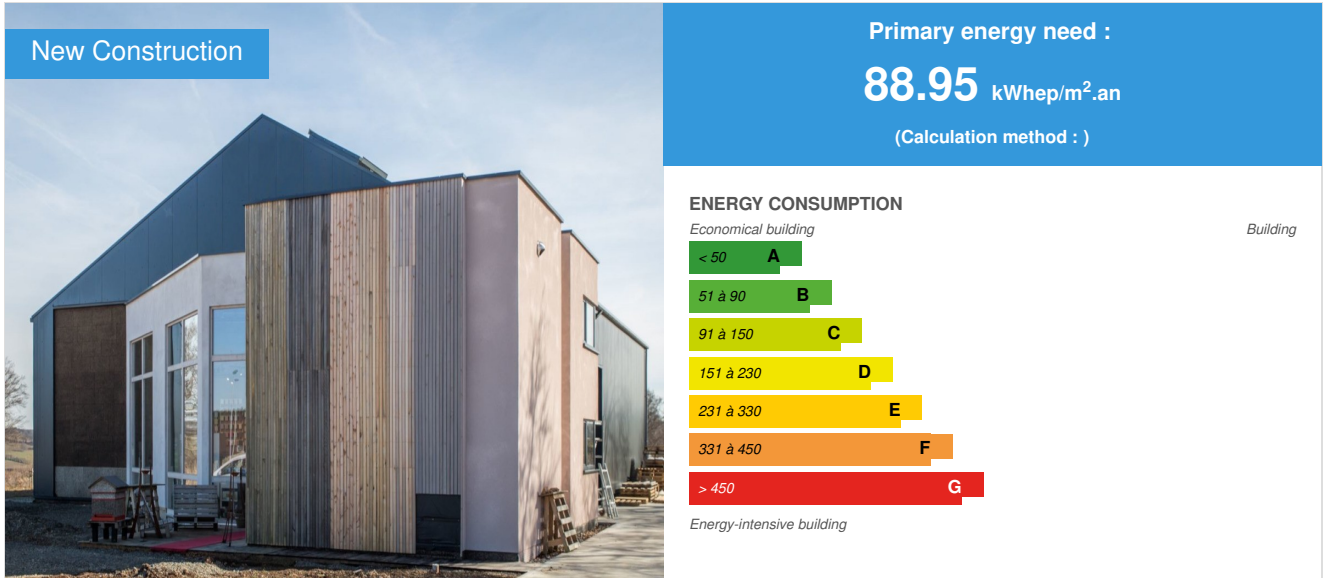


## building the future

by Jean-François Pirotte / 2023-02-17 09:55:05 / Belgique / 376 / FR



**Building Type** : Other commercial buildings  
**Construction Year** : 2018  
**Delivery year** :  
**Address 1 - street** : Rue de la Corneille 1 4950 WAIMES, Belgique  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 490 m<sup>2</sup>  
**Construction/refurbishment cost** : 357 500 €  
**Cost/m<sup>2</sup>** : 729.59 €/m<sup>2</sup>

### General information

Showroom and storage hall for ecological materials for the construction sector.  
Ecological materials were favored: wooden frame for the showroom and wooden post-beam for the hall.  
The whole has been insulated in a high-performance and measured way in order to reduce energy consumption:  
The entire slab is insulated from below using cellular glass aggregate (Misapor), in proportion to the needs, i.e. 20cm for the hall and 45cm for the showroom (which has also received additional expanded cork insulation in order to fix underfloor heating).  
The wood frame of the showroom is injected with cellulose wadding and the exterior plastered with lime.  
The flat roof of the showroom is insulated with sarking with expanded cork in panels (3x 8cm), covered with EPDM.  
In order to contain the budget, the hall was covered with 20cm sheet metal/rock wool sandwich panels.  
All the reduced needs of the building are covered by electrical energy: Air-Water heat pump, LED lighting, electric forklift, etc. This electrical energy is self-produced by a photovoltaic installation, supplemented by the network via the 100% green and local supplier Cociter.  
The landscaping is chosen to preserve as much as possible the porosity of the soil as well as the capacity to welcoming biodiversity. A natural pond has also been laid out to accommodate biodiversity. A natural pond has also been created.

### Building users opinion

Very great satisfaction in use: quiet spaces, warm materials and lots of natural light.

## If you had to do it again?

Provide more storage space for materials.

## Data reliability

Self-declared

## Photo credit

Olivier Dethier - I'm Lost

## Stakeholders

### Contractor

Name : Batir l'avenir  
Contact : pro@batirlavenir.be  
<https://batirlavenir.be/>

### Construction Manager

Name : Elevations Architecture  
Contact : archi@elevations.be  
<http://www.elevations.be>

### Stakeholders

Function : Construction company  
MBMO SPRLU  
marquet.raymond07@gmail.com

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Function : Construction company  
ROSEN ALAIN MENUISERIE GENERALE  
info@alain-rosen.be  
<https://www.alain-rosen.be/>

### Contracting method

General Contractor

### Owner approach of sustainability

The objective is twofold: technological demonstrator and consistency in the approach.

Ecological materials have not yet convinced everyone, so it is important to demonstrate by example the relevance of the approach and the unique feeling that one has to evolve in an eco-built building.

