GREENTER

by Nicolas DELBARRE-CAUX / 2013-02-08 11:13:35 / France / 7664 / FR

Primary energy need :

21.8 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 : Other commercial buildings
Construction Year : 2012
Delivery year : 2012
Address 1 - street : 56, rue des Ormes 37530 NAZELLES-NéGRON, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 1 100 m²
Construction/refurbishment cost : 850 000 €
Cost/m2 : 772.73 €/m²

Certifications :

MINERGIE®

Proposed by :

Envirobat Centre

General informations

This building office and storage uses only wood structure 110m3. Its format is similar to a gymnasium, its thermal performance allows it to be Minergie labelled. With its simple skeleton, we can easily imagine transform it into an office or dwellings.

Its flat roof without bitumen or PVC allows rainwater recovered without polluting. Its implementation, structure, insulation, finishing are made only from materials ecological wood, hemp, cellulose wadding earth .... or only solutions with low impact and easy to recycle envionmental.

This type of building high-performance, requires very little energy for its operation, thus avoiding oversized electrical infrastructure.

Tenants live in an environment without air pollutants (with natural materials), or electromagnetic, all solutions being shielded wire.

Sustainable development approach of the project owner

This ambitious project has been designed so that it is easily reproducible. The aim was to show that it is feasible to achieve a high performance building (Minergie) validated by a third party using only environmentally friendly materials, framing and insulation vegetable and natural finishes, plaster, clay, paint .... Efficient solutions lighting (LED only) or hot water (solar) can have a ridiculous consumption of electricity. Obviously, the heating is wood. Air tightness of n50 = 0454

Architectural description

The project is parallel to the Loire, since it is an obligation. Office offered the part south allows solar gain have important choice of finishes on these parts gives pride to the local woods, Douglas fir and chestnut.

See more details about this project

http://www.envirobatcentre.com/upload/document/fiches_batiment/03_a2me/FILE_50864b89af342_greenter_a2me_fiche_detail.pdf/greenter_a2me_fiche_detail.pdf

Stakeholders

Stakeholders

Function : Construction Manager

DELBARRE-CAUX

0247236440

Function : Certification company

MINERGIE

PRESTATERRE 74330 EPARGNY

http://www.minergie.fr

Function : Thermal consultancy agency

ENERYIA

Eric Talpin

http://www.eneryia.com

Function : Contractor

SCI Amaloire

Energy

Energy consumption

CEEB : 0.0001

Primary energy need : 21,80 kWhep/m^2.an

Primary energy need for standard building : 120,00 kWhep/m^2.an

Calculation method : RT 2012

Envelope performance

More information :

Slab insulation floating technopor R = 4, then 380 tonnes of inertia, thermal slab negative insulated 200mm cork, R = 5. Walls hemp wool insulation 200mm + 60mm + fermacell R = 6.8, roof insulation wadding 260mm R = 6.65.
Office part substantially equivalent concrete slab of clay instead of cement.

Building Compactness Coefficient : 0,42

Indicator : n50

Air Tightness Value : 0,45

Renewables & systems

Systems

Heating system :
- Wood boiler

Hot water system :
- Solar Thermal

Cooling system :
- No cooling system

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Solar Thermal
- Wood boiler

Environment

Urban environment

Land plot area : 4 500,00 m^2

Built-up area : 30,00 %

Building with natural and red wood sidingin the middle of an industrial area sadly white and metallic.

Products

Product

Thermochanvre

HOCK

http://www.thermo-hanf.de/3/index.html

Product category : Finishing work / Partitions, insulation

Hemp based insulation

TEchnopor

http://www.technopor.com/fr/

Product category : Structural work / Passive system

Insulation based on recycled glass bottles

Wood fiber

Steico/homatherm

http://www.steico.fr

Product category : Finishing work / Partitions, insulation

Semi-rigid board insulation, rigid and loose

Fermacell

Xella

http://www.fermacell.fr

Product category : Finishing work / Partitions, insulation

Gypsum interior and floor plates, 1500m2

Stramentech

Product category : Finishing work / Partitions, insulation

Compressed straw panels to walls

Winter Holzbau

http://www.winter-holzfenster.de/

Product category : Finishing work / Exterior joinery - Doors and Windows

Double and triple glazed windows Passivhaus

Auro

Auro

http://www.auro.fr

Product category : Finishing work / paints, mural, wallcoverings

Finishing paint, wood protection, paints and coatings.

Argilus

argilus

http://www.argilus.fr

Product category : Finishing work / flooring

Coated earth, mud brick, concrete, clay

Tisun

Tisun

http://www.tisun.fr

Product category : HVAC, électricité / heating, hot water

CESI

Zehnder

Zehnder

http://www.zehnder.fr/comfosystems/

Product category : HVAC, électricité / ventilation, cooling

VMC double flux

Costs

Construction and exploitation costs

Renewable energy systems cost : 18 000,00 €

Energy bill

Real energy cost/m2 : 1.45

Real energy cost/Visitor : 160

Forecasted energy bill/year : 1 600,00 €

Health and comfort

Indoor Air quality

materials without A+ nor VOC, F7 and G4 filter on VMC Double Flux

Carbon

GHG emissions

GHG in use : 0,48 $KgCO_2/m^2/an$

Methodology used :

calculation based on theoretical consumption of electricity and wood. (1 kWh electricity Ef = 0086 kg CO2 eq and wood 1KWh Ef = 0.013 kgeqCO2)

Building lifetime : 60,00 année(s)

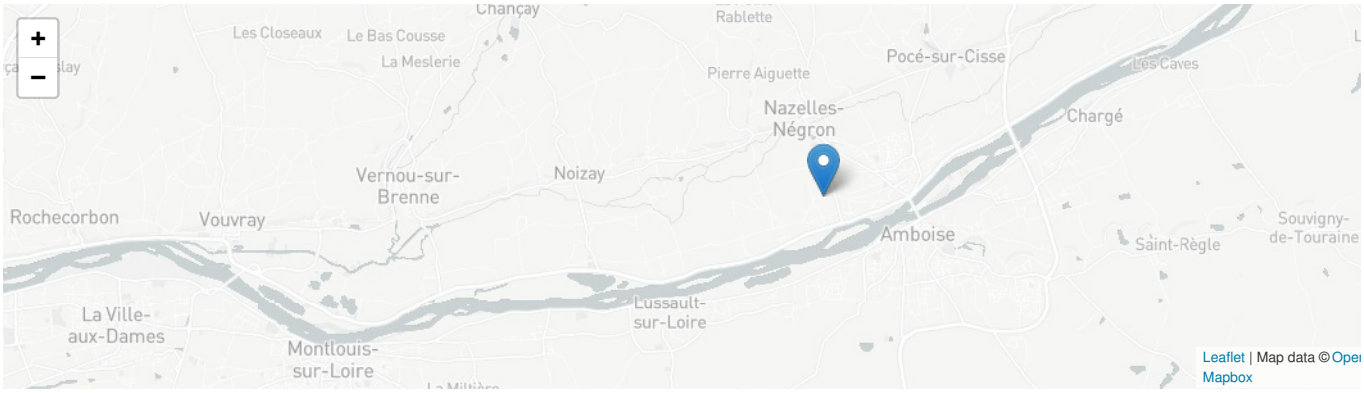
see methodology

Life Cycle Analysis

Material impact on GHG emissions :

-110

Contest



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