

Eco-area "Domaine Pleiades"

by Marie Boutet / 2016-06-28 11:45:26 / Belgique / 9075 / FR



Urban sprawl

Address 1 - street : 4600 VISÉ, Belgique

Gross density : 33.93 logt/ha

Population : 700 hab

Starting year of the project : 2009

Delivery year of the project : 2020

Key words : eco-district heating network efficiency biomass energetics sustainable development



14 ha



60 000 000 €

Proposed by :



Certifications :



ID CARD

"Le Domaine des Pleiades" in Visé is an **eco-district with the first heat network biomass (wood chips) in Belgium**, eventually supplying more than 275 homes and a school and a sports hall. It already has more than 145 houses and apartments sold and occupied. These are designed on the **concept** created by **Thermo Efficace® Horizon**: this is contemporary buildings with low energy consumption, facing south, heated by renewable energy and located near activity centers.

Designed in contemporary architecture, houses are provided with a flat green roof (partly) covered with insulating plaster and decorated with a secondary material (siding). There are a variety of plaster colors and secondary materials in the area, which customizes each building.

Programme

- Housing
- Public spaces
- Green spaces

CO2 Impact

CO2 Impact : 200 tCO2

Method used to calculate CO2 impact

According to the impact study, the biomass heater is saving 200 tons of Co2 emissions per year

Project progress

- Management phase
- Delivery phase
- Operational phase

Procedure type

- Urban développement permit

Prescriptions and zoning

- Protected area

Key points

- Quality of life
- Mobility
- Resources
- Biodiversity
- Energy /Climate

Approaches used

- Ecodistrict national label
- Local charter

Certifications

- Ecodistrict national label
- Autre

Data reliability

Assessor

TERRITORY

Type of territory

Since the creation of the Horizon Group, Laurent Minguet and Serge Lejeune, Administrators, knew global warming was already running and dwindling reserves of fossil raw materials was inevitable. In the Walloon Region (Belgium), 60% of emissions CO₂ already came from heating buildings. They wanted to address the crux of the problem: to offer more energy-efficient buildings that would use clean energy. The slogan "I wins, the world also" was born.

By the end of 2005, the Directors of Horizon Group launched steps to acquire a plot of 14 hectares, consisting of land of over 10 different owners. This parcel is

located at a place called "front-le-Pont" historic area of the city of Visé, away from traffic flow, bordered by the Canal Albert on the left and the Meuse on the right.

When the project eco-district was presented, there was an outcry from local residents who strongly opposed it, even without understanding the importance of an ecological vision in the long term.

The surge in oil prices in 2007, the extensive media coverage of global warming and European requirements to reduce emissions of greenhouse gas legitimized what the Horizon Group.

In 2009, it was even with the support of former opponents become strong advocates today that the project was finally launched. The first eco-district heating network with biomass Belgium finally see the day!

Climate zone

[Cfc] Marine Cool Winter & summer- Mild with no dry season.

More info

<http://horizongroupe.com/fre/j-achete/domaine-des-pleiades-maisons>

KEY FIGURES

Neighbourhood paved surfaces

Neighbourhood paved surfaces : 39 000 m²

Green areas, roofs included

Green areas, roofs included : 29 000 m²

Public spaces area

Public spaces area : 35 000 m²

Public facilities floor area

Public facilities floor area : 245 m²

Housing floor area

Housing floor area : 40 743 m²

Number of residential units

Number of residential units : 275

Green spaces /inhabitant

41.43

Public spaces/inhabitant

50

Total investment costs (before tax)

Total investment costs (before tax) : 60 000 000 € HT

Total of subsidies

Total of subsidies : 500 000 € HT

Detail of subsidies

The construction of the eco-district has received investment aid (Expa) from the Walloon Region (Belgium)

GOVERNANCE

Project holder

Name : horizon Group

Type : Private company

General description :

The Horizon Group is a real estate developer specializing in the construction and sale of apartments in homes, houses and villas Thermo Efficace® (contemporary buildings with low energy consumption, renewable energy heated and located near activity centers). His accomplishments are part of an innovative spirit, contemporary and sustainable. Horizon was founded in 2002 by Serge Lejeune and Laurent Minguet. In 2004, they decided to create their own division "Research and Development", ATS, in financial partnership with the Walloon Region (Belgium). In December 2015, Horizon is the only Belgian company in the construction and promotion of sector invited to COP 21 in Paris, to share its experience in sustainable real estate. The Liège company has participated in the writing of the "10 proposals to fight against climate change" basis of the Paris Agreement signed April 22, 2016 by 160 Heads of State and Government. The Horizon Group now controls large land reserves in Province of Liege. Currently, Horizon has a portfolio of more than 300 homes for sale and 2500 in development. The company represents 30 direct jobs and 500 indirect jobs. The Group brings together innovative companies with expertise sharp. Driven by strong values, all the team of Horizon wishes to become, with the concept Thermo Efficace®, a major player in the Belgian real estate and that, in a perspective of sustainable growth and better quality of life for all.

