12 passive housing units (Centennial City)

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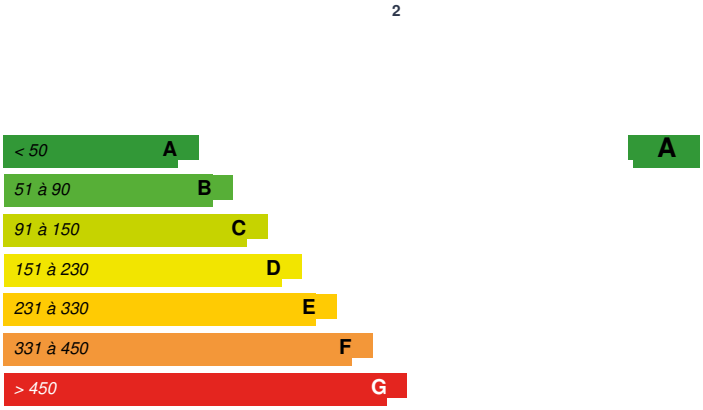

Building Type : Collective housing < 50m
Construction Year : 2016
Delivery year : 2016
Address 1 - street : Rue Trieu Kaisin 6061 MONTIGNIES-SUR-SAMBRE, Belgique
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 939 m^2
Construction/refurbishment cost : 1 528 356 €
Number of Dwelling : 12 Dwelling
Cost/m2 : 1627.64 €/m^2

General information

The construction of 12 passive and adaptable dwellings is part of the rehabilitation of a housing estate "La cité du Centenaire", which comprises, in its original situation, 7 identical 4 levels buildings repetitive as well as 2 batteries of 15 garages. Each building has 12 apartments, totaling 84 units.

The aim of the intervention was to:

· The demolition of the 30 garages and a 12 units block;
· Energy retrofitting of 6 buildings, or 72 units;
· The construction of a building of 12 apartments on the part of the land made free after demolition of the garages;
· Development of the surrounding area.

See more details about this project

http://www.startech-group.eu/
http://www.hainauthorizons.be/cite-centennaire/

Data reliability

3rd part certified

Stakeholders

Stakeholders

Function : Designer
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Stability studies

Contracting method

Other methods

Owner approach of sustainability

The rehabilitation of the centenary city aims to improve the living environment of the occupants, revitalizing the entire site, creating outdoor collective spaces, favoring the modes of soft travel ... New places of conviviality are thought such as a protected area under the piles, a community kitchen garden and a children's playground, in order to encourage intergenerational exchanges.

Architectural description

The project is part of a global environmental approach. Particular attention is paid to the energy aspects of renovated buildings. Indeed, all renovated buildings are designed on the basis of the general principles of passive construction. This project includes the demolition of two blocks of garages and an apartment building as well as the "light" renovation of 4 blocks of apartments and the construction of a new apartment building. The new building with 12 apartments is passively certified. The apartments are serviced by a vertical circulation area open on the outside at the rear, which limits the problems related to the common spaces in terms of maintenance, vandalism and nuisance and allows a larger budget to the development of the surroundings at the right of the latter to create an intermediate zone in the spirit of an interior patio intended to enhance access to housing. The accommodations are of the crossing type and have a terrace and wide bays in the South. They are of medium type with 2 and 3 rooms.

Energy

Energy consumption

Primary energy need : 60,00 kWhep/m^2.an
Primary energy need for standard building : 130,00 kWhep/m^2.an
Calculation method :
Final Energy : 48,00 kWhef/m^2.an
Breakdown for energy consumption :
Heating 48% Domestic hot water 32% Auxiliaries 20%

Envelope performance

Envelope U-Value : 0,26 $W.m^{-2}.K^{-1}$
More information :
-Plated exterior walls: plastered on EPS insulation, ep 24 cm (18 cm in front), glued / fixed on counter-walls in blocks of concrete with ep. 14 cm; -Floor covering floor: foam insulation PUR ep. 12 cm cast on the concrete floor -Flat roofs: PIR insulation boards 18 cm thick, on a slope of light concrete (slope 3%) + roofing membrane TPE -Windows: wooden frame with outer cover in aluminum coated with triple insulating glass. Each set has a UF ≤ 0.8 w / m² ° K. -Interior door entrance hall: wooden entrance door with external cover in pre-painted aluminum equipped with

triple insulating glazing whose inner sheet is laminated; a lower threshold is provided to guarantee a good air tightness. The set has a UF ≤ 0.8 w / m² ° K. -Management of thermal bridges

Building Compactness Coefficient : 1,98
Indicator :
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 :
- No renewable energy systems

Solutions enhancing nature free gains :
Bioclimatic design

Smart Building

BMS :
Automatic decentralized reading of energy consumption for heating and domestic hot water; access control of the common areas (staircase, bike room, trash room ...) is carried out by an electronic system with a reader

Environment

Urban environment

The city of Centenaire is located in the heart of an urban area well served by public transport (bus and metro lines), close to public facilities (nurseries, schools, hospitals, etc.), shops and services, necessary base to project a city in the sustainable. In order to reduce the car pressure due to the through-ways, Soft travel modes are favored on the site and the surrounding areas are treated accordingly, both for pedestrians and for cyclists. Specific equipment for bicycles is provided and the pedestrian paths connect the site to the various existing pedestrian networks.
Land plot area : 1 219,00 m^2
Built-up area : 49,00 %
Green space : 449,00

Products

Product

Improved insulation wood frame with ALU hood - Hermine 66

HER-WIN SA

HER-WIN SA - Rue du Moulin de Tromcourt 19 - B-5660 Mariembourg Tél +32 60 34 45 44 - Fax +32 60 34 69 44 - info@hermine66.com

http://www.hermine66.com/

Product category : Gros œuvre / Système passif
The Hermine 66 ® passive chassis developed to be the most efficient on the market today. With a warm design thanks to the combination of wood and aluminum exterior. Designed for the new energy and environmental challenges of sustainable development. Optimizes the glass surface for better natural lighting. Increases safety and acoustic comfort with glazed glazing. easy maintenance.

The Hermine 66 chassis is a passive mixed chassis (wood-aluminum) and has the PHI approval (Uf = 0,60W / m²K).

Costs

Health and comfort

Indoor Air quality

- Choice of construction materials without formaldehyde, plaster based on natural gypsum. - Mechanical dual-flow ventilation with filtration to ensure good air quality.

Comfort

Health & comfort : - High natural light in living rooms and bedrooms - Natural sun protection by the presence of a screen of trees in the south complemented by balconies and additional protection on the top floor. - Crossing apartments allowing for effective natural ventilation.
Calculated thermal comfort : Vérification du risque de surchauffe via le logiciel PHPP
Acoustic comfort : Measurement of sound levels.

Carbon

GHG emissions

GHG in use : 13,36 $KgCO_2/m^2/an$
Methodology used :
Calculation of CO2 emissions related to heating, DHW and auxiliary consumption using primary energy / CO2 emission conversion factors

Building lifetime : 50,00 an(s)
GHG Cradle to Grave : 2 185,00 $KgCO_2/m^2$
Calculation carried out on the basis of ELODIE software and takes account of waste and displacement contributors.

Contest

Building candidate in the category


Energie & Climats Tempérés


Coup de Cœur des Internautes

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