


## HEADQUARTERS DISASHOP

by Eusebio Pérez Iglesias / 2016-01-29 10:44:20 / Espagne / 11787 / ES

New Construction



Primary energy need :

### 66.2 kWhpe/m<sup>2</sup>.year

(Calculation method : )

**ENERGY CONSUMPTION**

*Economical building* *Building*

< 50	<b>A</b>	<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 Type** : Office building < 28m  
**Construction Year** : 2014  
**Delivery year** : 2014  
**Address 1 - street** : 15173 A CORUÑA, España  
**Climate zone** : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

**Net Floor Area** : 5 902 m<sup>2</sup>  
**Construction/refurbishment cost** : 2 978 267 €  
**Cost/m2** : 504.62 €/m<sup>2</sup>

Certifications :



### General informations

The headquarters building Disashop in Oleiros, A Coruña, has 7590 m2 built on a of 2627 m2 exclusive plot. Inside the building, there are 100 professionals currently working in the telecommunications sector. The design criteria of the new corporate headquarters Disashop are based on the specifications given by the customer, in compliance with its needs program, and previous experience in the use of the various solutions in other works by the designer. According to these premises, the building design is done by ecodesign strategies in order to improve the environmental aspects of the project and maintain a healthy and comfortable indoor environment for users. The Disashop Headquarters building is in possession of the Leed Platinum certificate by USGBCI.

As for the the overall aesthetics of the building, an industrial aesthetic reigns with elements of exposed concrete and exposed installations. The palette of colors included gray, black and white.

The building consists of three floors above ground, where the main activity of the company is developed, and two underground floors for parking.

THE SPACES. The conditions for designing spaces favour open and collaborative work. The company activity is concentrated in a single workspace to promote

communication between departments and improve alignment in commercial and general objectives. Offices and multipurpose rooms are integrated into the set with large glazed surfaces that allow visual continuity within the plant and, in conjunction with exterior carpentry.

The 2nd floor of the building has a spacious dining area and more than 1200 m2 of terraces that allow decongestion and resting space for the workers.

The two basements of the building are intended for parking and technical rooms and also some house facilities.

## Data reliability

3rd part certified

## Stakeholders

### Stakeholders

Function : Designer

DISASHOP INMUEBLES: Eusebio Pérez Iglesias - Arquitecto | Yvonne Asorey Varela - Colaboradora y CxA certificado Leed| Jaime García García - Colaborador

Eusebio Pérez Iglesias - T. +34 690 632 379 - inmuebles@disashop.com

Function : Designer

MAGARAL INGENIERIA

Manuel García Álvarez - T. +34 981 168 105 - ingenieria@magaral.com

Function : Contractor

FERROVIAL AGROMAN SA

<http://www.ferrovial.com/>

### Owner approach of sustainability

This project represents a strategic investment for the company resulting in an unquestionable improvement of working conditions for their employees, as well as the service that Disashop offers to customers. The company is able to reach the different goals set at the origin of the project through its new facilities, such as: - Location of activity in a separate exclusive building, eliminating any external interference. - Location in a predominantly residential environment surrounded by greenery, with easy access and no noise or disturbance of the environment. - Near the city of A Coruña, facilitating the movement to a large group of employees. In this case, the building is located at the heart of the residences of most employees and is well connected by public transport. - A significant reduction in recurrent costs such as supplies (electricity, air conditioning ...), maintenance, communications, etc. through the use of renewable energy and highly efficient facilities. - It has a corporate character building face to have the best image to its suppliers and customers and consolidate its international expansion.

### Architectural description

At the beginning there was a non-exclusive building easily accessible for the development of the work. The structural system of the building is based on solid slabs, beams, columns and basement walls of reinforced concrete, the facade is solved by a ventilated facade system with aluminum composite panel on metal frame anchored to the slab edges and factory brick. This system allows to dismantle the facade panels in a simple way both for their replacement, and to access the hidden installations behind it. For the covers, a landscaping system has been used in combination with transited covers so that the heat island effect can be reduced: -Terrace garden as a continuation of the work surfaces. For this, the landscaped surface rises to a height of 75 cm inside to match the height of the work surfaces. -Walkable Terrace with concrete pavement and polished surface finish. The ceilings are left bare with facilities views whenever possible. In offices and meeting rooms a false ceiling plasterboard will help to improve the acoustic performance. - Workspaces are design to have the highest level of natural light and views to the outside, to improve working conditions comfort of building users. To do so, exterior carpentry with large gaps for the use of natural lighting and enhancement of the views are configured. Carpentries are selected with the lower profile section allowing large glazed areas to the outside. All glasses have to use acoustic behavior and in the required areas, solar control and low emissivity. It is intended to highlight these gaps by frames made with the same facade material in black as carpentry and surpassing them the front line about 10 cm. The windows inner beams are placed to mark the depth. The interior woodwork is white lacquered wood with stainless steel handles with satin finish. The floors are concrete on insulation layer and slab of reinforced concrete. In areas of multiple uses and offices a system of underfloor heating-cooling fan-coils reinforced available. In the operational area the accessibility to electrical and telecommunications installations are to be highlighted, housed in gutters on the pavement. For interior partitions, double or single partitions plasterboard on galvanized steel profiles with mineral wool insulation, and transparent screens anodized aluminum profile with laminar double glazing, which presents an excellent acoustic behavior are used.