In addition, in a healthy life approach, it is important to remain consistent with its values, hence the desire to build the building that hosts the company's activities in an environmentally friendly way.

### Architectural description

Large openings and visible wooden structure.

## Energy

### Energy consumption

Primary energy need : 88,95 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 88,95 kWhep/m<sup>2</sup>.an

Calculation method :

Final Energy : 88,95 kWh/m<sup>2</sup>.an

More information :

This is the actual electricity consumption for the year 2022 including the heat pump, the lighting, all the tools and machines including the electric forklift.

## Real final energy consumption

Real final energy consumption/m<sup>2</sup> : 88,95 kWh/m<sup>2</sup>.an

Year of the real energy consumption : 2 022

## Renewables & systems

### Systems

Heating system :

- Heat pump
- Low temperature floor heating

Hot water system :

- Individual electric boiler

Cooling system :

- Reversible heat pump
- Floor cooling

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Heat pump

Renewable energy production : 100,00 %

Solutions enhancing nature free gains :

Reflected orientation of the glazing to avoid overheating in summer and therefore avoid the use of air conditioning.

## Environment

### Biodiversity approach

Establishment in an ecological zoning with planting of living and diversified hedges around the perimeter of the plot. Creation of a natural pond. Installation of several hives. Flowering meadow seedlings. Organization of a nesting box manufacturing workshop with a local association.

Mitigation actions on soil and biodiversity :

Waterproofing reduced to what is necessary for the establishment of the activity, porous coverings as much as possible or even "directed" following of unused areas.

### Risks

Hazards to which the building is exposed :

- Heatwave

## Products

### Product

Misapor cellular glass aggregate

Misapor

info@misapor.ch

<https://www.misapor.ch>

Product category : Management / Others

Cellular glass aggregate is a product that meets several needs:

Capping layer, thermal insulation on the ground, capillarity break, drainage.

Due to its thermally insulating properties, this material avoids having to dig a "frost barrier" and therefore avoids a large amount of excavation and cement concrete.

With curiosity because of the novelty then with interest because of the speed of implementation and the general benefits of this solution.



## Costs

### Construction and exploitation costs

Renewable energy systems cost : 12 970,00 €

Total cost of the building : 357 500 €

## Health and comfort

### Indoor Air quality

We have used exclusively decorative products that respect indoor air quality: natural lime or clay plaster, natural paints, oiled cork flooring, untreated solid wood or lightened with oil stain, etc.

### Comfort

#### Health & comfort :

The use of natural or ecological materials has a very positive impact on comfort and health.

The thermal comfort is ensured essentially by the relevant thermal insulation and the judicious orientation of the bays (to avoid overheating in summer). In addition, the materials manage ambient humidity wonderfully; reducing the use of VMC for air renewal.

Health is also ensured by the rigorous choice of materials used in order to limit indoor pollution. Cleaning products are also chosen in accordance with this desire to maintain a healthy and comfortable atmosphere.

#### Acoustic comfort :

Despite large bay windows, interior acoustic comfort is ensured by a variety of surfaces:

- cork floor: absorption of the echo by the "tenderness" of the material
- expanded cork coverings: echo absorption by the surface structure
- visible flat roof structure: sound wave breakage
- special appliques that absorb sound waves

## Contest

### Reasons for participating in the competition(s)

Nous avons porté ce projet avec la volonté d'appliquer les principes de l'éco-construction à un bâtiment commercial.

Cela nécessite pour tous les porteurs de projets un supplément de temps, d'effort et de budget :

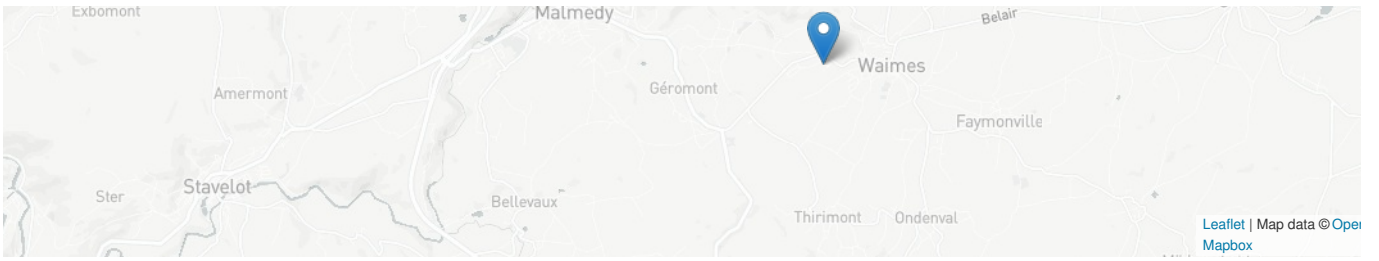
Du temps pour concevoir d'une nouvelle manière, en dehors des schémas habituels bien connus.

De l'effort pour trouver des corps de métier qui mettent en oeuvre ces innovations conceptuelles.

De budget car les matériaux écologiques engendrent un surcoût.

Cela étant, c'est un temps que nous avons investi avec passion, des relations avec des corps de métier qui sont devenus des partenaires commerciaux qui font rayonner l'éco-construction localement et le surcoût à la construction est compensé par la moindre consommation quotidienne.





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