


Project "Pearl"

by Stéphane Moetwil / 2019-04-02 14:46:46 / Belgique / 6321 / FR

New Construction



Primary energy need :

13 kWhep/m².an

(Calculation method : Other)

ENERGY CONSUMPTION

Consumption Range (kWh/m ² .an)	Grade	Building Grade
< 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	

Economical building (Grades A-C) | *Energy-intensive building* (Grades D-G)

Building Type : Collective housing < 50m
Construction Year : 2017
Delivery year : 2018
Address 1 - street : Rue de la Perle 3 1080 BRUXELLES, Belgique
Climate zone : [Cwb] Mild, dry winter, cool and wet summer.

Net Floor Area : 1 950 m² Useful area (es)
Construction/refurbishment cost : 2 300 000 €
Cost/m2 : 1179.49 €/m²

Certifications :



General information

The project concerns the construction of an apartment building consisting of 17 passive housing and a common room. The plot is located in a very urban and dense site in Brussels. The complete structure of the building is made of CLT (Cross Laminated Timber).

Data reliability

Self-declared

Stakeholders

Contractor

Name : Habitat & Humanisme

Contact : Julie Rondier +32 2 893 08 46 julie@habitat-humanisme.be (rue d'Edimbourg 26, 1050 Bruxelles)

<http://www.habitat-humanisme.be/>

Construction Manager

Name : DXA.ARCHI

Contact : Stéphane Moetwil +32 2 216 36 19 smoetwil@dxa.archi (rue de Stassart 124 à 1050 Bruxelles)

<http://www.dxa.archi/>

Stakeholders

Function :

ney & partners WOW

Alexandre Rossignon

www.ney.be

Complete follow-up of the "stability" mission

Function : Construction company

Amart sa

Stéphane Demeure

www.amart.be/

General contractor

Function : Company

laminated timber solutions

Philippe Courtoy

www.laminatedtimbersolutions.be

wood structure

Owner approach of sustainability

The client was determined to build the entire structural work in CLT (Cross laminated timber) which allowed the designer to propose to use the structural work as finishing materials for interior facades and ceilings in each dwelling. This economic gain is also environmentally friendly for reducing the amount of materials used in the construction site.

Architectural description

The entrance to the building is on the side of the street de la Perle, and takes advantage of the release of the Street du Niveau to improve its readability.

It is fully open to the outside and protected from the wind, naturally lit and gives a bird's eye view of the common garden. The entrance to the ground floor dwellings is developed on the side of the garden. This space is equipped with benches, low plantings in front of the rear facade, shrubs and covered and secure bike parking.

The common area of the ground floor, has a storage for strollers and bicycles, directly accessible from the entrance. The circulation spaces and access to the apartments are sized to create places of conviviality. The common areas are all located on the ground floor of the building.

The program consists of 4 studios, including 1 adapted for disabled people, 3 1 bedroom apartments and 11 duplex 4 bedrooms. 17 apartments have their outdoor patio area. All accommodations are crossing. The terraces are developed on the south / east side of the project, their easy use will participate in the life of the rue de la Perle and rue du Cinéma. Each housing has a storage space and technical room. The duplexes also benefit from another storage space arranged along the night hall.

The net living areas of the living rooms, dining room and kitchens are increased in relation to the minimum necessary requirements according to the number of rooms. The habitability of the dwellings is by this principle also increased. The circulations of the dwellings are optimized to dedicate more space to the living rooms and mainly to the stay which receives the whole family.

Energy

Energy consumption

Primary energy need : 13,00 kWhep/m².an

Primary energy need for standard building : 115,00 kWhep/m².an

Calculation method : Other

Envelope performance

Indicator : EN 13829 - q50 » (en m³/h.m³)

Air Tightness Value : 0,60

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 :

- Solar Thermal

Environment

Urban environment

The project is located in a high density urban environment in the center of the city of Brussels. The common garden is perceived from the outside and extends the public space to participate. The articulation of the building on its angle softens the acute angle formed by the two streets.

