


## Arkinova Activity Generator

by AGENCE GUIRAUD-MANENC / 2017-11-27 00:00:00 / France / 11830 / FR

New Construction



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Primary energy need :

# 44.1

 kWhep/m<sup>2</sup>.an
 

(Calculation method : RT 2012 )

**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** : 2016  
**Delivery year** : 2016  
**Address 1 - street** : 73 rue Miranbeau 64600 ANGLET, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

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**Net Floor Area** : 1 800 m<sup>2</sup>  
**Construction/refurbishment cost** : 3 214 000 €  
**Number of Work station** : 20 Work station  
**Cost/m2** : 1785.56 €/m<sup>2</sup>

Certifications :



General information

### Sustainable development approach of the project owner

The activity generator is a manifest building, with positive energy. It is designed to minimize energy consumption in order to consume less energy than it produces. Made from materials with low energy and carbon footprint, it has the double certification NF HQE™ Tertiary Buildings - New or Renovation and BREEAM (Anglo-Saxon equivalent of the HQE certification).

### Architectural description

The building is articulated around a large atrium intended to promote exchanges. With the other common areas, this part represents almost half of the building. The rest is divided between office areas, modular and configurable offices or meeting rooms, a large technical hall: it is, in fact, a large hall that is cut in three.

Attached to this hall, a 3D printing room surmounted by an open-space office. Under the office area, on the ground floor, a parking space (bicycles and vehicles) ensures a reserve of space to increase office space. The building design also allows for the expansion of the 3D printing room and technical rooms. In total, the extension can reach 500 m<sup>2</sup>.

The equipment:

- Individual and collective office spaces
- Coworking spaces
- An industrial technical hall of 340m<sup>2</sup>
- A 3D prototyping hall
- Experimentation platforms
- Shared services and equipment

Dedicated spaces of conviviality The architecture of the generator is subtly unveiled with the aim of creating, in the heart of the effervescence of the city of Anglet, a privileged and calm living environment, a way of living this location. The boundaries between the outside and the inside are intentionally blurred to take advantage of the vitality of the environment, with the aim of integrating in the heart of the building the presence of natural light and its variations. In the West in urban catchment, the hall of experimentation is exposed in panorama on the street Mirambeau, by a big horizontal incise, like a signal announcing the research and development works hosted in the Generator. To the east, echoing the landscape of the Estey, the facade of offices opens generously to nature. External running corridors allow to take advantage of the softness of the site and favor the informal meetings by prolonging outside the workspaces. At the heart of the Generator, the bioclimatic atrium unites these workspaces as an open forum for debating ideas. It also brings together the vertical and horizontal circulations treated in rhythmic routes, revealing the activities, allowing to take advantage of the natural light and offering framing on the raised landscapes. Everyone is no longer the inhabitant of a floor, an office, but a workplace in which knowledge, tools, dedicated spaces and services are pooled. Scalable, the building is designed to shape, adapt to demand, suspended from future societal, technical and energy developments. Based on the structure as a pivot, the envelope is an interchangeable and recyclable skin. The interior is made flexible and reversible, it remains ductile uses. The Generator will live to the tempo of the young companies that will invest, take ownership and evolve.

## Building users opinion

The 3 oldest tenants were the subject of a satisfaction survey (30 questions) and the points of dissatisfaction were the subject of corrective actions: repair of blinds (in progress), balancing ventilation networks, recovery of the ECS in the locker room.

## Stakeholders

### Contractor

**Name :** Communauté d'Agglomération Pays Basque (ancienne Agglomération Côté Basque Adour)

**Contact :** Marie-Agnès Barrière - m.barriere@communaute-paysbasque.fr

### Construction Manager

**Name :** GUIRAUD - MANENC SARL d'architecture

<http://guiraud-manenc.com/>

### Stakeholders

**Function :** Contractor

**Function :** Assistance to the Contracting Authority

Nobatek/INEF4

AMO HQE

**Function :** Construction Manager

Anteis

<http://anteis.net/>

Ergonome

**Function :** Construction Manager

AI Environnement

BET HQE

**Function :** Construction Manager

Terrell

a.bailloud@terrellgroup.net

<http://terrellgroup.net/>

BET structure and envelope

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Function : Construction Manager

Carte atlantique

BET HVAC fluids, electricity

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Function : Construction Manager

IMS

<http://www.betims.fr/fr/inicio/>

BET VRD

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Function : Construction Manager

Betiko

Construction Economist

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Function : Construction Manager

Trouillot & Hermel

<http://www.trouillot-hermel.fr/>

Grounds

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Function : Environmental consultancy

## Energy

### Energy consumption

Primary energy need : 44,10 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 47,00 kWhep/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : Consumption with renewable energy production: - 61 kWhep / m<sup>2</sup>.an

### Envelope performance

Envelope U-Value : 1,40 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Foundations: 75 BA piles cast between 8 and 12m deep. Earthquake level 2 construction.

The structure is wrapped in a technical garment adapted to the uses and orientations. This framework envelope laminated pine Douglas fir has varied qualities according to needs: opaque, transparent, translucent, waterproof, porous, filtering, insulating ... and framework glued laminated pine.

