

4 housing concrete hemp

by Christine Désert / 2014-02-26 16:57:09 / France / 8524 / FR



New Construction

Primary energy need :

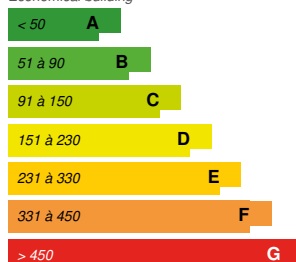
49.4 kWhep/m².an

(Calculation method : RT 2005)

ENERGY CONSUMPTION

Economical building

Building



A

Energy-intensive building

Building Type : Collective housing < 50m

Construction Year : 2014

Delivery year : 2014

Address 1 - street : 37, rue Myrha 75018 PARIS, France

Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 570 m² SHON

Construction/refurbishment cost : 1 574 900 €

Number of Dwelling : 4 Dwelling

Cost/m2 : 2762.98 €/m²

Certifications :



General information

building 37 Myrha street in the 18th arrondissement of Paris consists of 4 housing (3 and 1 duplex T3) and a local business. The project meets the Paris Climate Protection Plan and Habitat & Environment certification is the result of a thoughtful environmental policy, including the use of a material innovative: the hemp concrete. The establishment of two opposing fronts, one on the street, sober and legible and the other garden, open and warm, can enrich the project by contrast. The search for a constant frame comes in addition to a deep sense of these facades that establish a strong beyond their apparent opposition dialogue. The ground floor includes a shelter for bicycles and strollers as well as a commercial fully autonomous and adaptable to different functions to be sustainable and scalable. R 1 to R 3, the housing is T3 73m² wide open onto the garden. The living rooms are spread south side, garden, while in the North, on the street, are positioned bedrooms and bathroom. To R 4 and R 5, develops a duplex type T4 / 5 of a surface of 102m² which has over two levels, a small outdoor space vegetable giving the garden. To R +5, a common terrace accessible to all inhabitants and surrounded by a green roof is installed. The garden is needed in the project as a unifying space. Apartments, it is the place to which all eyes. It articulates the spaces by creating visual links and common uses. The hemp concrete, the main element of the physical and thermal envelope, is a non-structural materials, combining the qualities of hemp and lime. It provides the following environmental qualities: thermal comfort (hygrothermal inertia and capacity regulation) loss reduction (treatment of thermal bridges and reinforced insulation),

reduced environmental impacts material (renewable, carbon positive, clean site), implementation of a lightweight structure (wood frame) and a wall with a large deformation capacity.

Sustainable development approach of the project owner

As part of the Chateau Rouge neighborhood Layouts entrusted SEMAVIP by a public development agreement, the City of Paris has entrusted RIVP the project owner for the construction of the building at 37, rue Myrha. RIVP committed itself in this project has asked that it meets the Habitat & Environment certification. RIVP enabled the realization of this ambitious project in terms of sustainable development by supporting the use of hemp concrete, an innovative material both constructive matter in terms of energy performance. Thus, building 37, rue Myrha reached the "performance profile" and is a "Low Consumption Building". It combines gait of environmental and architectural quality of its provisions. Indeed, the label H & E allows a reflection on the comfort of the inhabitants, especially in the use of logic and apartments in the organization and layout of common areas.

Architectural description

The difficult terrain and the desire to reinterpret the architecture have faubourg brings mastery of" out at a slight pick constructive principle involving metal structures and concrete hemp. Indeed, respect for the place and architectural sobriety, the answer to technical constraints, the pursuit of sustainable development objectives have is the priorities of the masters of" PIECE. For a good integration of the project into its environment, an obedience lines composition has a strong horizontal approach was opted. This is to provide a balance, with the verticality of the volume by the use of several devices: ground floor forming base, formal partition levels, partition the materiality facade, cornice to avoid runoff. Thus, the facades show the faubourg codes. The street side, the project displays a smooth faÅšade ESTABLISHING AN continuity and a reading of the ordinary of the faubourg city. Cote garden is look to nature that is privileged, with a plant garden and a welcoming diversity of facades. It is noticeable from the street and the building creates a set of transparencies from the public space. The building at 37, rue Myrha is an interpretation of the suburban building taking into account the realities of today's use and durability.

