






## Office building CILSO / DOMOFRANCE

by Stéphane MOREAU / 2013-08-27 16:08:30 / France / 8357 / FR

**New Construction**

**110**  
EXTENSION  
LAHT-AT 2013

Primary energy need :

**42** kWhep/m<sup>2</sup>.an

(Calculation method : RT 2005 )

**ENERGY CONSUMPTION**

*Economical building*

< 50	<b>A</b>
51 à 90	<b>B</b>
91 à 150	<b>C</b>
151 à 230	<b>D</b>
231 à 330	<b>E</b>
331 à 450	<b>F</b>
> 450	<b>G</b>

*Energy-intensive building*

*Building*

**A**

**Building Type** : Office building < 28m  
**Construction Year** : 2012  
**Delivery year** :  
**Address 1 - street** : 110 AVENUE DE LA JALLERE 33042 BORDEAUX, France  
**Climate zone** : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

**Net Floor Area** : 2 970 m<sup>2</sup> SHON (fr)  
**Construction/refurbishment cost** : 4 083 500 €  
**Number of Work station** : 100 Work station  
**Cost/m2** : 1374.92 €/m<sup>2</sup>

### General information

Through its various fields of activity, CILSO Group is strongly committed to and involved in social and environmental concerns. The proposed extension of the headquarters which was realized in 2008, is in these values. The aim was both to consolidate all headquarters employees and respond to future project development group.

As of 2009, the choice was focused on achieving a positive energy building ( BEPOS ) that produces more energy than it consumes through bioclimatic design , minimizing the energy needs, and local production of electricity with photovoltaic panels. Construction performed and managed according to HQE ® has all the usual qualities of architecture, functionality, quality and use, while greatly minimizing the impact on the environment.

Particular attention was paid to the choice of building materials and the various facilities available to employees to ensure health and comfort.

50 additional parking spaces were created and 32 trees and 60 shrubs will be planted . One significant existing tree will be sacrificed . In addition to these parking spaces, some electric bikes will be available to the staff and a pool of electric vehicles.

All offices are naturally lit : the nuclei of movement, health and service spaces are clustered in the center of the building. The walls of offices overlooking the circulations are partially glazed to allow light in their second day.

A guide has been written to give explanations to employees on the operation of the new building and the actions to take.

A GTC can finely control equipment to ensure user comfort and control energy consumption. Monitoring and optimization of actual performance will be carried out on a minimum of 2 years by an external provider .

## Sustainable development approach of the project owner

The building is part of a high environmental quality with an exceptional level target 5 in very high-performance, 8 performance level. The choice of materials and the ventilation system have been given special attention to ensure good indoor air quality. System allows rainwater to meet the needs of water for health. The local electric power is provided by a roof and solar shading (700 m<sup>2</sup>)

## Architectural description

This building has been a bioclimatic design with a North / South orientation. Compactness, high insulation of the casing with a low air permeability and a double flow ventilation system with energy recovery are used to reduce the need for heating and rafraîchissement strongly.

## Building users opinion

Occupants enjoy acoustic comfort, thermal and visual. It took time to adapt to tame the equipment provided (lights dimming, heating programming ...). They appreciate being able to keep hold of their work environment despite the systems in place to maximize comfort and performance: ability to open windows when there is a double flow system, turn off / turn on the lights so that there is an automatic light dimming and presence detection ...

## If you had to do it again?

This kind of project is very educational and inevitably some topics wouldn't be exactly treated the same way today. The industry is evolving and designers gradually rise in competence in these areas.

No recipe or regrets, but in a few words: the study phases are important, a strong presence on the site is required, performance requires going into detail but should not forget the simple, common sense and finally, the end customer, which should be a central concern.

## See more details about this project

<http://www.construction21.eu/france/data/sources/users/328/docs/cilso-guide-extension-siege-social-v27-03-2013.pdf>

## Stakeholders

### Stakeholders

Function : Contractor

Cilso

Moreau Stéphane (05 56 43 62 60)

<http://www.cilso.fr>

Function : Assistance to the Contracting Authority

BMA

DAVRIL Joël (05 56 99 31 99)

<http://www.b-m-a.fr>

Function : Contractor

Domofrance

Moreau Stéphane

<http://www.domofrance.fr>

Function : Construction Manager

Agence Alain Triaud & Luc Arsene-Henry

Triaud Alain (05 56 69 35 10)

Function : Other consultancy agency

EGIS

Plichon Sébastien (05 56 11 90 00)

