

SOLEO

by [Benoit Choquet](#) / 2019-06-20 18:44:08 / Belgique / 5301 / FR

Extension + refurbishment



Primary energy need :

86 kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION

Consumption Range (kWhep/m ² .an)	Energy Rating	Building Category
< 50	A	Economical building
51 à 90	B	Building
91 à 150	C	
151 à 230	D	Energy-intensive building
231 à 330	E	
331 à 450	F	
> 450	G	

The SOLEO building's energy consumption of 86 kWhep/m².an falls into the **B** rating category.

Building Type : Office building < 28m
Construction Year : 2013
Delivery year : 2017
Address 1 - street : Boulevard Pierre Mayence 1 6000 CHARLEROI, Belgique
Climate zone : [Cbc] Mild, dry winter, warm and wet summer.

Net Floor Area : 17 831 m²
Construction/refurbishment cost : 26 500 000 €
Number of Work station : 570 Work station
Cost/m² : 1486.18 €/m²

Proposed by :



General information

Heavy renovation of an existing building of 6.100 m² and an extension (ground floor + 7 floors) for an overall area of 12.600 m² and a car park of 400 spaces.

Positioned at the entrance of the Upper City of Charleroi, the seat will enjoy unparalleled visibility. The location in the city center represents a comfortable added value for the occupants who will be able to benefit every day from the proximity of the shops, schools and services located in the heart of the city. The inscription of SOLEO in the larger one of the new face that Charleroi will offer is an undeniable driving force.

[See more details about this project](#)

<http://www.igretec.com/fr/immo/soleo/>

Data reliability

Self-declared

Stakeholders

Contractor

Name : Igretec secteur 2

<http://www.igretec.com/fr/acteur-public/bureau-de-maitrise-d-ouvrage/>

Construction Manager

Name : Igretec secteur 1

<http://www.igretec.com/fr/entreprise/batiments-a-louer/>

Stakeholders

Function : Designer

IGRETEC

Stéphanie Ameels

<http://www.igretec.com>

Function : Contractor

IGRETEC

Morgan Duquenne

<http://www.igretec.com>

Function : Site manager

IGRETEC

Brigitte Gossiaux

<http://www.igretec.com>

Function : Construction company

SM4 (BEMAT-LIXON-KOECKELBERG-GALERE)

Jean-Pierre Alvarez

Construction contract tenderer

Contracting method

General Contractor

Owner approach of sustainability

SOLEO aims to be equivalent to K30 in terms of its energy performance, which can be likened to a building "low energy". Indeed, a powerful insulation combined with a significant inertia of the building resulting from its concrete structure, SOLEO presents a low energy consumption and also has a façade with an original design combining metal and vegetation. These two aspects result, for example, in a minimization of the glazed surface while guaranteeing an adequate natural luminosity and by the use of specific solar protections (use of automatic blinds). Other aspects have also been developed in a sustainable objective. . To this end, there are air handling units that ensure proper ventilation of the building while recovering calories from the exhaust air, to warm the fresh air to avoid unnecessary heat loss (CTA); cooling of the "Night-cooling" type, making it possible to dispense with air-conditioning for stages 1 to 6; Full LED lighting with motion detectors and automatic dimmers according to the external light which aims to reduce the consumption of electrical energy and to avoid overheating; the use of rainwater for the sanitary facilities but also the installation of a condensing boiler on each floor which offers the possibility of being able to manage the heating individually in case of vacancy (importance for rental areas). The latter system also has an autonomous management in case of failure and allowed to use boilers of smaller power which allows a total modularity. This desire to be part of sustainable development is also reflected in the "green" symbolism of plants installed on the front and which, moreover, will contribute, at a modest level, to the reduction of carbon emissions. In short, a dynamic interaction with the climate for a rational use of energy (ERU). SOLEO also gives pride of place to the technological evolutions notably by the use of high speed cabling (10 Gbits / s) which take into account the next data constraints to come, the use of an advanced computer system of technical management of the building as well as the installation of LED screens, at various places in the building, programmed to operate exclusively during office hours to avoid unnecessary consumption of course.

Architectural description

The user-friendliness, the comfort, the acoustics, the care brought to the ergonomics as well as to the thermal aspects, are essential. The reception of visitors is also at the heart of creation: it is the image of the intercommunal who exposes itself to it and reflects it. SOLEO gives pride of place to "organic" architecture, with flexibility and curves. Externally, it exhibits a "double skin" since the workspace is indeed isolated from the ambient urban environment by means of a hanging garden, green and vertical buffer zone. It is the subject of a lot of work budget and technical analysis since the main idea of the building, beyond its integration into the renewal of Charleroi, was to act dynamically with the climate, light and nature . Therefore, it can be called building "Active Living".