## Energy

### Energy consumption

Primary energy need : 66,20 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 316,60 kWhpe/m<sup>2</sup>.year

Calculation method :

CEEB : 0.0001

Final Energy : 26,90 kWh/m<sup>2</sup>.year

Breakdown for energy consumption :

Final Energy Consumption Lighting: 70,940.00 kWh / year

Final Energy Consumption Cooling: 11,057.60 kWh / year

Final Energy consumption and auxiliary pumps: 8463.20 kWh / year

Final Energy Consumption Fans: 66,949.10 kWh / year Consumption

Final Energy Heating: 7921.40 kWh / year

More information :

The building has been in operation less than a year, so that there is still no actual annual energy balances and that can be contrasted with the simulations.

## Envelope performance

Envelope U-Value : 0,30 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Green roof: U = 0.32 W / m<sup>2</sup>K walkable roof : U = 0.37 The W / m<sup>2</sup>K ventilated façade: U = 12:30 W / m<sup>2</sup>K Forged exterior: U = 00:16 W / m<sup>2</sup>K

Building Compactness Coefficient : 2,33

## Renewables & systems

### Systems

Heating system :

- Geothermal heat pump
- Low temperature floor heating
- VAV System

Hot water system :

- Heat pump

Cooling system :

- Geothermal heat pump
- VAV Syst. (Variable Air Volume system)
- Floor cooling
- Chilled Beam

Ventilation system :

- Free-cooling
- humidity sensitive Air Handling Unit (hygro A)
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Heat pump (geothermal)

Renewable energy production : 5,00 %

Other information on HVAC :

The building of the new headquarters DISASHOP is designed with a thermal envelope improvements and facilities with high energy efficiency. They have been carefully chosen all material considering the impact this could have on the building and its contribution to sustainability. Disashop intends, with the use of best practices, get your new home is an exemplary building, respecting the environment and offering the best possible comfort to all its users. The subsystems are designed carefully so that offering the best guarantees of comfort and energy efficiency to each of the areas they serve, so we have several subsystems: ☞ heated areas only with underfloor ☞ areas with cooling underfloor and inductors only cold ☞ areas with floor heating-cooling and cooling only fan coil units ☞ areas with hot and cold inductors ☞ Zone CPD with cooling only fan coil all powered by two geothermal heat pumps and air-cooling support CPD water to keep constantly running. As for the air renewal system is MENERGA unit has a model Adsolair SOLVENT 58 13 01 with a nominal flow rate of 9,800 m<sup>3</sup> / h. It is a treatment unit air with heat recovery dual body system of indirect adiabatic cooling, refrigerant circuit reinforced incorporated and constant pressure regulation in the drive for operation of the equipment with dampers and regulation quality air return. Outdoor air ventilation in the building properly introduce filtering, for this the air handling unit is equipped with a set of filters for return air and outside air. The filter is Class F6 for return air and outdoor class and compact F8 for supply air type. Fan coil type indoor units also are equipped with their own section of filters in the drive.

The photovoltaic installation is designed on a voluntary basis, in order to improve the overall energy efficiency of the building and give the building a sustainable basis that will allow aspire to obtain an environmental certification. This is a photovoltaic system in solitary consumption, with a peak power installed such that its production is easily absorbed by the consumption of the building without having to resort to storage batteries. The solar plant has a designed installed capacity of 23.04 kWp photovoltaic modules, using 96 modules IBC brand model PolySol 240 TX, 240 Wp each.

## Smart Building

## BMS :

The building has a comprehensive control system specifically designed by SAUTER according to the characteristics present in the system. This control system has so web module that allows remote management of it