<http://www.egis.fr>

## Contracting method

General Contractor

## Type of market

Realization

## Energy

### Energy consumption

Primary energy need : 42,00 kWh/m<sup>2</sup>.an

Primary energy need for standard building : 120,00 kWh/m<sup>2</sup>.an

Calculation method : RT 2005

Breakdown for energy consumption : Results from the calculation engine RT 2005 Heating: 0.26 kWh/m<sup>2</sup> / year Cooling: 11.35 kWh/m<sup>2</sup> / year Lighting: 6.8 kWh/m<sup>2</sup> / year Ventilation: 4.29 kWh/m<sup>2</sup> / year Auxiliary: 0.66 kWh/m<sup>2</sup> / year Estimated other uses: 30 kWh/m<sup>2</sup> / year

### Real final energy consumption

Final Energy : 54,00 kWh/m<sup>2</sup>.an

### Envelope performance

Envelope U-Value : 0,26 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Plancher bas porté, ossature poteau/poutre en béton armé avec ouvrage en béton haute performance, pas de joint de dilatation, mur rideau en ossature bois préfabriqué en usine Mur extérieur U = 0,153 W/m<sup>2</sup>.°C Plancher bas sur terre plein U = 0,175 W/m<sup>2</sup>.°C Plancher bas sur l'extérieure U = 0,189 W/m<sup>2</sup>.°C Plancher haut : U = 0,111 W/m<sup>2</sup>.°C Menuiseries double vitrage Sud, est et ouest : Uw = 1,2 W/m<sup>2</sup>.°C Menuiseries triple vitrage Nord : Uw = 0,9 W/m<sup>2</sup>.°C

Indicator : I4

Air Tightness Value : 0,59

### More information

Le Maître d'ouvrage est conscient que les résultats issus du moteur de calcul RT 2005 ne permettent pas d'estimer les consommations réelles. Des simulations thermiques dynamiques ont donc été réalisées en parallèle pour les approcher ainsi que pour optimiser le confort d'été. Un gros travail a été fait sur le choix et le fonctionnement des différents équipements afin de délivrer l'énergie strictement nécessaire avec réactivité en fonction des besoins réels et qu'un bureau inoccupé ne consomme pas d'énergie. Le choix du matériel informatique, la mise en place de pool impression... ont pour objectif de limiter les consommations des usages non pris en compte par la RT 2005. Le bâtiment est équipé d'une GTC permettant de piloter finement l'ensemble des équipements et de suivre les conditions de confort, les consommations par poste. Une mission spécifique de 2 ans a été confiée à l'ALEC pour vérifier les performances réelles du bâtiment.

## Renewables & systems

### Systems

Heating system :

- Heat pump
- Fan coil

Hot water system :

- Other hot water system

Cooling system :

- Reversible heat pump
- Fan coil

Ventilation system :

- Nocturnal Over ventilation
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic

### Smart Building

BMS :

A GTC can finely control and monitor the correct operation of the building and to monitor consumption. The information is retrieved in real time with an automatic warning system in case of malfunction.

## Environment

### Urban environment

Land plot area : 43 770,00 m<sup>2</sup>

Built-up area : 7,00 %

This new office building is located in the Lake District, north of Bordeaux, 8 km from the city center, in an area consisting primarily of office buildings. The site already consisted of an office building (headquarters Cilso / Domofrance), a canteen, a house of formation and an archive building on a large landscaped garden. The site is evolving with new development, transport equipment (Tram. ..) accompanying the construction of the new stadium in Bordeaux.

## Products

### Product

Product category :

## Health and comfort

### Water management

Consumption of harvested rainwater : 290,00 m<sup>3</sup>

Water consumption are monitored via a specific count. Hydroéconomies of equipment was installed: sinks with mixer taps delayed optical detection showers thermostatic mixing WC recovery EP + 3/6L Gain relative to the reference: approx 80% Recovery EP roof: collected approx 600m<sup>2</sup> surface loss Coefficient 0.8, precipitation 750 mm => 360 m<sup>3</sup> (30 m<sup>3</sup> per month) Need for WC 290 m<sup>3</sup> (24 m<sup>3</sup> per month) Tank 20 m<sup>3</sup> => 25 days standby

### Indoor Air quality

The choice of materials has integrated health and air quality dimensions. Different materials: coatings, adhesives, paints, ceiling tiles ... were selected accordingly based on the signs of quality including European (GUT label, NF Environment ...). The new label "Air Quality" did not exist at the time. The double flow ventilation was also selected to ensure better air quality, while maintaining the ability for users to open their windows, mechanical ventilation stopping automatically in the office concerned.

## Carbon

### GHG emissions

Building lifetime : 50,00 année(s)

