


## Tripark Las Rozas

by Cortés de Castro Jorge / 2012-01-31 16:27:06 / España / 11957 / ES

**New Construction**



Primary energy need :

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

(Calculation method : RD: 47/2007 )

**ENERGY CONSUMPTION**

*Economical building* *Building*

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

*Energy-intensive building*

**Building Type** : Office building < 28m  
**Construction Year** : 2009  
**Delivery year** : 2009  
**Address 1 - street** : Calle José Echegaray 6 28232 LAS ROZAS. MADRID , España  
**Climate zone** : [Csa] Interior Mediterranean - Mild with dry, hot summer.

**Net Floor Area** : 58 489 m<sup>2</sup> Superficie útil  
**Construction/refurbishment cost** : 30 230 226 €  
**Cost/m2** : 516.85 €/m<sup>2</sup>

Certifications :



### General information

The project consists of a building with a unitary image as a whole. It is fragmented in three blocks (block A, block B and block C) in order to adapt itself to the slope of the terrain. The resulting image is fruit of the leveling operations, which shows a stepwise skyline. The three blocks are separated from each other by closed courtyards on its four sides. The access to the building is through these courtyards. They generate a layout of full and empty spaces, in alternate positions, boosting the presence of light inside the offices and enormously improving the thermal inertia of the building.

Functionally, each of the blocks is shaped with two sections of offices attached by a center-core of vertical access. These cores contain elevators and freight elevators, building systems facilities, restrooms, a staircase in the center and a fire escape. These cores are likewise divided in three parts by courtyards placed at intermediate positions.

The design is exhaustive in the search for materials to control solar reflectance while maintaining visual transparency, adopting constructive solutions with stressed fabric.

## See more details about this project

[http://www.arup.com/Projects/Tripark\\_Business\\_Sense/Facts.aspx](http://www.arup.com/Projects/Tripark_Business_Sense/Facts.aspx)

## Data reliability

3rd part certified

## Stakeholders

### Stakeholders

Function : Developer

Hines

Sor Ángela de la Cruz, 2º - 2º C Edificio Cuzco III Madrid 28020 España

<https://hines.com>

Function : Construction Manager

Arquigremio. Florentino Perez

C/La Poveda 12 28028 Madrid, España"

Function : Construction Manager

Acciona S.A.

Avda. de Europa 18 Parque Empresarial La Moraleja 28108 Alcobendas, Madrid, España"

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

Function : Construction company

Aguilera Ingenieros S.A.

Guzmán el Bueno 133 - Edificio Skandia 28003 Madrid, España

Function : Construction company

3i-Ingeniería

C/ Velazquez, 46 – 3º 28001 Madrid España

<http://www.3i-ingenieria.com>

Function : Construction company

Ove Arup & Partners

c/ Alcalá 54 28014 Madrid, España

<http://www.arup.com>

Function : Designer

Gabriel Allende

calle de Ponzano nº 87 Madrid

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

## Owner approach of sustainability

Hines aims to meet and exceed the expectations of its clients, partnering to educate, design and execute a sustainable real estate strategy that is customized and appropriate to each client's needs. Hines offers comprehensive development, renovation and property management services consistent with the highest standards of sustainability. Its estimated that the margin of performance efficiency is 36.5%, which means that the total estimated annual glass house gas emissions avoided, in metric tons, is 521.720. Some of the keystones of the company are: Site selection and building orientation Cool or reflective roof High ceilings to maximize daylighting Efficient curtain walls Construction waste recycling Comprehensive preventive maintenance programs that identify repair and calibration needs Indoor air quality management and preventative maintenance program Harmonic distortion cancellation transformer Identification and execution of owner-appropriate energy improvement retrofit or upgrade opportunitie

## Architectural description

It is a detached building with four stories, whose design is directly affected by the urban conditions such as building suitability, deviation from general line and

height, as well as the topography and difference of level on the plot. The project watches the energy efficiency of the building. Each façade presents a different skin-like design, taking advantage of the northwest-southeast axis. The design is exhaustive in the search for materials to control solar reflectance while maintaining visual transparency, adopting constructive solutions with stressed fabric. In order to face the project and give the optimum proposal for the city and the future users, three main concepts have been considered: 1. - Volumetric and formal unity, with a unitary character through the compositions of facades and their relation with indoor and outdoor spaces. 2. - Rationality in function and construction, given its tertiary use for offices, plus designing all the constructive elements according to the new technologies and needs. 3.- Maximum use, with the appropriate design and layout.

