

Valdespartera ecodistrict, Zaragoza

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Extension + refurbishment



Address 1 - street : 50003 CALLE BATALLA DE BAILÉN, 7, ZARAGOZA, Spain

Gross density : 124.59 housing/ha

Population : 20 000 hab

Starting year of the project : 2002

Delivery year of the project : 2010

Key words : Affordable Housing, Integrating Town Planning, urban Facilities, Bio climatic Architecture, alternative energies, ecological corridors, environmental integration



243 ha



115 973 482 €

Certifications :

ID CARD

On March 13 2001 Zaragoza City Council and the Ministry of Defence signed an Agreement about Valdespartera's former army barracks affecting a total amount of 243,2 hectares of land returned to the city to promote its town planning development by the building of council flats along with facilities and other uses. Thus, Zaragoza City Council is promoting the construction of a new and modern residential area south of the city with around 9,500 council flats.

Once Valdespartera's land was registered as Building Land, Zaragoza City Council drew up the corresponding Partial Plan for the town planning development of such land. The Partial Plan, eventually approved by the Corporation on November 29 2002, establishes a building capacity of 9,687 flats (97% of which council ones) as well as tertiary uses.

" Ecociudad Valdespartera Zaragoza Plc.", a Joint Venture mainly funded with state capital and made up by Zaragoza City Council, Aragon Autonomous Government, Ibercaja and Caja de Ahorros de la Inmaculada was constituted to implement the Plan.

The works corresponding to the Development and Building Project have been being carried out since May 2003 (Condition Sheets available on this Website). The development and building works are to be finished by November 2004.

A SUSTAINED DEVELOPMENT PROJECT

The design of Valdespartera new residential area fully meets sustained development criteria such as

- **Affordable Housing;** this is a very important scheme to promote council housing. 9,687 flats, 97% of which will be council ones, will be built on transferred land, thanks to a town planning agreement.
- **Integrating Town Planning;** The project is targeted at people coming from different social backgrounds in order to create, thanks to a varied typological offer, an integrating urban environment
- **Facilities;** The residential area will be equipped with a wide range of recreational, sporting and cultural facilities intended to benefit not only the area itself but the whole city.
- **Bio climatic Architecture;** Dependency on non-renewable resources is reduced while it is intended to make a greater use of alternative energy. Design of ecological corridors to improve the new Ecocity environmental integration.

The Building and Energy Group of the Engineering Department in Zaragoza University collaborated on both, the development of the residential area and the implementation of devices for energetic exploitation.

Programme

- Housing
- Public facilities and infrastructure
- Public spaces
- Green spaces

Method used to calculate CO2 impact

Overall impact of Valdespartera is 3,12E+07 kg CO2eq under global warming indicator. The method used to calculate: UrbiLCA tool.

Project progress

- Delivery phase

Procedure type

- Urban développement permit

Key points

- Governance
- Quality of life
- Resources
- Energy /Climate

Certifications

- Autre

More info

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

Data reliability

Assessor

TERRITORY

Type of territory

Valdespartera is a large development project occupying the southern zone of Zaragoza city composing a closing edge to the city in integral form together with fourth ring road and the southern rail corridor in an area that has been classified by the General Plan as special undeveloped land. This approach is an important factor for managing the dismal urban capacity of Southwest subsector, due to the noise produced by this major infrastructure. And, above all, for its proximity to Zaragoza airport, that normally highlights this area as inadequate for residential uses. However the geological, hydrological and topographical conditions of the southwest area mark another contains for developing the area for residential use that required the installation rolling around large lakes for draining the western half of the sector.

With these conditions, the urbanization project was structured around a primary axis concentric with the III and IV belt, which crosses from east to west,

continuing east to Huerva river and on the west to the logistics platform Airport (Plaza). This element is treated as a road-park, built in open spaces in almost all the way, with a winding route that avoids distant views dominated by asphalt with a strong presence of trees on both sides.

Climate zone

[Cfb] Marine Mild Winter, warm summer, no dry season.

More info

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

KEY FIGURES

Green areas, roofs included

Green areas, roofs included : 666 713 m²

Public spaces area

Public spaces area : 270 000 m²

Public facilities floor area

Public facilities floor area : 400 000 m²

Number of residential units

Number of residential units : 9 687

Number of social housing units

Number of social housing units : 9 396

Green spaces /inhabitant

33.34

Public spaces/inhabitant

13.5

Total investment costs (before tax)

Total investment costs (before tax) : 115 973 482 € HT

GOVERNANCE

Project holder

Name : Zaragoza Town council

Type : City

General description :

City Council considers that the best way to carry out the project management was through a holding company, Ecocity Valdespartera Zaragoza SA. It was established following the legal basis of the Royal Decree 1169/1978, in order to effectively promote the development of the sector. Based on these regulations, the Company was created on February 11, 2002, with 80% share of the City of Zaragoza and 20% of the Government of Aragon. The final ownership structure. The City Council, after public competition, dedicated 20% of the shares in favor of the two largest savings banks in Aragon, "Ibercaja" and "Caja de Ahorros de la Inmaculada"

Project management

Description :

Excellent conditions of site, the operation size and the social orientation of the project demanded that the Public Authorities had an exemplary character that positions the projects as a milestone for Zaragoza City urban policy. With this background, the City Council considers that the best way to carry out the project management was through a holding company, Ecocity Valdespartera Zaragoza SA. It was established following the legal basis of the Royal Decree 1169/1978, in order to effectively promote the development of the sector.

