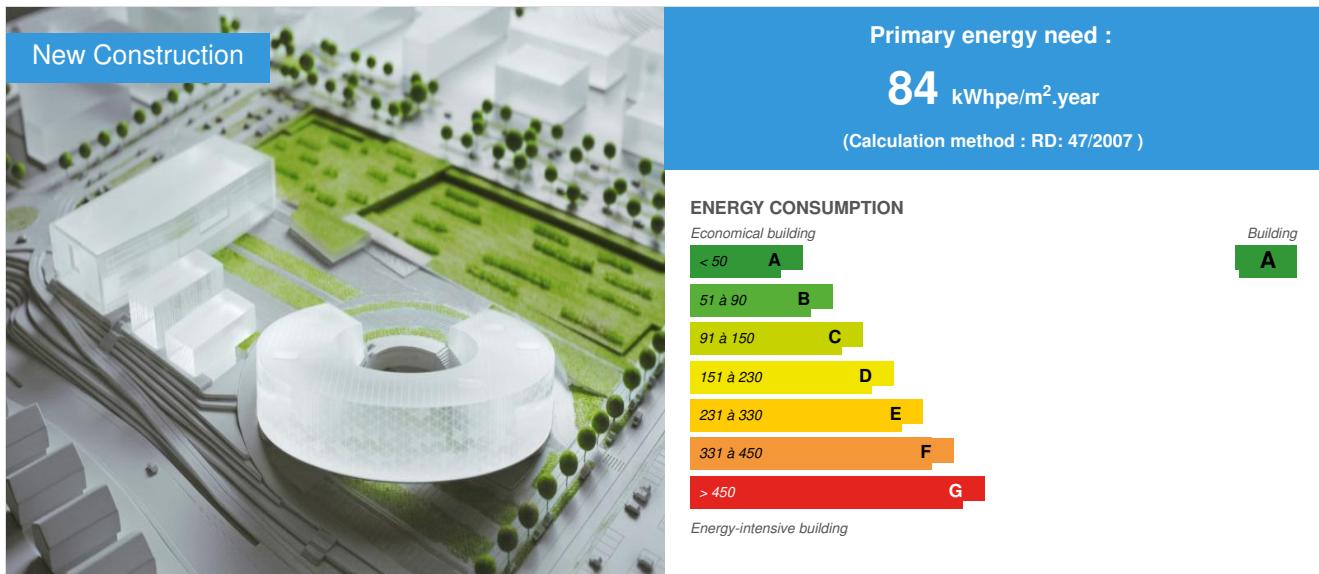


## Orona IDEO – innovation city

by Xabier Barrutieta Basurko / 2013-04-09 09:38:40 / España / 22431 / ES



**Building Type** : Office building < 28m

**Construction Year** : 2013

**Delivery year** :

**Address 1 - street** : Galarreta 20120 HERNANI, España

**Climate zone** : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

**Net Floor Area** : 29 000 m<sup>2</sup> Useful area (es)

**Construction/refurbishment cost** : 41 600 000 €

**Number of Work station** : 1 150 Work station

**Cost/m<sup>2</sup>** : 1434.48 €/m<sup>2</sup>

**Certifications :**



### General information

Orona IDEO – innovation city is the flagship design of the new extension of San Sebastian's Technology Park that frames in a public-private collaboration between Orona (company that focuses its activity on lifts, escalators and moving walkways) and the Technology Park.

The purpose of this project is to house Orona's Innovation Ecosystem, which stands out as it brings together different synergistic activities –business, technology centres and university- and it will be a laboratory where leading-edge technologies in sustainability and energy management in buildings will be applied.

The Orona Zero building will house Orona corporate headquarters and Orona eic (Elevator innovation Centre). The Orona Foundation is a hybrid building that houses the university. The A3 research building has laboratories devoted to research on advanced electricity storage systems. Orona Gallery will be used as a pavilion for visitors and real-time energy monitoring. The buildings will be interconnected by a central plaza enhancing the project's urban nature.

The design includes a district heating-cooling system that will be managed by an ESCO (Energy Service Company), and will supply each of the building with

energy from 100% renewable energy sources, which is further backed up by certification to Leed Gold and Breeam Excellent building standards.

## See more details about this project

- <http://www.orona-ideo.com/>
- <http://www.breeam.es/comunicacion/249>
- <http://www.xabierbarrutia.com/>

## Data reliability

Assessor

### Stakeholders

#### Stakeholders

Function : Designer

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- <http://www.orona-ideo.com>
- <http://arkigekko.blogspot.com.es/>
- <http://www.xabierbarrutia.com/>

## Contracting method

Separate batches

## Owner approach of sustainability

A design for innovation must be innovative in itself. Orona IDeO is overtaking the future with the bioclimatic design of the buildings and urban spaces, a district heating cooling system using 100% renewable energy sources and a perfectly integrated photovoltaic roof aimed at own consumption, and research on electricity storage linked to elevator systems.