Land plot area : 600,00 m²

Built-up area : 480,00 %

Green space : 120,00

Products

Product

CLT

Lamcol

Philippe Courtoy

<http://www.laminatedtimbersolutions.be>

Product category :

Wood structure

materials suitable for housing buildings



Costs

Construction and exploitation costs

Cost of studies : 140 000 €

Total cost of the building : 2 300 000 €

Health and comfort

Water management

Consumption of harvested rainwater : 15 000,00 m³

Indoor Air quality

The hygienic air is continuously supplied in the housing by the ventilation system with double flow. Air filters purify any polluting particles contained in the air brought. They are changing once a year.

Comfort

Health & comfort :

The hygrometry of the building is self-regulating by structural elements in CLT wood of the building left voluntarily visible. The wood absorbs the water contained in the air if the percentage exceeds the average rate. Conversely, in a drier period, the wood will return the water into the housing atmosphere.

Acoustic comfort :

The following elements provide good acoustic comfort to housing: -The building is equipped with triple glazing.-Excellent airtightness of the envelope.-High performance insulation. 22cm of mineral wool.-Wood absorbs airborne noise better than traditional finishing.

Contest

Reasons for participating in the competition(s)

Technique de construction :

Le gros œuvre est réalisé en CLT (Cross Laminated Timber), ce qui a permis de monter l'enveloppe complète en huit semaines. Ce matériau ne libère pas de CO2 pour sa production mais il en a emmagasiné durant toute sa vie. Le CLT supprime les ponts thermiques. Grâce à la dimension des panneaux de CLT, le nombre de joints est diminué et l'étanchéité à l'air en est améliorée.

Techniques spéciales :

>Ventilation double flux, rendement > 83%.

>Triple vitrage, châssis mixte bois/alu, Uw global = 0.88W/m2k.

>Gestion de l'eau, toiture verte 400m2 et citerne à eau de pluie de 15.000 litres (chasses d'eau et nettoyage des communs).

>Panneaux solaires thermiques pour eau chaude sanitaire.

>L'isolation principale de l'enveloppe (façade et toiture) est réalisée par de la laine minérale de haute densité 45kg/m3 sur une épaisseur de 22cm. lambda= 0.035W/m2k.

>Les murs mitoyens sont isolés par un vide de 2 cm et 6 cm de laine minérale HD. Les dalles de sol entre les logements sont isolées par 6 cm de laine minérale HD

>Etanchéité à l'air n50=0.6 h-1

Building candidate in the category



Energie & Climats Tempérés





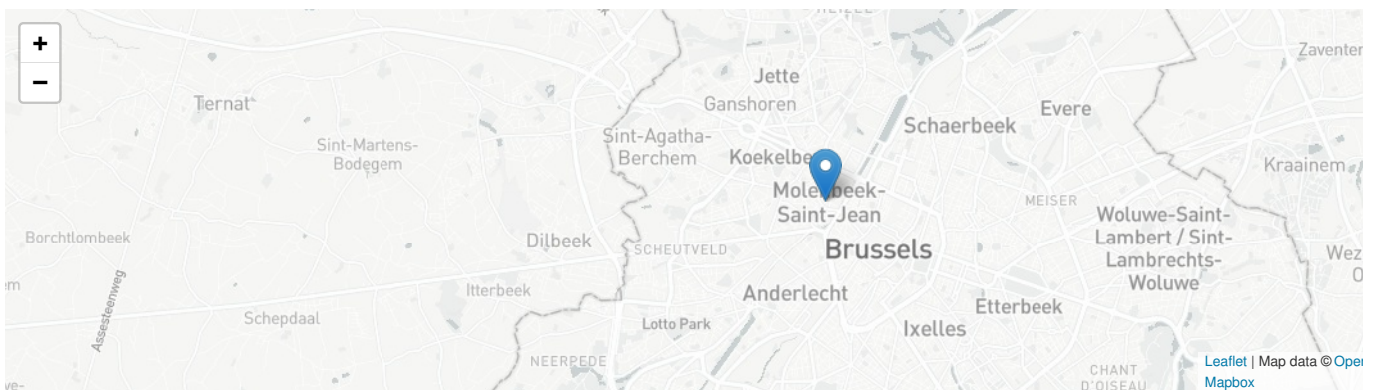
Bas Carbone



Santé & Confort



Prix du public



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