Bois Debout

by Stéphane Cochet  /  2016-05-23 10:39:24  /  France  /  16507  /  FR

New Construction

Primary energy need :

49 kWhep/m².an

(Calculation method : RT 2012 )

ENERGY CONSUMPTION

Economical building

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Cost/m²</th>
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<tr>
<td>Collective housing &lt; 50m</td>
<td>1 504.16 €/m²</td>
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Certifications :

General information

17 social housing + business premises in Montreuil sous bois (93). 940m² of living space. Wood-frame building on 6 levels full dry system (screeds and elevator shaft in CLT). Certification passiv haus level and Paris Climate Plan level without ENR. Owner: Grand Paris Habitat for Osica SNL. Architects: Stéphane Cochet + Bruno Garnier.

Sustainable development approach of the project owner

First goal: building a certified passiv haus building in addition to the H&E Cerqual certification. Proposal project management of all wood framing on 6 levels. Desire to control the loads of energy consumption and maintenance maintenance (P1 costs / P2 / P3)
Architectural description

Building installation on two former plots in dense urban center. Architectural composition within the old parcel tracing around a two-part composition. Typical architectural Writing suburb of architecture. Aligned front, penthouse, pass box, cage lit staircase naturally. Through housing off T1, North / South orientation. Work on summer comfort, the fight against heat islands (cool roof roof). No ENR, no radiator. Reduced technical equipment (boiler of 24kW for all dwellings, a comfort ventilation to recovery centralized heat, static heat recovery units on waste water in each unit). Work at the plot level on biodiversity, shared garden and edible garden.

Building users opinion

Energy and sociological monitoring of the building and its uses for 3 years as part of the agreement with ADEME IDF.

If you had to do it again?

We show through this project it is possible to build an all wooden building on 6 levels certified passive to an equivalent price than building a concrete level RT2012 construction. Cost control P1 / P2 / P3 with very little equipment: a 24kW condensing boiler for the EC and the SAT 17 housing and a comfort ventilation to recovery centralized heat.

See more details about this project

Stakeholders

Function: Designer
A003architectes
contact@A003architectes.com
http://www.a003architectes.com
agent architect

Function: Manufacturer
SOCOPA construction ossature bois
jean-luc.marchal@constructions-socopa.fr
http://www.constructions-socopa.fr
cover closed

Function: Designer
BGA architecture
bruno.garnier_archi@orange.fr
associate architect

Function: Thermal consultancy agency
AMOES
contact@amoes.com
http://www.amoes.com
Thermal Fluid ++ QEB

Function: S2T
stephane.pierra@s2t.fr
http://www.s2t.fr/

Function: Environmental consultancy
Cabinet Joel LOT
stephane.pierra@s2t.fr
http://www.s2t.fr/
**Economist**

**Function**: Contractor
**Grand Paris habitat**


**Contracting method**
Macro packages

**Type of market**
Design and implementation

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### Energy

**Energy consumption**
- **Primary energy need**: 49.00 kWhep/m².an
- **Primary energy need for standard building**: 75.00 kWhep/m².an
- **Calculation method**: RT 2012
- **Breakdown for energy consumption**: 12% Heating / Hot Water 23% / 6% Lighting / 17% following RT Auxiliary

**Real final energy consumption**
- **Final Energy**: 63.00 kWhel/m².an

**Envelope performance**
- **Envelope U-Value**: 0.28 W.m².K⁻¹
- **More information**: Bio gain of 22.70%
- **Building Compactness Coefficient**: 0.57
- **Indicator**: n50
- **Air Tightness Value**: 0.30
- **Users' control system opinion**: No home automation installed apart in the building energy monitoring in place (instrumentation) as part of the ADEME convention for the measurement campaign and monitoring of 3 years on building on 5 RT positions.

**More information**

103kWh.ep / m².yr following PHPP

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### Renewables & systems

**Systems**

- **Heating system**: Condensing gas boiler
- **Hot water system**: Condensing gas boiler
- **Cooling system**: No cooling system
- **Ventilation system**: Double flow heat exchanger
- **Renewable systems**: No renewable energy systems

**Other information on HVAC**: 

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centralized 24kW boiler for EC production and Hot water of 17 apartments and a comfort ventilation to centralized heat recovery. One loop of hot water.
individualized cylinder on hydraulic exchanger.

Solutions enhancing nature free gains:
récupération de chaleur statique sur eau usée, prises commandées, arrivée ECS sur machine à laver

Environment

Urban environment

Land plot area: 350,00 m²
Built-up area: 74,00 %
Green space: 60,00

urban city center, inner suburbs of Paris, site forced narrow street joint, demolition of two existing buildings including town house R + 1 and hangar. Built biodiversity vegetated northern facade with climbing (hydrangea) valley planted with fruit shrubs (cassisiers, currants, strawberries), fruit trees (pear), vegetable patch. Retrieving EP for watering and maintenance. Fight against the islets of heat roofing membrane with high solar reflectance of power (albedo 0.8) + evapotranspiration of vegetated northern facade.

Products

Product

Alkorbright

Renolit

RenolitFrance-Toiture@renolit.com

http://www.renolit.com/waterproofing-roofing/fr/contact/

Product category: Structural work / Carpentry, cover, tightness
- cool roofing roof waterproofing membrane
under technical opinion

Costs

Construction and exploitation costs

Cost of studies: 242 325 €
Total cost of the building: 3 160 276 €
Subsidies: 250 804 €

Energy bill

Forecasted energy bill/year: 6 800,00 €
Real energy cost/m²: 5.14
Real energy cost/Dwelling: 400

Health and comfort

Indoor Air quality

SW3

Comfort

Health & comfort: 20% glass area on SHAB m², through housing / A + VOC materials / triple glazing no cold wall / no cold air coming into carpentry (VMC double flow) / manual occultations openwork for summer comfort
Calculated thermal comfort: 20°C winter comfort, overheat >25°C < 3.4°C according to PHPP

Acoustic comfort: Cerqual Qualitel H&E label

Carbon

GHG emissions

GHG in use: 895.00 KgCO₂/m²/yr

Methodology used:
like carbon balance sheets from the FDES materials

GHG before use: 12.00 KgCO₂/m²

Building lifetime: 50.00 années (s)

, ie xx in use years: 0.01

GHG Cradle to Grave: 906.00 KgCO₂/m²

315kg eqCO₂/yr

Life Cycle Analysis

Material impact on GHG emissions:

15769

Eco-design material: 350m³ of wood used, building organically sourced label

Contest

Reasons for participating in the competition(s)


Building candidate in the category

Energie & Climats Tempérés

Coup de Cœur des Internautes