The facades of the offices are designed on a modular principle plug on the regular frame of the structure. This system is designed to allow a simple and fast modification of the facades while guaranteeing the air, water and continuity of the sound and thermal insulation.

- Pole frame
- Concrete floors
- Modular wooden facades and roof of the timber frame hall
  - Modular and demountable interior partitions
- Atrium hall serving the offices in the DRC and floor and ensuring a second day at the test hall
- Natural ventilation in mid-season and summer thanks to solar chimneys and openings in the interior facade of the hall, under the glass roof

Indicator : EN 13829 - q50 » (en m<sup>3</sup>/h.m<sup>3</sup>)

Air Tightness Value : 0,88

## Renewables & systems

### Systems

Heating system :

- Heat pump

Hot water system :

- Individual electric boiler

#### Cooling system :

- Fan coil

#### Ventilation system :

- Natural ventilation
- Free-cooling

#### Renewable systems :

- Solar photovoltaic

Renewable energy production : 100,00 %

#### Other information on HVAC :

A bioclimatic passive building

Natural means are favored over technical means to ensure thermal comfort, natural lighting and air quality. The building is not mechanically refreshed, only passive ventilation ensures summer comfort. For that, the constraints and the assets of the site were taken into account from the beginning of the design. The building is divided into three main entities: the heated offices, the regulating bioclimatic atrium and the tempered and unheated technical hall.

#### Limit wastage

The building, of the passive type, is adorned in the first place with efficient insulation and optimizes solar and luminous gains. The static losses of the building are thus limited by this insulation and a strong requirement on thermal bridges and airtightness.

#### A powerful energy design

The emission of heat in offices is simple, economic and sustainable: fan coil units with heat generation by air / water heat pump that is adapted to the Anglet climate because it has very good COP (Coefficients de Performance) for mild temperatures.

#### A building in self-consumption

The CAP, as well as the rest of the equipment, is directly related to the photovoltaic production of the building to achieve the goal of self-consumption but also to limit the consumption of the building from a regulatory point of view.

#### Passive ventilation

The entire building is treated by passive ventilation by the installation of opening in transom both on the exterior facades and on the interior walls in contact with the central atrium. The regulatory air change of the premises is carried out by a dual flow CTA with energy recuperator.

190 m<sup>2</sup> of photovoltaic panels on the roof: peak power: 12.7 kWp - 44 cells

3 solar chimneys on the roof.

Photovoltaic production: 105.10 kwhep / m<sup>2</sup>.year

## Smart Building

#### BMS :

GTB for monitoring the entire installation

## Environment

### Urban environment

The Arkinova Activity Generator is located in the heart of the town of Anglet in the department of Pyrénées-Atlantiques, an area classified as seismic level 2 since 2010. Located north of the slopes of the airport Bayonne-Anglet-Biarritz, the parcel, a former dump, is an urban wasteland on the edge of a protected wood and estey. The Activity Builder project is the first structuring element of the Arkinova Technopolitan Campus. This campus is a vast landscaped area of 49 hectares, in the heart of a metropolitan area undergoing major urban changes. To date, it brings together local eco-construction companies, an ISA BTP engineering school, the journeymen training center, the University of Pau and the Adour countries and its research laboratories as well as a vocational high school with a specialization in the field of construction. The aim is to develop synergy and collaborative work between companies and higher education. The plot leans against a wooded relief to the South and overlooks the estey to the east marked by the presence of an old watercress reconquered by a moist forest afforestation. The terrain has a steep slope from Mirambeau Street in the west to the downstream estey.

## Products

### Product

Wood wool acoustic tile - Organic mineral

Knauf

01 64 70 52 00

<https://www.knauf.fr/solutions/produit/dalle-acoustique-en-laine-bois-organic-mineral>

Product category : Table 'c21\_china.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '7'

Organic Mineral is a complex made of very fine wood wool of spruce, mineralized and coated with cement / white lime binder (1 mm wide) 25 mm thick and rock wool insulation of variable thickness according to the desired reference.

It combines excellent acoustic and thermal performance.



## Costs

### Construction and exploitation costs

Subsidies : 600 000 €

## Health and comfort

### Water management

A storm basin of 250 m<sup>3</sup> is located at the foot of the building. It is planted with clean plants that can take care of pollution from vehicles.

### Indoor Air quality

All interior liners are labeled A +.

### Comfort

Health & comfort :

A notebook explains to the occupants how to manage their comfort (ex: fan coil in cold period and manual management the rest of the time).

## Contest

### Reasons for participating in the competition(s)

#### Energy consumption

- Primary energy consumption: -61,00 kWhep / m<sup>2</sup>.an
- Primary energy consumption for a standard building: 47,00 kWhep / m<sup>2</sup>.an
- Calculation method: RT 2012 CEEB: 0 kWhep / €

#### Energy performance of the envelope

- U<sub>Bat</sub> of the envelope: 1.40 Wm<sup>-2</sup>.K<sup>-1</sup>
- More information on the envelope:

**Foundations:** 75 BA piles cast between 8 and 12m deep. Earthquake level 2 construction.

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## Building candidate in the category



Energie & Climats Tempérés



Coup de Cœur des Internautes



Prix des Etudiants