**Users' opinion on the Smart Building functions :** The building has automatic controls needed to keep local design conditions provided for adjusting energy consumption to variations in the thermal load. The facilities in the different areas are equipped with isolation valves to knock out each without affecting the rest. The variation in water temperature depending on the outside conditions will be made through the same heat pumps. Through mixing valves commanded by the general regulation system, it is regulated to turn the flow temperature from the accumulators of inertia, in the event that the vessel temperature of inertia is greater than the flow temperature set by the conditions inside the building. • Control of room temperature in the premises where teams have been arranged fan coil type: Finally, as a summary, the main control systems that will be part of the thermal installations of the building in question are described. It is done with separate thermostats which control the operation of the units so that delivered power varying with a certain speed air propulsion also selected by the user. • Control soil heating-cooling. The floor heating is controlled by thermostats cold / heat acting on the electrothermal heads of each circuit. It has a probe immersed in the distribution pipe to the underfloor heating and temperature setpoint for water heating drive mode is at 35 ° C. • Control of room temperature in air-conditioned premises with induction systems. It is done with separate thermostats which control operation of the units both cold and heat so as to deliver more or less power depending on comfort conditions indicated for each zone, making regulation through valves each the teams. In the common workspace zoning is done so that the outside areas (close to front) of the interior are distinguished. • As previously commented it features a comprehensive control system specifically designed by SAUTER according to the characteristics present in the building installation. This control system has a web module that allows remote management form thereof, as well as collecting performance records and historical display.

## Environment

### GHG emissions

**GHG in use :** 16,50 KgCO<sub>2</sub>/m<sup>2</sup>/year

**Methodology used :**

CALENER GT

### Water management

**Consumption from water network :** 222,65 m<sup>3</sup>

**Water Consumption/m2 :** 0.04

**Water Consumption/Work station :** 2.23

The only water consumption presented in the building is the sanitary water and process water for filling air-conditioning systems. Other consumption and irrigation destined to covers and plots do not apply because the implemented system is sedum type and this latitudes this species don't need irrigation.

### Indoor Air quality

The building has a ventilation unit that is responsible for ensuring sufficient flow of outside air, preventing the formation of high concentrations of pollutants in different premises where any human activity is performed. According to this, areas corresponding to offices, common work area, meeting rooms, changing rooms, toilets and rest areas are mechanically ventilated. Since the building will aim for LEED environmental certification, ventilation flows, in addition to the provisions of the RITE adapt, where necessary, to meet the minimum requirements of sections 4 to 7 of ASHRAE 62.1-2007 standard the (Ventilation for Acceptable Indoor Air Quality) and especially the renewal minimum flows indicated in the table 6-1. Minimum Ventilation Rates in Breathing zone. To ensure indoor air quality a ventilation unit capable of recovering thermal energy from the indoor air at the time of extraction is selected. It is a unit of the firm MENERGA, type Adsolair SOLVENT 58 13 01. This unit air treatment has a specially designed double exchanger through which air flows countercurrent cross, in a sense the outside air and the another return air, not getting itself to mix at any time. This allows also a high heat recovery sensible efficiency greater than 75%, the stale air inside is recirculated not at any time, whatever its nature.

### Comfort

**Health & comfort :** The interior design conditions operating temperature and relative humidity are set based on the metabolic activity of people, their state of dress and the estimated percentage of dissatisfied, as indicated by the RITE in its IT 1.1.4.1.2 . Given that the people who inhabit the building will have a mainly sedentary metabolic activity, since most of its surface is dedicated to offices, is expected to internal working conditions of the facility in winter will be between 21 and 23 ° C temperature and 40/50% relative humidity, and in summer between 23 and 25 ° C temperature and 45/60% relative humidity. As it mentioned above have chosen the most suitable method for heating premises by use of the same, being mainly used systems floor heating and diffusion induction. Has been adopted as a final solution the underfloor considered the most suitable method for heating large volumes, due to the temperature distribution offering in the occupied space, minimizing losses by not creating air pockets in the ceiling as with other heating systems. Induction systems have been chosen for their high performance, fast response and low power consumption and maintenance lacking fans. These features must be added the low noise and nuisance to the end user streams.

## Products

### Product

PHOTOVOLTAIC COVER

## IBC SOLAR

IBC SOLAR S.A.U. Parque tecnológico Edif. Wellness 1 Av. Juan de la Cierva 27 46980 Paterna Valencia - Esp

<https://www.abc-solar.es/>

### Product category :

Photovoltaics is integrated into the roof of the building through the installation of 92 panels, it is estimated, they will have a production of 25 MWh / year, representing 5-7% of the total energy consumed by the building. It is a facility specially designed self-consumption regime for all the energy produced is absorbed by the consumer system of the building, avoiding excess energy and subsequent placement of batteries.



When placed in the upper deck of the building, the PV system goes unnoticed. Maintenance tasks are performed through specific areas that do not interfere with the daily activities of the company. The facility is fully accepted from the conception of the project assuming the use of renewable energy to avoid polluting energy consumption and seeing rewarded in turn, through the Leed score. In addition to the environmental advantages, the investment is redeemable through its own use. The amortization period

## LED LIGHTING

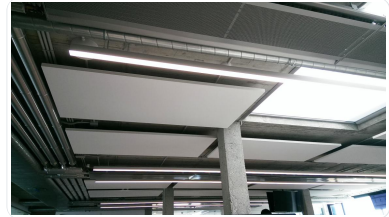
Schmitz-Leuchten

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<http://www.schmitz-leuchten.de/>

### Product category :

It has a LED lighting system with high efficiency, the Schmitz-Leuchten house for ordinary lighting, with the aim of achieving greater visual comfort for users with the lowest possible energy consumption has dependent control gains outside light and the occupation of the premises. It has possibility of individual job ignition and rezoned global regulation.



