through the cooling capacity of the soil. Performing double flow ventilation (75% heat recovery).

Solutions enhancing nature free gains :
Surisolation, réduction des surface vitrée, free cooling, traitement poussé de l'étanchéité à l'air...

Smart Building

BMS :
Centralized management of external directional breezes sun, lighting management by dimming at the loan needed, the installed power has been optimized (4W / m² for a level of 300 Lux).

Environment

Urban environment

Inaugurated in April 2015, the office building "Papillon" is the last operation of the ZAC Jean Rostand in Bobigny initiated in 2000. The operation is located in Bobigny in the ZAC Jean Rostand on the last available block (Block 2) . It is served by tram with a stop right in front of the site (T1 | stop Jean Rostand) and the subway to 400 m (L5 | Stop Bobigny - Pablo Picasso). Located at the intersection of major infrastructure as the A86 motorway and tram T1, near recent commercial buildings, multi-family buildings and in the vicinity of an area of suburban homes, its urban context is particularly composite . "The Butterfly" is the final piece of an urban and programmatic puzzle, it must both be required to be identified and integrated into that "already there" frame.

Products

Product

Dry geothermal probes

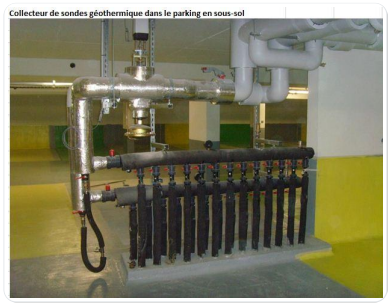
BOUYGUES BATIMENT ILE-DE-FRANCE

1, avenue Eugène Freyssinet 78280 GUYANCOURT

http://www.bouygues-batiment-ile-de-france.com/

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 = '8'

Achieving 36 dry probes descended to 100 m deep, allowing the uptake of heating and cooling capacity of the soil. Connected to a heat pump, the probes can meet 80% of heat requirements and 99% of the building's cooling requirements, for "free cooling".


Collecteur de sondes géothermique dans le parking en sous-sol

The installation of the sensors during the construction phase required a specific coordination with earthworks and special foundations. Subsequently, a Quick Start has been made possible by prior support the delivery of the maintainer.

Costs

Construction and exploitation costs

Cost of studies : 700 000 €

Total cost of the building : 33 500 000 €

Subsidies : 115 536 €

Health and comfort

Water management

Reduced water consumption through the use of water-saving equipment in health.

Indoor Air quality

Choice of very low VOC emitting materials (label A and A + a minimum for 80% of domestic coatings.

Carbon

GHG emissions

GHG in use : 3,52 $KgCO_2/m^2/an$

Methodology used :
Calculation RT2012

Building lifetime : 60,00 année(s)

Reduce GHG emissions by about 42 TCO2 / year

Life Cycle Analysis

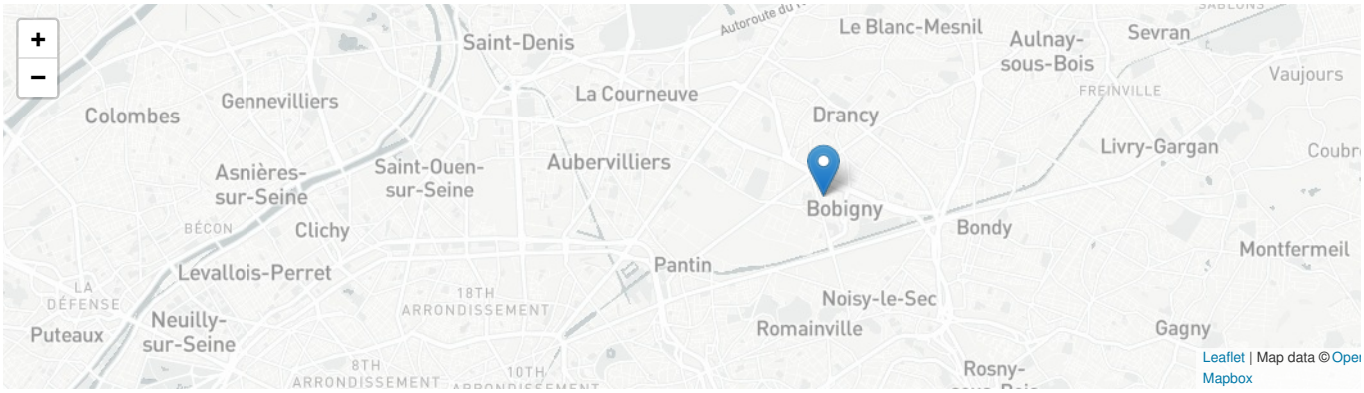
Eco-design material : Using linoleum flooring from bio-based materials.

Contest

Building candidate in the category

Energies renouvelables

Green Building Solutions Awards 2015
powered by Construction21



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