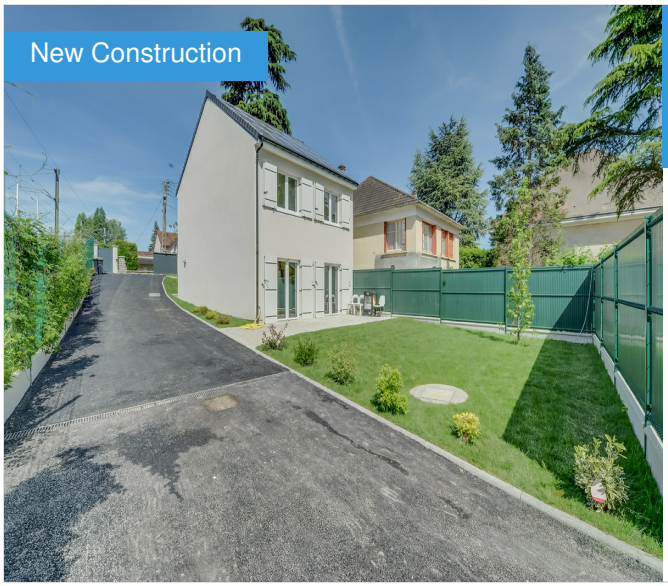
E+C- certified house by Ecolocost

by Maxime BRARD / 2017-01-29 14:12:40 / Francia / 7089 / FR



Primary energy need :

-68 kWhep/m².an

(Calculation method : RT 2012)

ENERGY CONSUMPTION

Economical building — *Building*

< 50	A	A
51 à 90	B	
91 à 150	C	
151 à 230	D	
231 à 330	E	
331 à 450	F	
> 450	G	

Energy-intensive building

Building Type : Isolated or semi-detached house
Construction Year : 2016
Delivery year : 2017
Address 1 - street : 95120 ERMONT, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 109 m²
Construction/refurbishment cost : 130 000 €
Number of Dwelling : 3 Dwelling
Cost/m2 : 1192.66 €/m²

Certifications :

Bepos 2013

E+C-

General information

Two months after receiving the E+C-label by the Minister of Housing and having reached the Energy 3 and Carbon 1 levels, Ecolocost decided to have this house certified with the new BEPOS Effinergie 2017 label to demonstrate its qualities.

The purpose of this house is to demonstrate the feasibility of a revolutionary house with traditional looks, all in a record time for 200 € more expensive per square meter than a house solely following the French RT2012 regulation. Important points are:

- Its compactness in order to use the least possible floor area and remain desirable. A functional 3-bedroom house of 82m2 that respects the fundamentals of a quality habitat in all points of view (air, noise, comfort)
- Its affordable cost: the house was designed to cost 1/3 of the average monthly income of a family of first-time homeowners in highly urbanized areas, about 1,000 € per month land included. Without any energy expenditure since its low electricity consumption is totally covered by its production to reach the annual equilibrium.
- Its carbon impact, thanks to wood and high quality materials that are fully recyclable, as well as high-quality technical equipment. This house is truly sustainable, can be assembled in a single day and generates virtually no construction waste and no nuisance for the residents.

The goal is to be able to massify the production of affordable positive energy homes by adapting to all architectural types and considerably reducing the construction time.

Sustainable development approach of the project owner

The objective of this project was to make a low-cost 3-bedroom house of very high quality that could be BEPOS Effinergie 2017certified in the financial sense of the term (-0 € over the year) by not using fossil energy sources for its use.

Architectural description

We favored a cubic architecture with 2 solid facades to be able to copy this model in band. This timber frame house has a classic appearance where it is impossible to distinguish the difference with a masonry house.

Building users opinion

The house will be inhabited starting June 1st, 2017, it is planned to study its real life cycle from this date

If you had to do it again?

We have concerns about the installation of the CMV which was a bit laborious, we will do the same on the same ground by addressing this problem upstream.

See more details about this project

http://www.ecolocost.com

Stakeholders

Stakeholders

Function : Construction company

Ecolocost

Maxime Brard

http://www.ecolocost.com

Contracting method

Lump-sum turnkey

Energy

Energy consumption

Primary energy need : -68,00 kWhep/m^2.an

Primary energy need for standard building : -35,00 kWhep/m^2.an

Calculation method : RT 2012

CEEB : 0.0003

Breakdown for energy consumption : Heating 15,7 Domestic hot water 28,6 lighting 3,8 auxiliary 11,3

Real final energy consumption

Final Energy : 50,00 kWhef/m^2.an

Envelope performance

Envelope U-Value : 0,10 $W.m^{-2}.K^{-1}$

More information :

Passive floor, retained Ue: 0,093 W/m².°C

Outside ecolocost wall, retained U-value: 0,111 W/m².°C

Floor under roof, retained U-value: 0,105 W/m².°C° C

Indicator : n50

Air Tightness Value : 0,19

More information

Project ERMONT - construction of a detached house (13/06/16) Annual theoretical operating balance after the RT 2012 Consumption of electrical energy five uses + virtuous electrodomestics * 4044,8 kWhef /year Therotical operating cost 671,0 € TTC / year Photovoltaic production 4031,9 kWhef / year Autoconsumption and annual resale ** - 838,6 € TTC / year Total balance -167,6 € TTC / year - * Hypothesis: Virtuous electrodomestic consumption 13.71 kWhef /m²SHONRT.an - ** Hypothesis: Self-consumption 50% resale 50% - Resale cost in integration 0.2501 € TTC / kWh - Electricity cost: 0.1659 € TTC / kWh

Renewables & systems

Systems

Heating system :
- Electric radiator
- No heating system

Hot water system :
- Heat pump

Cooling system :
- Others

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Solar photovoltaic

Renewable energy production : 100,00 %

Other information on HVAC :
The Compact P system is a modular system offering not one, but several solutions. The Compact P is a ventilation and heating system that provides home ventilation, heat recovery and domestic hot water production. This ensures a daily renewal of the air by evacuating dust, odors and excess moisture for a healthy and pleasant indoor atmosphere. When it is warmer inside and outside the house, an integrated by-pass allows fresh air to penetrate directly to cool to the maximum without using extra energy.