Stakeholders

Stakeholders

Function : Contractor

RIVP

<http://www.rivp.fr>

Function : Construction Manager

North by Northwest Architectes

Christine Désert et Richard Thomas - 42, rue d'Avron - 75020 Paris - Tél : 01 47 70 03 08

Function : Other consultancy agency

LM Ingénieur

Laurent Mouly - 13, rue Chapon - 75003 Paris - Tél : 01 40 29 96 92

Function : Others

MDETC

Patrick Gouffran - 13-23, avenue Jean Alcard - 75011 Paris - Tél : 01 43 38 84 38

<http://mdetc-economie.fr>

Function : Company

Tempere construction

Philippe Casanova - 1, rue Lavoisier - 95660 Champagne sur Oise - 01 39 37 91 60

<http://tempere-construction.fr>

Type of market

Realization

Energy

Energy consumption

Primary energy need : 49,40 kWh/m².an

Primary energy need for standard building : 101,30 kWhEP/m².an

Calculation method : RT 2005

Breakdown for energy consumption : Heating: 21.1 kWhEP / m² year.DHW: 14.5 kWhEP / m² year.Auxiliary 6.7 kWhEP / m² year.Lighting: 7.1 kWhEP / m² year.

Envelope performance

Envelope U-Value : 0,46 W.m⁻².K⁻¹

More information :

Envelope hemp concrete structure with externalExterior wall: 27cm hemp concrete coating or bard wood or zincParty wall: 12cm concrete hempRoofing: 27 cm concrete hemp under a zinc roofThermal bridges reduced by the continuity of the envelope between facades, gables and roof

Building Compactness Coefficient : 0,53

Indicator : I4

Air Tightness Value : 1,00

Renewables & systems

Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Condensing gas boiler
- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B)

Renewable systems :

- Solar Thermal

Renewable energy production : 21,50 %

Environment

Urban environment

Land plot area : 179,00 m²

Built-up area : 115,60 %

Green space : 52,50

The building at 37 rue Myrha is inserted right in the heart of the area known as "Red Castle" in Paris in the 18th arrondissement. The seat pitch of the project is located in the ANRU area extends over 11.5 ha. SEMAVIP, developer of the industry wants to make this piece of the city renewed a copy area from the point of view of sustainable development. The project involves special attention to the intrinsic qualities of the urban fabric in which it develops and tries to combine this faubourg reinterpretation has taken into account the urban and architectural realities of contemporary practice and sustainable development. In this project context, the hemp concrete has gradually imposed because it was quite a natural echo sobriety project, enriching its multiple answers.

Products

Product

Beton hemp Tradical

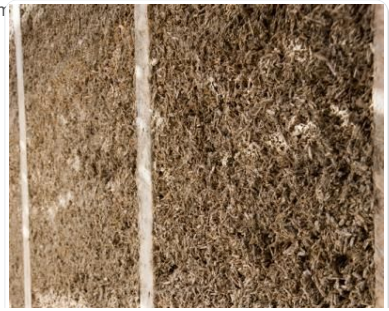
Tradical

<http://www.bcb-tradical.com/fr-beton-de-chanvre-pour-une-isolation-naturelle.html>

Product category : Second œuvre / Cloisons, isolation

Contrary to what its name suggests, the concrete hemp has nothing to do with traditional concrete. Non-structural, it is a material and ecological insulating filling.

Its installation on substructure (usually wood) the apparent historical constructive principles dense urban environment. Combining the qualities of hemp and lime, it is projected horizontally on a background of temporary or definitive form. It thus provides a distributed insulation of the building, significantly reducing thermal bridges. The hygroscopic nature of hemp equips walls of a healthy and natural breathing, avoiding the effect of "sealed box". Its inert nature improves the comfort of summer and winter. Finally, the concrete hemp is not limiting and can realize all types of façade (wood cladding, zinc coated ...). The use of hemp concrete allows energetics sobriety, sobriety and constructive environmental sobriety. Building on this, the Beton Tradical Hemp is used for two applications. In wall insulation repartee, it forms the walls External walls facades and street side yard. It is applied mechanically filling in between formwork. It is also used in roofing insulation repartee.



Costs

Construction and exploitation costs

Global cost : 1 574 900,00 €

Reference global cost : 1 950,00 €

Renewable energy systems cost : 40 000,00 €

Energy bill

Forecasted energy bill/year : 3 511,00 €

Health and comfort

Water management

Consumption of harvested rainwater : 38,00 m³

Indoor Air quality

Concrete walls hemp, producing no harmful emissions to health and participating in the regulation of hygrothermic

Carbon

GHG emissions

GHG in use : 5,00 KgCO₂/m²/an

GHG before use : 4,38 KgCO₂/m²

Building lifetime : 50,00 année(s)

GHG Cradle to Grave : 9,38 KgCO₂/m²

Life Cycle Analysis

Eco-design material : Beton hemp

Contest





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