## Architectural description

This Project has been designed in an integrated way like an Smart District. One important asset is that it is based on the concept of Urban Cell, which is a scale between architecture and urbanism. The approach of the project on this scale comprehensively tackle a number of key design issues related to urban space, green space, accessibility, orientation of buildings, a mix of uses and energy efficiency, among others. Thus this design was conceived and developed taking into account a series of linked buildings and urban spaces that synergistically create Orona IDeO.

### Energy

#### Energy consumption

Primary energy need : 84,00 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 152,00 kWhpe/m<sup>2</sup>.year

Calculation method : RD: 47/2007

Final Energy : 49,00 kWhfe/m<sup>2</sup>.year

Breakdown for energy consumption :

78% heating

22% cooling

## Envelope performance

Envelope U-Value : 1,10 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Apart from having low thermal transmittance (U), the walls of the buildings are designed to adapt to different circumstances. The cylinder façade is made up of a curtain wall with a skin composed of triangular pixels which change from: opaque, translucent and transparent, depending on their position and the different circumstances regarding exposition to solar radiation, access to views, the relation with the use of internal space, etc.

With the aid of the superposition of these variations on the façade development, and taking into account the overall transmittance and a reference threshold for heat loss, the solutions for the outer and inner façades are designed, each with a different ratio of openings and opaque areas.

## Systems

### Heating system :

- Geothermal heat pump
- Low temperature floor heating
- VAV System
- Wood boiler
- Solar thermal

### Hot water system :

- Individual electric boiler
- Solar Thermal

### Cooling system :

- Urban network
- Geothermal heat pump
- Fan coil
- Floor cooling

### Ventilation system :

- Natural ventilation
- Free-cooling

<https://www.construction21.org/espana/data/sources/users/412/orona-ideo-energia.doc>

### Renewable systems :

- Solar photovoltaic
- Solar Thermal
- Heat pump (geothermal)
- Biomass boiler

Renewable energy production : 100,00 %

## Smart Building

### BMS :

Management via ESCO

### Smartgrid :

Selfconsumption of the energy produced on the roof of Orona Zero, with an installed power capacity of 230kWp of solar PV polycrystalline panels.

## Environment

### GHG emissions

GHG in use : 13,60 KgCO<sub>2</sub>/m<sup>2</sup>/year

### Methodology used :

Calener GT

Building lifetime : 70,00 year(s)

### Life Cycle Analysis

Eco-design material : Prescription following LEED and BREEAM

### Water management

Rain water from the green roofs is collected in a deposit for further use in the irrigation system.

### Indoor Air quality

Excellent according to ASHRAE LEED

## Products

### Product

Orona Zero Pixelatedfacade

Orona (diseño) - LKS (prescripción técnica)- Uxama (muro cortina) - Umetal (impresión dibujo) - Saint-Gobain (vidrio) - Wicona (carpintería)

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#### Product category :

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## Costs

### Construction and exploitation costs

Global cost : 110 000 000,00 €

Reference global cost : 45 600 000,00 €

Renewable energy systems cost : 1 700 000,00 €

### Energy bill

Forecasted energy bill/year : 202 000,00 €

## Urban environment

City Orona IDeO is the flagship project of the extension of San Sebastian's Technology Park in Hernani. The technology parks of the 21st century seek to integrate uses in the urban framework and aim at use intensity, good accessibility and associated services. In this respect, the project updates the concept of the city as something that agglutinates and acts as a meeting point for activities in its streets, squares and public spaces and in the care of its landscape.

EcoBoulevard The EcoBoulevard is the linear park shaping the backbone of the Technology Park's new extension. This space is an image and reference point for the whole of the Park, and is characterised by its rich vegetation and careful landscaping in the recreation areas where pedestrians will have preference over cars. The EcoBoulevard ends in a sculpture-like observation point offering a view of the landscape, and connects with the city. The inside of Orona IDeO – innovation city is structured around a pedestrian axis which will join the area around the existing roundabout with the EcoBoulevard. The flow of people will pass through the main building which will serve as the entrance to the plaza. The Plaza The Plaza will describe an urban hall with a series of pedestrian areas welcoming researchers, workers and students who will share these spaces aimed at encouraging relationships and the exchange of ideas. The Plaza will be an open space for the people from the city and, together with the EcoBoulevard, will be consolidated as an urban Technology Park.