Solutions enhancing nature free gains :
Nilan COMPACT P

Environment

Urban environment

Land plot area : 2 090,00 m^2

Built-up area : 55,00 %

Land located in the town of Ermont 500 m from the main station and near the motorway axes

Products

Product

Compact P

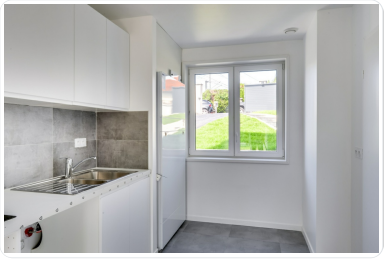
NILAN

harold monnier HAPCO +33 2 40 72 29 76

http://www.nilan.dk/fr-fr/premiere-page/solutions/solutions-particuliers/solutions-completes/compact-p

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 = '3'

The Compact P system is a modular system offering not one, but several solutions. This allows you to choose the solution best suited to the size of your home and the needs of your family. The first element of a Compact P



solution is always the Compact P itself, the true heart of the system. The Compact P is a supplemental ventilation and heating system ensuring your home ventilation, heat recovery and domestic hot water production. This ensures a daily renewal of the air by evacuating dust, odors and excess moisture for a healthy and pleasant indoor atmosphere. When it is warmer inside and outside the house, an integrated by-pass allows fresh air to penetrate directly to cool to the maximum without using extra energy. If you are looking for a central heating solution, we recommend a Compact P solution with an aerothermal or geothermal heat pump. Only three systems of ventilation and heating in the world benefit from the famous certification passive house, and the Compact P of Nilan is one of them. This certification means that the Compact P is approved for the passive habitat without having to provide additional documentation.

This machine is ideal in terms of simplicity for a 4 in 1 system (ventilation, heating, DHW and refreshment)

Costs

Construction and exploitation costs

Reference global cost : 113 000,00 €

Renewable energy systems cost : 15 000,00 €

Reference global cost/Dwelling : 113000

Cost of studies : 5 000 €

Total cost of the building : 130 000 €

Energy bill

Forecasted energy bill/year : -187,00 €

Real energy cost/m2 : -1.72

Real energy cost/Dwelling : -62.33

Health and comfort

Water management

Consumption from water network : 87,00 m^3

Water Consumption/m2 : 0.8

Water Consumption/Dwelling : 29

Indoor Air quality

VMC dual flow with filters

Comfort

Acoustic comfort : The house is equipped with screeds on the 2 levels. The distribution walls are 10 or 15 cm

Carbon

GHG emissions

GHG in use : 2,10 $KgCO_2/m^2/an$

Building lifetime : 100,00 année(s)

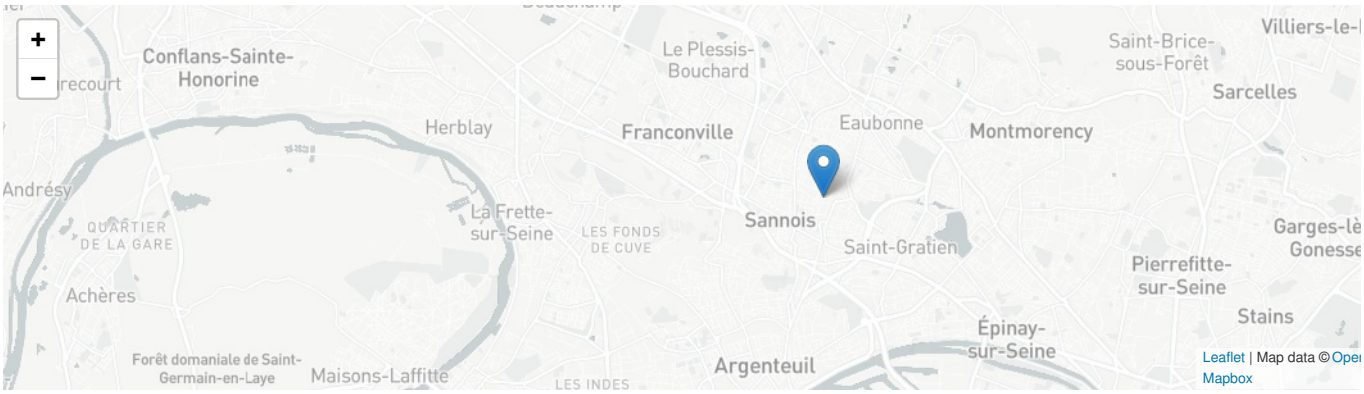
Contest

Building candidate in the category

Green Solutions AWARDS

Bas Carbone

Coup de Cœur des Internautes



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