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Economic management required that the Project would generate their own financial resources arising from the Plan, so that the income from the disposal of the soil allows it to accommodate the costs of urbanization. On February 28, 2003, the Municipal Corporation instructed the management and charge of contributions of urbanization of Sector 89 / 4 to EVZ, to finance the costs of land conversion.

The participation of cooperatives (40% of the total housing sector) was completed with the presence of different promoters (60%) who have made an essential commitment in Valdespartera. Their collaboration has brought about a financial equilibrium optimization necessary that would not be met by the public sector. Private developers have contributed significantly to the development of the project, facilitating the construction of homes in a short period of time and also promoting job creation. Consequently, the overall investment resulted in the execution of the project that exceeds one billion Euros, recapitulating the economic viability of Valdespartera. Valdespartera proved that, through efficient management, and synergistic collaboration among shareholders, together with the elevation of social housing (OPV) the standards that are compatible with the promotion.

The Urban Planning Team (Department of Planning in Zaragoza Town council), was supported by technical assistance from the Technical School of Architecture of Madrid. At the same time the team –benefited from the previous experience accumulated in other urban development's experiences in the region such as "Parque Goya". A sector of 3.728 bioclimatic housings promoted in the year 1995 by the Government of Aragon in the northern zone of Zaragoza city.

Project stakeholders

Ecocity Valdespartera Zaragoza SA

Function : Contractor

Consultancy Services, Project Draft and Technical Assistance to the Management, Control and Supervision of the Construction Works in the Residential Urbanization Sector 89/4 Valdespartera.

[Construction21 company page :](#)

QUALITY OF LIFE

Quality of life / density

Valdespartera design took into consideration the social cohesion, territory densification, and the reduction of the ecological footprint based on the European Territorial Strategy that is an important element of the compact city. The project label of Ecociudad was meant to emphasize a sustainable urban politics that, in a systematic way, contemplates the urban fact and regulates the existing challenges.

Net density

-0.04

Culture and heritage

Culture is composed another important feature that was planned to integrate and involve the residents with their public spaces in the project. Valdespartera is the first large new constructed zone in Zaragoza city that is born with a program of public art to achieve, this way, singular characteristics in contrast to other housing development projects. However, lack of identity, historical and relational characters are among the dilemmas that new development projects face. Therefore, humanized public spaces were thought and designed by Zaragoza town and EVZ to generate urban symbolic spaces that the citizens can identify with. Public art is one of the most habitual and effective ways to create city or a place image that have been successfully implemented in Valdespartera project.

ECONOMIC DEVELOPMENT

Local development

Taking aboard a project like Valdespartera, which had a significant impacts on strategic vision of the urban territory, demanded that the Administration develop a dynamic and deep understanding that overcome the inherited difficulties. At the same time meets the challenges of housing shortage. Excellent conditions of site, the operation size and the social orientation of the project demanded that the Public Authorities had an exemplary character that positions the projects as a milestone for Zaragoza City urban policy. The projection of those principles and the commitment to sustainable design criteria (in public and private spaces), made it necessary to articulate a management tool which would combine the control and the time frame work of the project. With this background, the City Council considers that the best way to carry out the project management was through a holding company, Ecocity Valdespartera Zaragoza SA. It was established following the legal basis of the Royal Decree 1169/1978, in order to effectively promote the development of the sector.

Functional diversity

The local structure of these predominantly residential areas used as building blocks integrated green bands, equipment and services that start from Park road in perpendicular direction to the internal organizational criteria equivalent to that described for the overall system, but on a smaller scale. These branches were arranged to provide variety to the sector and identity to each of its parts; from West to East was followed by a sinuous contours park with integrated educational and social equipment park. This form provides gradual spatial and functional transition from the collective to the single family housing area.

TRANSPORT

Mobility strategy

Valdespartera integration and inclusion in the metropolitan structure described by greenery and immediacy to major road infrastructure provide greater accessibility, both in the private car as public transport networks, whether by bus and tram; The first tram line, the North-South opened in 2011 penetrating the sector to cross it in direction of Arcosur.

