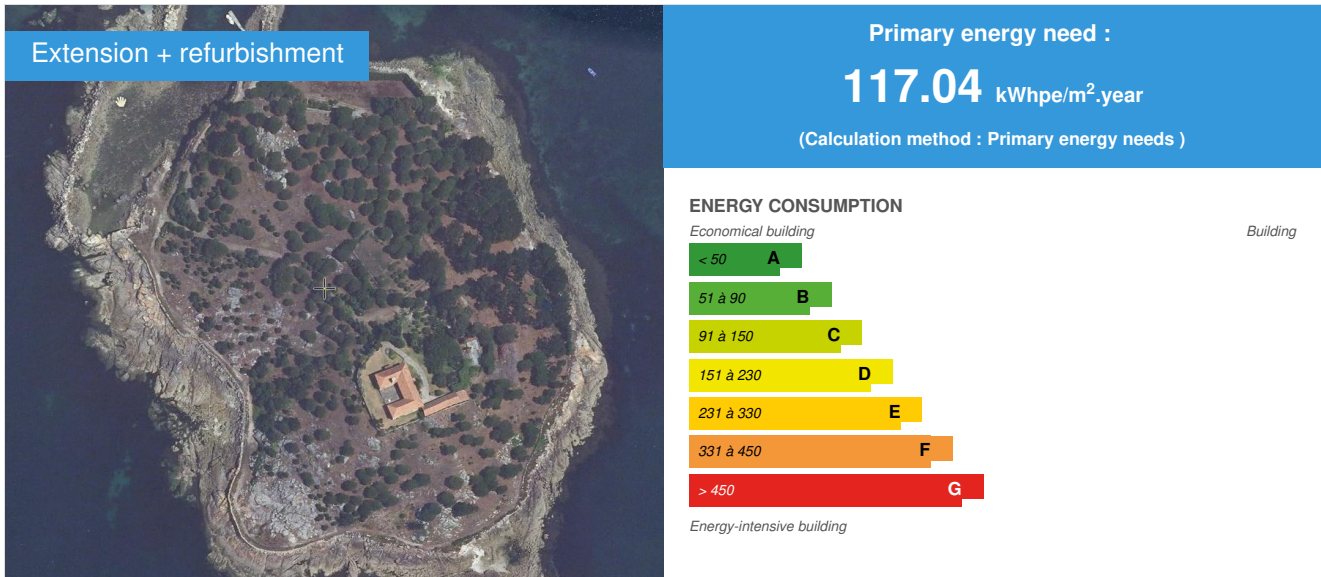


## Detached house on the island of A Creba

by María J. Maroño Breijo / 2017-05-26 00:00:00 / España / 21722 / ES



**Building Type** : Isolated or semi-detached house  
**Construction Year** : 2014  
**Delivery year** : 2015  
**Address 1 - street** : 15250 MUROS, España  
**Climate zone** : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

**Net Floor Area** : 516 m<sup>2</sup> Useful area (es)  
**Construction/refurbishment cost** : 144 264 €  
**Number of Dwelling** : 1 Dwelling  
**Cost/m2** : 279.58 €/m<sup>2</sup>

Proposed by :



### General information

A creba Island or **Illa da Creba**, is a Spanish island in the province of A Coruña. It is located on the estuary of Muros and Noia, 240 meters from the shore of the parish of Esteiro. With an area of 7.5 hectares, it is topped by a large house. It is a **building constructed in the early 80s**, with a floor space of 516 m<sup>2</sup> spread over 5 full bedrooms, kitchen, living room and technical areas an an outdoor pool of 35 m<sup>2</sup>. The aim is to replace the existing energy source with a **total dependence on oil**, comprised of a generator and diesel boiler by other existing sources of renewable energy on the island, **always searching, when possible, the energy self-sufficiency**, which is achieved in most part of the summer period (May -September).

### Data reliability

Self-declared

### Stakeholders

## Stakeholders

Function : Construction company

MAGARAL INGENIERÍA, S.L.

Manuel García - manuelgarcia@magaral.com

<https://www.magaralingenieria.com>

Running installation projects

## Contracting method

Other methods

## Owner approach of sustainability

The main objective of the promoter is self generation of the energy necessary for the proper functioning of the housing, showing the utmost respect for the environment and the natural environment of the area in which the house is located. Until now, all the services enjoyed by the house were totally dependent on fossil fuels, particularly diesel, and given the location in which it is located, supply had to be transported by boat. All these constraints meant that housing facilities proved to be totally ineffective, causing significant economic cost and considerable CO2 emissions into the atmosphere.

## Architectural description

The house dates from the late 80s and is in good condition, so the only architectural reform is done in the kitchen, in order to adapt its conditions to a continued use of housing. It is a large house that has traditional bioclimatic strategies such as the high thermal inertia of its stone walls and the existence of local wood fireplaces.