Project management

Description :

Since the launch of the project, a dialogue was established with local residents and the City of Vise to answer their questions and adapt the drafts accordingly. The density of the area has also decreased from the first draft.

Project stakeholders

horizon Group

Function : Investor

The entire project was conceived, designed, developed and built by Horizon Group team, in collaboration with local suppliers and contractors known for their skills and expertise. The developer wants to make this eco-district is an example of sustainable development.

Régis Ortmans, Directeur Général

[Construction21 company page](#) :



Horizon Groupe

More info : www.horizongroupe.com

SOLUTIONS

- Urban project governance

QUALITY OF LIFE

Quality of life / density

In this project, access roads, public areas, vegetation, lighting is the result of a long reflection, to offer a quality environment to the residents of the estate.

The Estate is a dead end, so it is completely safe for traffic, except those of residents. Furthermore, the density is quite low (about 19 units per hectare), which further improves the quality of life.

A playground allows younger to enjoy the weather, and many hiking and biking trails are an invitation to ride for young and old!

A public square is situated on the area of the center, meeting place and conviviality of choice for people in the heart of the neighborhood.

Net density

-0.01

Culture and heritage

Eco-area is named the house "Pleiades" (*Passive Low Energy Innovative Architectural Design*), built at Louvain-la-Neuve by Professor De Herde in 1994. This experimental house with low energy consumption was developed in the framework of European research, with the cell "Architecture and Climate" of the UCL.

Literally, "the Pleiades" is a star cluster. In the eco-district Vise, all residences apartments are named after a star in the Pleiades: Residence Alcyone, Atlas, Electra, Maia, Merope ...

Social diversity

The eco-neighborhood will have 275 homes in total: 135 houses and 140 flats.

Today, more than 145 units have been sold and occupied, and the target audience is very diverse. Young families find their happiness in unifamiliales houses, they are 2,3 or 4 fronts, but some older couples also decide to leave their home energy consumption in the country to be closer to the city center and opt for sustainable housing.

The apartments are attracting more and more couples over 60 who no longer want to live in their big house, for reasons of mobility and obvious costs.

All units also have an important attraction for an audience of investors target. These are then leased by our rental management service. Rental demand is very important.

In addition, the school and the Hall Omnisport all relatives (both also heated by biomass heating network) offer attractive to a young and family.

Ambient air quality and health

This residential area is a dead end, so there is no through traffic, only residents travel. This has a positive impact on the air quality and the environment.

Given the many walking and cycling paths in the area but also in the region, the direct connection to an existing promenade network (Ravel), shelter for bicycles and charging stations for electric vehicles, all the elements are there to decrease strongly pollution from road transport.

Besides the health aspect, push people to favor soft mobility (bicycles, pedestrians) can only have a positive impact on their health and well-being!

ECONOMIC DEVELOPMENT

Local development

With more than 700 more people, that's all the neighborhood Devant-le-Pont who enjoys a boost in terms of economic development, primarily local small businesses but also schools & nurseries, large surfaces, and all the leisure industry in the Region.

Functional diversity

The residential density is not high, businesses in the construction on the site is not justified. Le Domaine des Pleiades therefore has voluntarily no shops, not to have a negative impact on existing businesses in the area.

For cons, the biomass heating network provides 275 housing units and school and sports hall. As a result, educational and sports functions are mixed habitat, which remains the primary function of the eco-district.

% of public spaces

25

Circular economy

In the construction phases, Horizon always appealed to companies and local labor.

Building materials are selected based on the energy balance of their life cycle as a whole. In terms of exterior joinery, the Promoter has opted for PVC as embodied energy is offset as much by lack of maintenance and the possibility of recycling at end of life.

Moreover, all the area is completely heated using renewable energy, since it is the first biomass heating network in Belgium. Biomass (wood chips) can be considered an example in terms of circular economy, since platelets are themselves waste wood, used for energy purposes.

TRANSPORT

Mobility strategy

From the development of this real estate project, the choice of location was highly reflective, in order to:

- Reduce the movement of people and thus their energy consumption
- Encourage the use of public transport

A promenade called "The Green Casting", as footpath that bike path crosses the area to enable people and families to move bike and walk safely and usability. Each apartment residence has also a bike shed.

The inhabitants of the Pleiades Domains may favor public transport and soft modes of travel given the proximity of the railway station (line Liège-Maastricht) and

shops and services. The district "front-le-Pont" is directly and quickly accessible on foot from the property, and offers various shops and local services. The center of Vise and its many shops are in turn only 10 minutes walk of the eco-district.