SMART CITY

Smart City strategy

The project includes the cable supply of the three basic services and it therefore provides the necessary networks. 132 Kw wires and a 132/15 Kw new sub-station next to the fourth ring road carry the electricity.

The development of the quarter has brought also with it the impulse and the readjustment of the productive and managerial structures: Valdespartera has encouraged the incorporation of new technologies in the construction (solutions of reception of solar energy, cavity walls with new materials, thermal and acoustic isolations...) and in the urban development (Telemando). The set of the information that the Telemando network provides, will be available for all city agents. This information will in a few years facilitate the creation of empirical models that will improve the citizen's living standard. The cross-check of targets fulfillment of the Ecociudad turns the Valdespartera project to be as "test bench" and an out-standing performance of R&D&i.

- Control of consumptions and flows of municipal networks: sewage, water supply, public light, pneumatic waste collection
- Climatological data collection.
- Homes monitoring: thermal comfort, gas, electricity
- Information available for management, analysis, monitoring, action and dissemination.

SOLUTIONS

Eptisa-Sustainable Town Planning Centre

Description :

The Sustainable Town Planning Centre (CUS in Spanish) of Valdespartera, is an emblematic space where the results of the sustainable measures implemented in the Ecocity Valdespartera are collected, verified and disseminated, within a general context of sustainable urbanism. Furthermore, the measures, devices and energy saving guidelines are announced among the citizens.

Eptisa carried out the definition, supply, installation and commissioning of the telecontrol network to manage the infrastructures from the same municipal technical services and, since 2010, manages the maintenance and management of the remote system and the telecontrol of urban services network of one sector and of the CUS.

The telecontrol network allows for an integrated vision of all the services networks, which entails maximizing the efficiency in the technical management of the networks by providing data to the technical management in charge of the exploitation. Furthermore, the system generates a knowledge base that will allow understanding and disseminating the bioclimatic behavioral patterns of the ecocity.

In short, the Sustainable Town Planning Centre continues its activity with the firm intention of inform and raise citizen awareness about the importance of making our cities more efficient in managing energy.

- Infrastructure
- Digital services

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

Company :



RESOURCES

Water management

Water and sewage

Drinkable water is supplied by pumping water from Valdespartera's municipal tanks to some new ones that are to be installed to the south-east of the area, designed to hold 11,000m3 and at enough height to supply pressure to the whole residential area. The distribution network, made up with 150, 300 and 500 mm wide smelted pipes is ring shaped.

It has been planned the design of an independent irrigation system supplied with water from the Canal Imperial de Aragón. In Gómez Laguna Road, water filtering equipments and devices are to be installed in order to pump water to a new tank with a capacity of 600m³ and located next to the drinkable water tank. From there a network of polyethylene pipes, parallel to the drinkable ones will distribute water. In the 2nd phase and, as a safeguard against water supply cuts in the Canal, lakes with a capacity to hold up to 90,000m³ will be constructed

The sewer system comprises separate networks of rain and faecal waters. In both cases the east area, equipped with drains working off gravity, differs from the west one where pumping is necessary. Rainwater flows into the Huerva River (13m³/sec) near the approach to La Junquera Fountain.

In the west area laminated ponds designed to hold up to 200,000m³, large enough to laminate the showers of a 500-year return period, will be built in order to collect the fourth ring road water and reduce the water volume when pumping is necessary.

The faecal network dumps sewage into a collector in Gómez Laguna. Both networks add up to a total of 60 km of pipes altogether

Waste management

Pneumatic method for urban waste collection

Ecociudad Valdespartera is equipped with the first automatic system to collect domestic waste ever installed in the Aragon Autonomous Region. This up to date system comprises an underground network of pipes, especially designed to carry each type of waste. In each block of flats " selective waste collection mouths " (small packets and organic leftovers) will be installed. Disposed waste will be propelled through the pipe network by strong wind currents (reaching 60 km per hour) to a collection centre installed within the system itself. In the plan waste will be classified and compacted in order to be subsequently recycled. The 9,687 flats (97 % council ones), in short, the estimated 30,000 neighbours who will live in this new and modern residential area will all benefit from this sophisticated technology to treat waste.

BIODIVERSITY

Biodiversity and natural areas

- **Microclimates;** Green areas intermingled with the streets and among the houses to create specific microclimates in private spaces and avoiding thus far road views. Instead, there will exist large wooded areas.
- **Vegetation of native species;** deciduous trees to provide shade in summer and sunlight in winter
- **Water savings throughout the area;** on one hand and regarding waste, the tap fittings of flats will be equipped with water volume reduction devices. On the other hand and with regard to public areas, it has been planned the construction of ponds and other similar structures to collect rainwater by means of an independent network that will water the gardens.
- **Green and communication corridors** are designed to integrate with the existing green areas in various neighborhoods and existing parks. The aim is to facilitate access to the neighborhoods of the first periphery, the center, green areas and large urban facilities and natural areas outside the urban zone.