## Energy

### Energy consumption

Primary energy need : 117,04 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 133,41 kWhpe/m<sup>2</sup>.year

Calculation method : Primary energy needs

CEEB : 0.0001

Initial consumption : 133,41 kWhpe/m<sup>2</sup>.year

### Envelope performance

Envelope U-Value : 1,58 W.m<sup>-2</sup>.K<sup>-1</sup>

## Renewables & systems

### Systems

Heating system :

- Water radiator
- Wood boiler
- Solar thermal

Hot water system :

- Solar Thermal
- Wood boiler

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Solar Thermal

- Micro wind
- Biomass boiler

Renewable energy production : 100,00 %

## Smart Building

Users' opinion on the Smart Building functions : Facilities include remote control via web, so that the user can access it at any time and know the consumption of each of the energies in both real-time and historical.

## Environment

### GHG emissions

GHG in use : 2,03 KgCO<sub>2</sub>/m<sup>2</sup>/year

Methodology used :

Final energy conversion to CO<sub>2</sub> emissions (not densified biomass).

### Indoor Air quality

The air renewal system is modified by including air renewal equipment with heat recovery and complying to current regulations filters.

## Products

### Product

HDG Euro log boiler

HDG

info@pifu.es

<http://pifu.es/hdg-bavaria/>

Product category :

Biomass boiler with the possibility of burning wood logs up to half a meter, forest residues, wood chips and briquettes.

Comfortable filling with wood logs and overturned by a gate with pneumatic filling device.

Combustion control with lambda probe, including lift and return temperature waste heat utilization.

Long maintenance intervals thanks to large ash compartments.

Product accepted as first choice for brand recognition.



Solar thermal collector DIETRISOL PRO C250V

De Dietrich

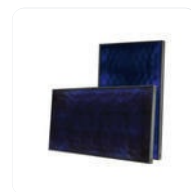
<http://www.dedietrich-calefaccion.es>

<http://www.dedietrich-calefaccion.es>

Product category :

High performance, flat solar collector with flat aluminum absorber with selective coating and monotube exchanger with sinusoid form. Back Rockwool insulation 40 mm thick. Absorbing surface of 2,354 sqm, and optical performance of 0.819.

Product accepted as first choice for brand recognition.



DHW instantaneous production STIEBEL ELTRON

STIEBEL ELTRON

<http://www.tegasca.com>

<https://www.stiebel-eltron.com/en/home.html>

Product category :

Accumulator for production of instant ACS 1,500 liters.

Product accepted as first choice for brand recognition.



Collector Schüco MPE PS05 Solar photovoltaic

SCHÜCO

Schüco Iberia S.L. - 91 808 40 20

<https://www.schueco.com/web2/es>

Product category :

SCHÜCO Photovoltaic solar collector MPE PS05 power of 210 Wp. polycrystalline solar cells with high performance. Aluminum corrosion anodized.

Product accepted as first choice for brand recognition.



Aerogenerador ANELION SW3.5-GT

ANELION

Francisco Climent - 607 65 75 13

<http://www.anelion.com>

Product category :

Miniaerogenerador ANELION SW3.5-GT 500 Wp power, valid for isolated systems and networking. High energy efficiency and low noise. Active electronic braking system. Dual redundant system electrical / mechanical passive safety.

Product accepted as first choice for brand recognition.



## Costs

### Construction and exploitation costs

Renewable energy systems cost : 57 000,90 €

## Urban environment

A Creba Island is a unique attraction formation from the landscape point of view. It is an excellent vantage point for a wide panoramic view of the bottom of the estuary of Muros and Noia. The history and legends around this island give the place an aura of mystery and charm.

## Building Environmental Quality

### Building Environmental Quality

- biodiversity
- energy efficiency
- renewable energies

## Contest

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

Se trata de sustituir la fuente energética existente con una dependencia total del gasóleo, formada por grupo electrógeno y caldera de gasóleo, por otras fuentes de energía renovables existentes en la isla, buscando en lo posible la autosuficiencia energética, la cual se consigue en la mayor parte del período estival (Mayo –Septiembre). De este modo las fuentes energéticas se diseñan de la siguiente forma:

#### FUENTE ELÉCTRICA:

- Mini - aerogenerador de 5,5 kW.
- Instalación solar fotovoltaica de 8,82 kWp.
- Banco de baterías de 120 kVA.
- Grupo electrógeno de apoyo de 9 kVA.

#### FUENTE TÉRMICA:

- Instalación solar térmica de 12,5 m<sup>2</sup> de superficie de captación.
- Caldera de biomasa a base de leña de 40 kW.
- Caldera de apoyo de gasóleo de 18 kW.
- Acumulación de inercia térmica de 3000 litros.

**SISTEMA DE CONTROL:**

- El control del funcionamiento de las instalaciones se realiza mediante un autómata que permite ordenar las demandas térmicas de forma prioritaria, así como gestionar las alarmas a distancia.
- El sistema de control gestiona las dos energías, la térmica y la eléctrica, de modo que se eviten consumos punta superiores a la capacidad de producción y encadena las demandas por prioridad de servicio. Una vez llevado a cabo el ajuste del mismo, el funcionamiento de la instalación en su conjunto es equivalente al de una instalación normal conectada a la red.

**Building candidate in the category**



Energía & Climas Temperados



Edificio Inteligente

