# CONSTRUCTION21

## Edificio A Can Sant Joan Business Park Sant Cugat del Vallès

by Bernat Riera Robusté / 🔿 2013-04-30 00:54:27 / España / 💿 24684 / 📁 ES



Building Type : Office building < 28m Construction Year : 2008 Delivery year : 2008 Address 1 - street : Avenida Generalitat 153 - 159 08174 SANT CUGAT DEL VALLèS, BARCELONA , España Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 4 000 m<sup>2</sup> Other Construction/refurbishment cost : 6 000 000 € Cost/m2 : 1500 €/m<sup>2</sup>

#### General information

CAN SANT JOAN BUSINESS PARK comprises four office buildings located in a fully consolidated business park, considered the most prestigious within the area of Barcelona. The business park enjoys green natural surroundings and excellent road communications and transport links.

BUILDING A is the first building erected on the area, various factors such as: the buildings orientation, the façade high proportion level as constructive value, the spaces naturally lighted and open to the surrounding landscapes, the environmental control, the level of comfort and the energy efficiency consumption have procured a first luminous and sustainable building.

## See more details about this project

Partner in the European GreenBuilding Programme
Build Up - Highlighted Case October 2013 . Energy Solutions for Better Buildings

## Data reliability

Self-declared

## Stakeholders

Function: Designer Bernat Riera Robusté OT5R Arquitectes - Enginyers Bernat Riera Robusté, bernat@r5r.es, Cornellà de Llobregat Barcelona

http://www.cansantjoanbp.com/

#### Contracting method

Lump-sum turnkey

## Owner approach of sustainability

In order to obtain a healthy building, special emphasis is given to the exploitation of passive energies such as: natural lighting and crossed natural ventilation, humidification of the ventilated air, not to mention the control of static electricity by the connection of the raised technical flooring to the building earth wire, and also the installation of the false ceiling with mineral fibre panelling. The lighting scheme comprises fluorescent compact lamp panels with immediate ignition system - electronic regulating reactance-, which is an ultimate generation model representing an increase of 47 % on energetic efficiency in compliance to the new CTE (building regulations). The air conditioning installation scheme follows a shared system of variable volume refrigerating -VRV- known for its efficiency and flexibility. The orientation and geometry of the building allows the system to compensate either the heat or the cool temperature required simultaneously on the east and west fronts. As an additional means of saving energy, the enthalpic recuperators use the 40 % of the expelled energy by the ventilation system. Similarly, the renewal of the air in the offices is increased by 35 % respect to standard building regulations to allow a better inner environment quality and a high occupation level. The installed system is individual per minimum unit working space, although the controlling units by modules permits any change depending on the needs. The Infrastructures The Park has the required electrical transforming power stations as well as the electrical grouping power station for each building and its shared areas. The electrical installations are designed for their use on each level independently. The general control of the infrastructures is centralized, it allowes the detailed checking of each of the individual buildings operational systems. The centralized control desk is situated at the reception hall and permits 1.Vision and intrusion control 24 hours by internal cameras. 2.Access control to building area b