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Geothermal uptake probes PE100 PN16

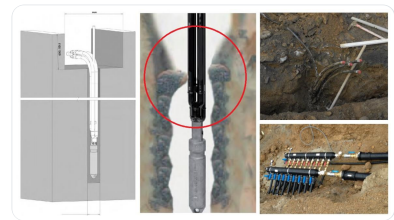
ALB

<http://www.alb.es/>

<http://www.alb.es/>

### Product category :

For the energy use of the land a total of 18 capture probes form, together with heat transfer fluid energy source, a geothermal system with heat pumps .



Since the heat production in low temperature, the polyethylene product is accepted as optimal for this type of installation.

## Costs

## Urban environment

The building is in an industrial area adjacent to a residential neighborhood Based on the criteria Leed certificate, the characteristics of the site are as follows: - urbanized land in urban land. - No flood, no damage to endangered species or special conditions. - It has at least 10 basic services within 800m with pedestrian access between them and the building. - Public bus service in the vicinity of the building. - Extensive landscaped areas and open spaces suitable for the visual comfort of building users. Workspaces have visual continuity of the work plane with the roof garden, as this is the same height as the table. - Area plant opened in the building and in the space environment. The project has 1188 m2 of gardened areas with native varieties of sedum. - Contribution to biodiversity with native species that reduce the need for water. Planting native species has obviated irrigation facility in the building. - Significant reduction of the heat island effect. The arrangement of parking in the basement of the building, gardening areas and decks, has allowed achieving the highest score in this section of the Leed certification.

## Land plot area

Land plot area : 2 627,00 m<sup>2</sup>

## Built-up area

Built-up area : 58,47 %

## Green space

Green space : 1 188,00

## Parking spaces

Parking is located in the two basements of the building minimizing heat island effect. The provision includes preferential parking for fuel-efficient vehicles, adapted seats and a specific area for bicycles. The first basement has large vents that close with tramex to give privacy to the parking lot and also allows ventilation and natural lighting space, minimizing the needs of ventilation equipment and lighting in this plant and therefore consumption on computers.

## Building Environmental Quality

### Building Environmental Quality

- Building flexibility
- indoor air quality and health
- biodiversity
- works (including waste management)
- acoustics
- comfort (visual, olfactive, thermal)
- waste management (related to activity)
- water management
- energy efficiency
- renewable energies
- maintenance
- integration in the land
- products and materials

## Contest

### Building candidate in the category

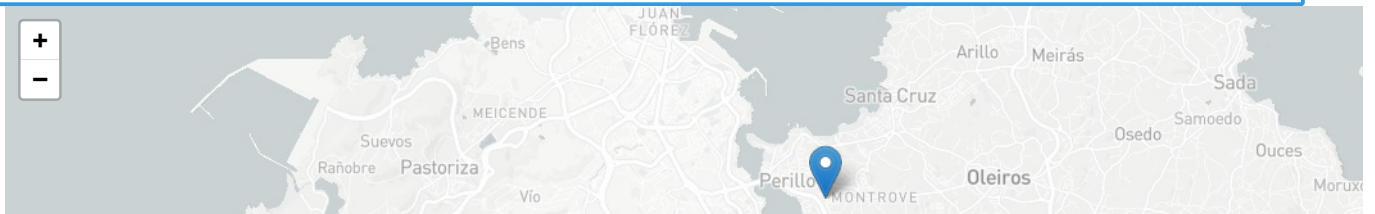


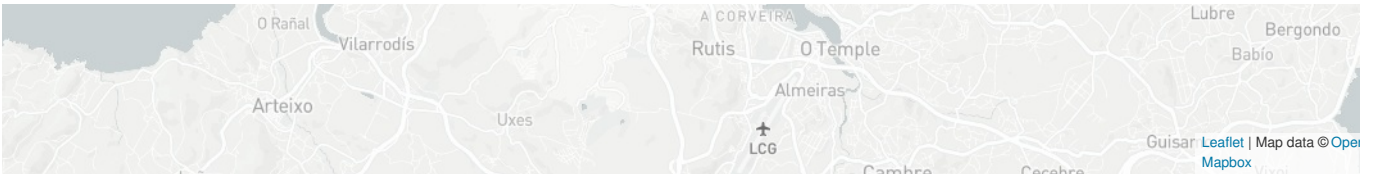
Energía y Climas Templados



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