Overlooking the bay of La Cocha is Villa Eulieta. This detached multi-family building has been designed under the Passivhaus Standard, although it has not been certified.

The building has a floor area of 441 m² and consists of a first floor for garage and installations, and a ground, first and second floor with 4 dwellings.

The structure is made of reinforced concrete and Termoarcilla walls, wrapped in an XPS SATE, which forms a continuous insulation envelope. The flat roof is also insulated with XPS.

The airtightness has been solved by a layer of plaster plaster, protected from perforations by the installation chamber insulated with rock wool.

As can be expected, the views of the bay are translated into large windows facing north. To minimize energy losses, all windows are made of high-performance wood-aluminum carpentry and triple glazing with low-emissivity and argon gas in the chambers.

Indoor air quality is guaranteed with a double-flow mechanical ventilation system with high-efficiency heat recovery. The house has a community air-to-water aerothetical heat pump as a production system for air conditioning and DHW. Given its passive design and north orientation, the building is cooled exclusively by passive means.
Owner approach of sustainability

The objective of the promotion was the creation of 4 homes that met the Passivhaus standard, comfortable, healthy, and with almost zero energy consumption.

Architectural description

The structure is made of reinforced concrete and Termoarcilla walls, wrapped in an XPS SATE insulation, which forms a continuous insulation envelope. The flat roof is also insulated with XPS.

The hermeticity has been solved by means of a layer of plaster plaster, protected from the perforations by the installation chamber insulated with rock wool.
The views of the bay are achieved thanks to the large windows facing north. To minimize energy losses, all the windows have high-performance wood-aluminum frames and triple low-emission glass with argon gas in the chambers.

**Energy**

**Energy consumption**

- **Primary energy need**: 87,00 kWhpe/m².year
- **Primary energy need for standard building**: 178,80 kWhpe/m².year

**Calculation method**: Other

**CEEB**: 0.0002

**Envelope performance**

- **Envelope U-Value**: 0,30 W.m².K⁻¹
- **More information**:
  - $U_{\text{solera}} = 0.16$ W / m²K
  - $U_{\text{muros}} = 0.14$ W / m²K
  - $U_{\text{cubierta}} = 0.17$ W / m²K

- **Building Compactness Coefficient**: 0.38
- **Indicator**: n50
- **Air Tightness Value**: 0.21

**Renewables & systems**

**Systems**

- **Heating system**: Heat pump
- **Hot water system**: Heat pump
- **Cooling system**: No cooling system
- **Ventilation system**: Double flow heat exchanger
- **Renewable systems**: Heat pump

**Other information on HVAC**:

- Use of high-efficiency air conditioning technology, with simple and reliable solutions:
  - Air conditioning: Aerothermic heat pump production system, air-water type, centralized for the 4 homes. No active cooling.
  - Ventilation: Zehnder ComfoAir 200 dual flow mechanical ventilation system, individual per home

**Environment**

**GHG emissions**

- **Building lifetime**: 100,00 year(s)

**Indoor Air quality**

Air quality is ensured with the Zehnder ComfoAir 200 very high efficiency dual flow mechanical ventilation system with heat recovery, individual per home.

**Products**
Product

ComfoAir Zehnder 200

Zehnder

[https://www.zehnder.es/](https://www.zehnder.es/)

Product category:
The highly efficient heat recovery ventilation system is from Zehnder and an individual system per home has been proposed. It is made up of a ComfoAir 200 ventilation machine per dwelling, ComfoWell silencers, and a network of internal distribution ducts and ComfoTube discharge and extraction nozzles.

Dual-flow ventilation system with heat recovery brings indoor air quality and comfort to users.

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Daikin Altherma heat pump

Daikin

[https://www.zehnder.es/](https://www.zehnder.es/)

Product category:

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Costs

Construction and exploitation costs

Total cost of the building: 548,920 €

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Urban environment

The building is located in the Miraconcha area (Ayete), located on a hill in the city of Donostia - San Sebastián.

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Building Environmental Quality

- indoor air quality and health
- acoustics
- comfort (visual, olfactive, thermal)
- energy efficiency