## Energy

### Energy consumption

Primary energy need : 118,00 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 133,00 kWhpe/m<sup>2</sup>.year

Calculation method : RD: 47/2007

Final Energy : 154,00 kWhfe/m<sup>2</sup>.year

Breakdown for energy consumption :

Cooling: 14,29 Heating: 13,21 Ventilation: 16,09 Pumps and Aux.: 0,2 External Use: 11,12 Equipment: 51,92 Indoor lights: 9,26 Solar light: 23,49 Hot Water: 16,98 TOTAL: 154,79 kWh/m<sup>2</sup>/year

### Envelope performance

More information :

FACADE: Opaque part: U = 0,54 W/m<sup>2</sup> K Glass: U = 2,28 W/m<sup>2</sup> K Floor: U = 1,24 W/m<sup>2</sup> K Roof: U = 0,39 W/m<sup>2</sup> K

Building Compactness Coefficient : 0,70

Indicator : HE1 BD

Air Tightness Value : 27,00

## Renewables & systems

### Systems

Heating system :

- Heat pump

Cooling system :

- Reversible heat pump

Renewable systems :

- Solar Thermal

Renewable energy production : 2,53 %

## Environment

### GHG emissions

GHG in use : 76,00 KgCO<sub>2</sub>/m<sup>2</sup>/year

Methodology used :

The program used to elaborate de testing was eQuest™ 3.2 that uses the DOE-2.2 engine, making a simulation by comparing the building subject to analysis to another one considered as a "reference building". Using this simulator, it is possible to obtain an

Building lifetime : 50,00 year(s)

GHG Cradle to Grave : 3 838,00 KgCO<sub>2</sub> /m<sup>2</sup>

### Life Cycle Analysis

The resultant impact avoided respect to a reference building is 1.83 over a total of 5, which means a reduction of 45% respect to a building with the same characteristics. It is remarkable the reduction of the impact over health, welfare and the final pr

## Water management

Water Consumption/m2 : 1.31

Water Consumption/Work station : 50.73

Consumption from water network : 76 650,00 m<sup>3</sup>

## Indoor Air quality

In order to guarantee comfort as well as the indoor air quality, Tripark Las Rozas includes a VRV system (variable cooling volume system, advanced climate system) together with a mechanical ventilation system. The ventilation system provides a constant air volume, 100% coming from the outside. There are ducts which take the supply air and take it to the roof equipment, so that the preassure is kept in comfort levels. Additionally, there is a secondary recirculation system that takes the air from each room and drive it to the VRV units, where it is processed with fresh air.

## Products

### Product

Facade coating with textile

BAT Spain

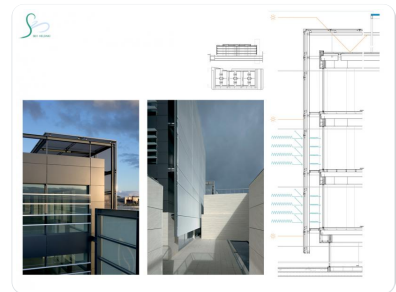
Calle de San Andrés, 25 28004 | Madrid | España Tfn. (+34) 91 447 74 33 - Fax. (+34) 91 447 72 41  
arquitecturatextil@batspain.com fachadatextil@batspain.com

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

Product category : Obras estructurales / Carpintería, cubierta, estanqueidad

Facades with textile provide the building with solar protection which makes the power consumption on cooling systems to decrease down to 50%. They also improve the visual comfort on workstations with computers, allowing the renovation of the appearance of existing buildings, creating themes or logos.

[http://www.batspain.com/fachada\\_textil.html](http://www.batspain.com/fachada_textil.html)



## Costs

### Construction and exploitation costs

Global cost/Work station : 31822.7

Global cost : 48 084 100,00 €

Renewable energy systems cost : 76 111,00 €

### Energy bill

Real energy cost/m2 : 5.1

Real energy cost/Work station : 197.4

Forecasted energy bill/year : 298 268,00 €

## Urban environment

The building is placed in the surroundings of Madrid, as part of a business park in the municipality of Las Rozas. There are bus stops close by, which connect the building with the near by areas, the center of Las Rozas as well as with the metropolitan fabric of Madrid. The area where the Tripark is placed is not a closed business park with an only access. Both the residential and retail uses are separated from the business one, but relatively close. In spite of there are not parks or green areas in the immediate surroundings, each building of the business park has its own green plot. Besides, the fields and vegetation typical of that region of Madrid can be found in just 200m distance from the Tripark building.

### Land plot area

Land plot area : 40 278,00 m<sup>2</sup>

### Built-up area

Built-up area : 40,00 %

## Green space

Green space : 3 000,00

## Parking spaces

1131



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