### Land plot area

Land plot area : 23 000,00 m<sup>2</sup>

### Built-up area

Built-up area : 60,00 %

### Green space

Green space : 15 000,00

### Parking spaces

600 Underground parking lots and 300 surface parking capacity to share with the Technology Park.

## Contest

## Reasons for participating in the competition(s)

### Orona Ideo

Orona ideo – innovation city es el Proyecto de referencia de la ampliación del Parque Tecnológico de San Sebastián en Hernani (País Vasco, España). Este proyecto tiene como objetivo el desarrollo de un Ecosistema de Innovación para la empresa Orona, que destaca por ser un espacio de fusión entre diferentes actividades sinérgicas -empresa, centro tecnológico y universidad-. Orona IDEO lo componen una serie de edificios de carácter diferente que desde su diseño conceptual han tenido en cuenta medidas de aprovechamiento pasivo de la energía a través de su diseño bioclimático.

El edificio principal es Orona Zero, que alberga la sede corporativa de la empresa y se inspira en el círculo, una constante en la imagen de marca de Orona. Su imagen busca transmitir elegancia, fortaleza y elevación a través de un gesto formal abstracto: un cilindro hueco de 90m de diámetro inclinado 15ºs sobre la horizontal. Este es un edificio dedicado principalmente a oficinas que tiene grandes cargas internas por sus ocupantes y por la densidad de equipamiento electrónico que disipa calor, a la vez que demandan luz difusa que no cause deslumbramiento. En planta, los espacios de trabajo se sitúan en la fachada exterior que es principalmente orientación norte, mientras que la galería en forma de anillo orientada al sur distribuye los flujos de las personas y mira sobre el vacío central de edificio. El interior del edificio recrea diferentes espacios de trabajo, desde puestos de trabajo y espacios de reunión cerrados, hasta una serie de espacios más distendidos para reuniones informales con los que también se busca potenciar la cultura de marca dentro de los empleados.

La fachada curva se realiza con un muro cortina de una piel compuesta por más de 2.000 píxeles triangulares que tienen diferente carácter -opaco, translúcido y transparente- dependiendo de su posición y de las diferentes circunstancias de exposición a la radiación solar, acceso a vistas, relación con el uso de los espacios interiores y la privacidad de los espacios. En la cubierta inclinada de Orona Zero se integran más de 1.000 módulos fotovoltaicos que generan anualmente una cantidad de energía similar a la que consumen 100 viviendas. La energía térmica se genera localmente para todos los edificios a través del District Heating-Cooling de Orona Ideo que se alimenta con energía geotérmica, solar térmica y biomasa.

Orona Ideo ha logrado las certificaciones Leed Oro y Breeam Excellent y ha sido seleccionado por el World Green Building Council para su informe de Salud, Bienestar y Productividad en espacios de oficinas.

### Building candidate in the category



Energías renovables



Green Building  
Solutions Awards 2015

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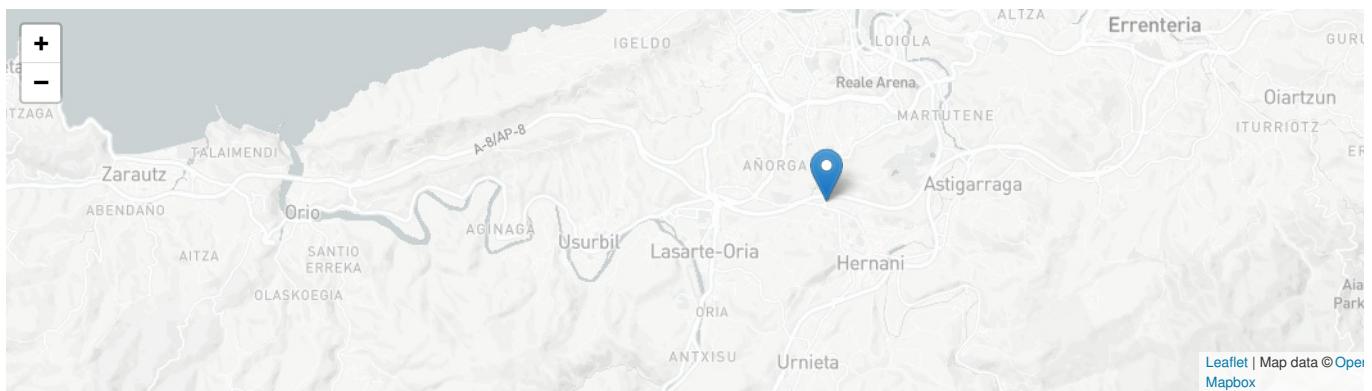
Edificios inteligentes



Edificios de consumo nulo



Salud y Confort



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