ENERGY/CLIMATE

Climate adaptation, resources conservation, GHG emissions

Valdespartera Partial Plan seeks to achieve its environmental goals in different and complementary scales:

Urban planning

- Minimum number of single family houses, whose inadequate form factor leads to higher energy losses only 230 ordered with this free housing.
- Orientation of buildings to ensure adequate maximum exposure to sun radiation with key layout of facades to the south. A deviation up to 380 , in the worst case in the northeast side remaining below the rest of urbanization. An offset from the absolute South that slightly reduces the solar incidence, but leads to minimizing the shadows thrown and at the same time enabling a better adaptation to the environment and, ultimately, the best soil use.
- Building blocks evenly spaced parallel with funds from 12 meters (where the staircases and flights can be installed), permitting a cross ventilation in all apartments.
- Providing a sufficient distance between them in relation to their height to encourage the natural lighting of the first plants.
- Placement of buildings taller transverse (B +7) at the edges of the blocks to the wide open spaces, which act as screens against the prevailing winds.
- Provision of landscaped areas incorporated in streets and dwellings. The accommodation of indigenous and adapted species that consume smaller amount of water and mastery of unpaved surfaces. A complete employment of leaf trees in all areas in which radiation can be a profitable energy source, and evergreens in the rest.
- Architectural projects requiring the management of the community gardens of the residential blocks that, provides sources, diffusers, ponds and water bodies that promote evaporative cooling, and trying to use these sheets to collect rainwater for irrigation of gardens.

Energy sobriety

A basic premise in the design of the neighborhood was the integration of bioclimatic means that assets and liabilities before the goal of achieving environmental comfort at least to the same extent as energy savings. All this means less reliance on sophisticated technological equipment in their own urban and architectural conditions of the sector and the urban project requires a certain morphological and typological provisions, of which technology standards should be a supplement only.

Energy mix

Solar thermal panels to provide hot water for sanitary use, contributing with 50% of needs.

132 Kw wires and a 132/15 Kw new sub-station next to the fourth ring road carry the electricity. Electrical supply is provided in two stages: first, it is carried by medium voltage lines (15 Kw) with closed rings to increase safety; then it is transformed into lower voltage current (380 Volts) and distributed to the flats.

BUILDINGS

Buildings

TOWN PLANNING ARRANGEMENT

- **Strategic arrangement of buildings to exploit solar energy;** enough distance between the different buildings in relation to their height.
- **Installation of vertical panels against prevailing winds;** On the built side, it has been put up a couple of vertical panels over the general height intended to avoid an excessive monotony and keep the "cierzo" (cold winds that blow in winter in the Ebro Valley) away from the bordering neighbours to the east.
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ARCHITECTURAL DESIGN

- **Flat roofs for an efficient instalment of solar panels;** those panels, intended to exploit solar energy, will comply with the UNE-9410 regulations. The outer surface of roofs will be painted in light colours.
- **Different treatment of façades depending on their orientation.** All flats will have double façades with opposite orientations to allow crossed ventilation. It will be attempted to distribute stairwells facing north and it will be forbidden that living rooms face such orientation
- **South facing enclosed balconies:** South facing windows and other bigger glazed surfaces to exploit maximum solar absorption

BUILDING SCHEME

- **Highly insulating materials:** Outer windows will be double glazed, carpentry compactness will be guaranteed, blind slats will have a thermal insulation filling whenever blind cases exist, the finish of their parameters and building arrangement will prevent filtrations into flats and in the building process the insulation of all thermal arches will be mandatory.
- **Surfaces with enough accumulative capacity:** Walls separating inner sections of flats and enclosed balconies will be designed in such a way that heat absorption will be optimised
- **Centrally Heating System** for entire blocks of flats
- **In the building of flats the use of the following materials will be mandatory:**
 - Paints and varnishes will comply with the UNE 48-300-94 normative.
 - It is forbidden the use insulating materials manufactured with HCFC.
 - It is forbidden to use tropical wood or wood coming from non-sustained plantations
 - It is recommended to use wood from Spanish forestry plantations, and without artificial treatments.
 - Wood carpentry will come with its corresponding certificate of origin in order to guarantee it comes from sustained forestry plantations.
 - Whenever possible, the use of PVC will be kept to a minimum. If needed, it will never be employed if it has not been recycled.
 - The use of fibrous-concrete is not permitted.
 - In both, outer and inner enclosed areas, it is recommended to use, whenever possible, aqueous and ecological paints (breathable).
 - It is recommended the use of electrical devices manufactured with fully recycled materials.
 - The building projects will have to meet the Energy performance Requirements in force in the Aragon Autonomous Region in accordance with the 93/76 CEE European directives of September.

Contest

Building candidate in the category



Sustainable City Grand Prize



Green City
Solutions Awards 2016

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