Energy

Energy consumption

Primary energy need : 86,00 kWh_{ep}/m².an

Primary energy need for standard building : 126,00 kWh_{ep}/m².an

Calculation method :

Final Energy : 54,00 kWh_{ef}/m².an

Breakdown for energy consumption :

Heating: 33.6 kWh EF / m².an

ECS: 0 kWh EF / m².an

Cooling: 2.2 kWh EF / m².an

Auxiliaries (ventilation, circulators, pumps): 7.4 kWh EF / m².an

Lighting: 11.4 kWh EF / m².an

Initial consumption : 1,00 kWh_{ep}/m².an

Envelope performance

Envelope U-Value : 0,59 W.m⁻².K⁻¹

Building Compactness Coefficient : 4,68

Renewables & systems

Systems

Heating system :

- Condensing gas boiler
- Heat pump
- Fan coil
- VAV System

Hot water system :

- Individual electric boiler

Cooling system :

- Water chiller
- Tape
- VRV Syst. (Variable refrigerant Volume)

Ventilation system :

- Nocturnal Over ventilation
- Free-cooling
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic

Smart Building

BMS :

Heating, ventilation, cooling, lighting, security, fire, intrusion management

Environment

Urban environment

In 1986, IGRETEC moved into its new premises, made by our design office, located on Mainz boulevard in Charleroi. Following the development of its activities and business lines, our staff was cramped within the head office built 20 years earlier and, in December 2007, the IGRETEC design office presented a vast and ambitious architectural project and real estate, the Aéroparc, which was to bring together on the Aeropole a series of public and private operators serving companies: Agoria, IGRETEC and many others. December 2008, the situation had changed dramatically. The Charleroi Sud Hainaut Strategic Development Committee, aware of the new challenges, supported the return of our headquarters in the city center of Charleroi. The carolos authorities, taking into account the Phenix project (extensive renewal program of downtown carolo), which we managed and coordinated, also invited us to question this implementation. The change of course was acquired. This important strategic shift has forced us to bounce back, quickly and smartly. Very quickly, the inventory of real estate supply in the city was drawn up by a multi-criteria approach integrating the impacts in terms of image, feasibility, visibility and cost. Very soon, too, a site was established: No. 1, Bd Mainz, our head office. A simple choice, since we are already co-owners with ETHIAS and occupants, and complex at the same time, requiring significant inventiveness to deal with the existing, while facing significant constraints. But as creativity is precisely what our design office never misses, the ball was taken to the leap with, as a goal, the complete renovation of the head office (Mainz Wing of the name of the boulevard) to which would be added an extension (Poirier wing) and inevitably a parking lot considering the urban situation ... SOLEO was born!

Land plot area : 4 115,00 m²

Built-up area : 87,00 %

Products

Product

Bins plant and guardian for the realization of a planted facade

TERRA COTTEM

Mekeirleweg 5 8570 Vichte

<http://terracottem.com/fr>

Product category : Second œuvre / Menuiseries extérieures

The set consists of waterproof and insulated plants, made of the same material as cassettes on the front. The bins are filled with potting soil and planted all the way in organized ways. The stakes made of curved sheet metal are intended to allow climbing plantations and thus provide additional sun protection. Equipped with an automatic watering system (drip) managed by sensors measuring the humidity level coupled to solenoid valves. The peculiarity and the originality of the whole lies in the amendment of the potting soil by TERRA COTTEM brand reticulated hydroretreating polymers. These hydroretents absorb and store rain or irrigation water at root level, which in other circumstances would evaporate or flow. They optimize water resources and reduce the amount and frequency of watering up to 50%. The water is stored in such a way that the roots of the plants can dispose of it by their rootlets. Water is present in the root zone for a longer period.



Product allowing a symbolic highlighting of the sustainable side of the building while contributing to the reduction of CO2 emissions

Costs

Health and comfort

Water management

A rainwater recovery tank of 30 m³ is used for the supply of toilets

Comfort

Acoustic comfort :

The site is followed by an acoustic study desk. The objectives pursued are the isolation of airborne noise, the isolation of shock noises, a constant reverberation time.

Carbon

GHG emissions

GHG in use : 18,79 KgCO₂/m²/an

Methodology used :

Emission in use phase is based solely on primary energy requirements

Contest

Reasons for participating in the competition(s)

In addition to the design office responsible for architectural studies, our stability teams, special techniques, safety & health coordination, delegated project management and supervision, as well as the PEB manager, were mobilized. for the different phases related to the design and implementation of the building on behalf of IGRETEC and ETHIAS, co-owner of the building.

At the same time, all of our staff were involved in the different phases for the development of the working areas occupied by IGRETEC.

Finally, it was our Property Management Department that managed the move from the Mainz wing to the Poirier wing for our services.

Building candidate in the category



Energie & Climats Tempérés



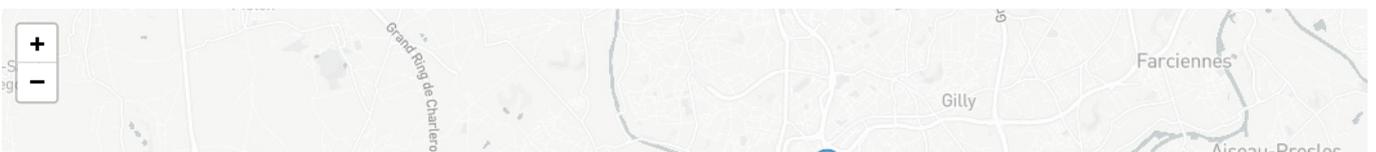
Santé & Confort



Smart Building



Prix du public





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