For those who drive, the city of Vise is now served by 3 inputs and motorway exits, allowing to go to Liege in less than 15 minutes.

Finally, to further promote green mobility, a charging station for electric vehicles is available to users right in the field!

SOLUTIONS

- Soft transportation
- Electric vehicles
- Parking management



RESOURCES

% Paved surfaces

28

Water management

All dwellings eco-neighborhood, rainwater is collected in tanks with a capacity of 5000-7500 liters, buried with drainage overflow into the sewer road.

This water is used for toilet, external casserole, tap the garage and Reserve. Each house also has a pump unit.

Furthermore, through green roofs, rain water infiltrated the site, allowing unclog the sewer system during heavy rainfall or rain repeatedly, as can know the Belgian climate.

Initially, the project involved the treatment of wastewater by a collective VSAT treatment, but this was not accepted by the Intermunicipal regional waters.

Soil management

We performed tests lift to the site to determine the foundations of houses in order not too change the relief of the ground, except for the completion of the roads and drainage.

Our houses were not cellar which reduces the land movements as soil excavation was very little to the soles of foundations or ventilated empty. This is the principle of good soil management as choosing not to carry too much movement of land or contribution of land on the site.

Waste management

The group heating eco-district works with wood chips ... which is waste wood! Thus recovers waste from sawmills and pine forests to heat the subdivision.

Furthermore, the City of Vise gives two garbage containers: one for household waste and one for green waste. These are collected for compost.

SOLUTIONS

- Water management
- Soil management
- Citizen-awareness

BIODIVERSITY

Biodiversity and natural areas

The area has 70% green space, of which 25% are collective. This can go up to a total of 80% if we consider green roofs.

In terms of plantation 12 kilometers hurdles and 400 trees were planted on the estate, along the footpaths and private gardens. These hedges are composed of local native species, to ensure the ecological balance: to provide shelter for wildlife and local flora in urban areas.

Reliable housing density voluntarily leaves an important part in nature throughout the area.

SOLUTIONS

- Management of natural areas
- Environmental charter



Climate adaptation, resources conservation, GHG emissions

The eco-district "Le Domaine Pleiades" was designed in order to enjoy maximum solar gain, while avoiding overheating.

To be energy efficient, the buildings are ideally oriented **s** North-South taking advantage of free solar gains. Their living rooms arranged south, largely open to the outside with large windows while the secondary parts (such laundry, garage, ...) are located north and have minimal openings.

The buildings, whether homes or small residences to apartments (2-9 units) have a flat roof that limits the volumes to unnecessary heating and reducing the shadow of the surrounding buildings. It can be covered with a vegetated complex and covered with photovoltaic panels, which then have a perfect slope. This kind of roof improves the overall insulation of the building.

All accommodation provides automated blinds south that limit overheating of the building. Comfort ventilation allows residents to enjoy healthy air and renewed, and therefore a permanent comfort.

By its orientation, design and technical implementations, houses and apartments Affected relegate the heating equipment to the radius of the booster.

The objective of the Horizon Group in the construction of the eco-district is societal: awareness among people to sustainable development and the importance of the potential impact their lifestyles and their homes on the planet.

Energy sobriety

All homes are built according to the concept Thermo Efficient (trademark), one of whose pillars is the reduction of energy losses through:

- An excellent external insulation (among others: 12 to 14 cm of polyurethane in the walls and 16 cm of expanded polystyrene for the insulation of roofs)
- Use of materials having very good thermal inertia
- Elimination of thermal bridges
- Centralized biomass heating with individual meters (with heat network)
- Performance electronic control

This regulation "smart" is distinguished by its flexibility and **performance in both energy saving material that sustainable and responsible energy management.**

In practice, the electronic control is based on various measurements inside and outside the building. Based on these values and the instructions given by the inhabitants of housing, regulation analyzes and selects the best solution for the management of heating, ventilation and solar blinds. It can also anticipate some extreme external conditions (heat, cold). In this way, it reduces the energy consumption of each unit to its fullest.

Heating of interior spaces and hot water district, consumption is a maximum of 30 kWh / m² / year.

Energy mix

This new district is heated entirely by renewable energy! Horizon has chosen to equip its housing Thermo Efficace@2 complementary green technologies: biomass boiler (wood chip) and the heat pump.

The pellet is a renewable energy that has a zero carbon footprint (the CO₂ produced during combustion is consumed during the growth of the tree).

When the outside temperature is not high enough, so in "cold season" heating and hot water are produced by the pellet boiler. This boiler is common to all units of the eco-district and is a heat network that supplies each dwelling. Each course has an individual meter.