#### Architectural description

The design of the building is based on important aspects such as the relationship with the natural environment -with special care for mobility and accessibility-, optimisation of space, natural lighting exploitation and the application of technical systems to gain a maximum level of comfort. The almost triangular shape of the building site and its topography led us to design the disposition of the four blocks based on the sun light and the surrounding views, as only 24 % of the site land is used and the proportion of glass facade per m2 of office surface is 2 to 3. The Accessibility Priority has been given to the accessibility from the highway and bus station, restricting the main entrance only for pedestrians, with a portico that gives a amplitude to the lobby. The rear road serves as a parking space for visitors whereas in the more quiet area next to it we place the restaurant and the resting area. The Building The construction shows a total of 700 m<sup>2</sup> built per floor on open plan distribution, the structure allows free spans of 9 meters and the continuous windows all around the office perimeter with natural crossed ventilation work with a selective system of passive and active energies in the building -which activate/deactivate the air conditioning when windows are closed/opened-. This allows a precise control on comfort conditions in each working space. The concrete structure is prepared to withstand heavy overcharges with pre-tensed reinforced concrete decking up to 1000 Kg/m<sup>2</sup> of resistance at the ground level deck, 500 Kg/m<sup>2</sup> on all the raised decks and 300 Kg/m<sup>2</sup> on the roof deck. Panoramics inner elevators and the widely designed inner hall to provide the building with high level services. The Building Skin The enclosure of the façade is a modular system of "curtain walls" (glass façade) using ultimate generation high performance glass, neutral glass for solar radiation control with a low thermal emission -LowE-. It provides optimum relation between light transmission, solar factor and thermal insulation; opening windows spaced at 8 meters intervals are aligned on opposite fronts. The skin characteristics of this building represent the ideal solution for maximum comfort, adequate energy consumption level and a low construction waste emissions. In this sense the building skin improves all this aspects: 1. Higher thermal insulation with 80 % on basic standard regulation in the new CTE. 2. Higher sound proofing with 44 % on basic standard regulation 3. 70 % of solar radiation filtered. 4. 44 % natural light intake. 5. Natural ventilation circulation crossing. 6. High level of air tightness.

### If you had to do it again?

Lighting system through rings with automatic on/off switch related to the natural lighting levels. Include aerothermia system for servicing waters (ACS). Propose integral aerothermia system for air conditioning and ACS.

#### Energy

ACS: 1.3

## **Energy consumption**

Primary energy need : 53,30 kWhpe/m<sup>2</sup>.year Primary energy need for standard building : 230,00 kWhpe/m<sup>2</sup>.year Calculation method : RD: 47/2007 Breakdown for energy consumption : Air conditioning: 19.9

## Envelope performance

Envelope U-Value : 0,40 W.m<sup>-2</sup>.K<sup>-1</sup> More information : Standard building value: 0.73 W/m2•K

Renewables & systems

## **Systems**

## Heating system :

Heat pump

#### Hot water system :

- Solar Thermal
- Other hot water system

#### Cooling system :

• VRV Syst. (Variable refrigerant Volume)

#### Ventilation system :

- Natural ventilation
- humidity sensitive Air Handling Unit (hygro A
- Double flow heat exchanger

#### Renewable systems :

Solar Thermal

## Smart Building

BMS :

Honeywell

## Products

## Product

#### Curtain wall

Techcnocladd con Ariño Duglass

#### Product category :

Modular curtain wall with ultimate generation neutral glass with solar control and low thermal emission -LowE-.

It is a sustainable construction with regards to maximum comfort with an adequate energy consumption level.Low residue emission during construction.High benefits on safety during construction work.



Contactors - Automatic on/off air conditioning switchers

#### Suris Fricor UTE

#### Product category :

Automatic on/off air conditioning switchers and air renovation when opening windows on a determined area.

This is not a highly accepted system among users although it is essential to minimise the system over usage as well as its own maintenance.

## Urban environment

The complex is formed by 18.775 m2 of office space at ground level and five upper floors, 410 parking places, a restaurant facility and a 5.500 m2 landscaped garden area. Road Communications The Parc Empresarial Can Sant Joan lays within the economic axis along the highway B30/AP7, situated at the heart of the metropolitan area of Barcelona, less than 15 minutes far from the center of the city, the international airport and the harbor. Its privileged situation also provides easy connections to other regions within or outside the Barcelona Metropolitan Area. Transport Links CAN SANT JOAN BUSINESS PARK is very close to the local rail company - Ferrocarrils de la Generalitat de Catalunya-, and RENFE services (the Spanish National Railway network), whereas numerous bus lines run from the mentioned train stations toward the new bus stop named "Can Sant Joan BUSINESS PARK". Future plans to construct a station for the High Speed Train -AVE- will complete the infrastructure profile of the area.

## Land plot area

Land plot area : 18 775,00 m<sup>2</sup>

## Built-up area

Built-up area : 24,00 %

## Green space

Green space : 5 500,00

## Parking spaces

410

## Contest



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