

### **Office Building Schwartz-Hautmont, Vila-seca, Tarragona, Catalonia, Spain.**

The new built offices building Schwartz - Hautmont, was designed and built to be the headquarters of company Schwartz-Hautmont (Metal Constructions SA). The building was promoted by the company and located in the Alba industrial area in Vila-Seca, Tarragona. The construction works were begun in 2008 and the building was operational from 2010. The authors and responsible for the construction work's are the architects Coque Claret and Dani Calatayud, in addition with an interdisciplinary team which included engineering, energy consulting and the client (also involved as structural engineering and contractor company).

The main objectives of the project, of 2,552 m<sup>2</sup> constructed, were to obtain a 100% reversible building (or to be deconstructed or removable) with a very low energy consumption. The energy criteria were developed in different stages where several measures were realized: 1) Reduction in energy loads; 2) Efficient system sized; 3) Improvements in real performance (through detailed commissioning).

The main strategies of passive architecture are: modular and reversible metal structure, the use of renewable, reusable or recycled materials; compactness, low "U" coefficients, solar protection in the façade SE, double skin façade NE, thermal insulation continuity avoiding thermal bridges, green roof, central atrium with daylighting and heated-cooled by earth tubs (also openable roof for night ventilation).

The building also incorporated next systems: HVAC by thermally activated slabs and fan-coils, ventilation and air-conditioning units with energy recovery and high performance (free - cooling and heat recovering, COP> 10), ground source heat pumps and exchangers, high-efficiency lighting, integrated control systems (HVAC, comfort of users, lighting and daylighting optimization, double façade, atrium, windows and roof openings, ventilation, access control, fire safety systems.).

On energy efficiency issues, the building was designed with a demand reduction for air conditioning by 30% and 75% in all consumption (considering lighting and plugs load) compared to the reference building. In addition, the entire process of design and decision making was performed by IED process (Integrated Energy Design), with the interaction of the entire team supported by dynamic simulations (TRNSYS) and life cycle assessment (materials and processes).

Among other things, the building has 100% reuse of rainwater and black water, composting; balance of land into the plot, retaining and reversible walls of local stone, vegetation with native species and low water demand, permeable pavements in landscaping.

**Prizes/Awards:** EcoCambra 2011 of the Chamber of Commerce of Tarragona (Cambra de Comerç de Tarragona).

### **Technical building details**

Architects: Calatayud-Claret architects.

Structural calculations: Schwartz-Hautmont Metal Construction

Building Physics: Jordina Vidal.

Energy Simulation: Aiguasol Engineering.

Plant Engineering: Engineering Oriol Vidal

Biology building and landscaping: Anna Zahonero

### **More information about the project and related publications:**

<http://ovingeneria.es/cas/portfolio/oficines-schwartz-hautmont-vila-seca/>

<http://www.geotics.net/espanol/noticia/nave-construida-schwartz-hautmont/298>

<http://www.construible.es/comunicaciones/ii-congreso-eeecn-geotermia-por-aire-y-agua-con-forjado-radiante>

[http://www20.gencat.cat/docs/habitatge/Home/Secretaria%20dhabitatge/Publicacions/34%20Kg%20de%20CO2/doc/34\\_Kg\\_CO2.pdf](http://www20.gencat.cat/docs/habitatge/Home/Secretaria%20dhabitatge/Publicacions/34%20Kg%20de%20CO2/doc/34_Kg_CO2.pdf)

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