When the outside temperature is high enough, that is to say, "hot season" heating requirements are zero. To avoid trigger collective boiler while ensuring high performance, the hot water is via individual heat pump. This will cut the biomass boiler for nearly six months out of 12. An important innovation in terms of sustainable development!

In addition, each house is equipped with photovoltaic panels, which cover some of the electrical needs of the people and also supplies the heat pump with clean energy. This reduces further the energy impact on the planet.

Total electricity needs of the project area /year

Total electricity needs of the project area /year : 892,00 kWh

Total electricity production of the project area /year

Total electricity production of the project area /year : 735,00 kWh

SOLUTIONS

- Climate adaptation
- Low-carbon materials/ infrastructure

Company :



Horizon Groupe



BUILDINGS

Buildings

The eco-neighborhood will consist of 275 housing futures: 135 houses (2, 3 and 4 facades) and 140 apartments. These residences from 2 to 9 apartments are small volumes to keep a visual harmony in the area.

A total of 145 units today are already built and inhabited.

The buildings have two floors for houses and 2 to 3-storey apartment buildings. The gross area of the housing varies from 125-265 square meters, parcels range from 300 to 900 square meters.

The houses and apartments in homes of this eco-district meet at **Thermo Efficient Concept** created by Horizon. These are contemporary buildings with low energy consumption, facing south and heated by renewable energy.

These homes are built according to 4 pillars:

1. USE OF RENEWABLE ENERGY: biomass boiler, double flow ventilation, photovoltaic panels, heat pumps ...
2. MAXIMIZE EARNINGS FREE ENERGY: location and orientation of buildings, large windows to the south, compact volumes and flat roof ...
3. REDUCTION OF ENERGY LOSSES: excellent external insulation, materials having very good thermal inertia, central heating with individual meters, efficient electronic control ...
4. RESISTANCE TO OVERHEATING: Architectural design, automated blinds South side ...

Contest

Building candidate in the category

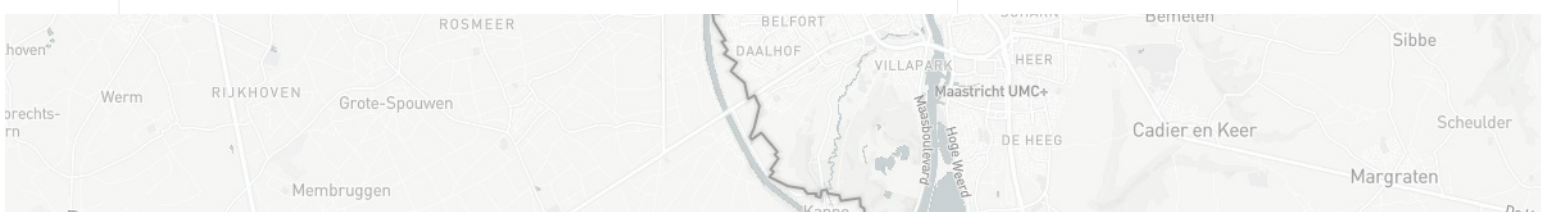


Smart City



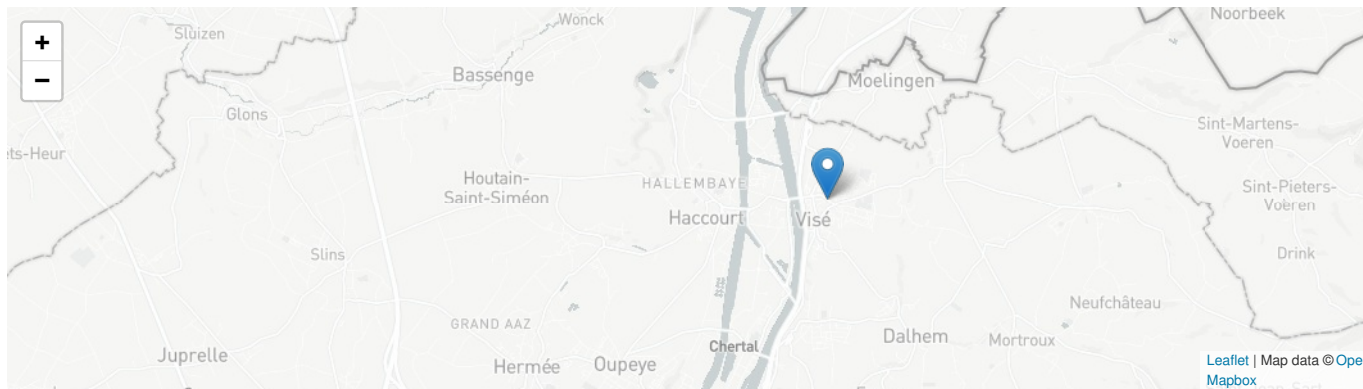
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