GAP Energy Efficiency and Consultant Incubation Center

by Tugba Salman Gurcan / 2021-04-01 03:37:19 / International / 5802 / EN

Primary energy need :

79 kWhpe/m².year

(Calculation method : Other)

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 : 1970
Delivery year : 2015
Address 1 - street : Baspinar OSB 27060 Seh GAZIANTEP, Turkey
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 208 m² Other
Construction/refurbishment cost : 174 000 €
Cost/m2 : 836.54 €/m²

Certifications :

Proposed by :

SIFIR ENERJİ ve PASİF EV DERNEĞİ
ZERO ENERGY and PASSIVE HOUSE ASSOCIATION

General information

GAP Energy Efficiency Incubation Center was renovated according to EnerPHit standards, and is used as an office by the EE Audit Companies in Gaziantep. It is set up in a building provided by Gaziantep Chamber of Industry, built in the 1970s and located in Gaziantep Organized Industrial Zone.

The project is funded fully by the Government of Turkey, and implemented within the technical cooperation project "*Utilization of Renewable Energy Resources and Increasing Energy Efficiency in Southeast Anatolia Region (PHASE 2)*", by *Southeastern Anatolia Regional Development Administration* (GAP RDA) and *United Nations Development Program (UNDP)*. This EE Incubator building is the **first renovated building with the EnerPHit certification in Turkey**.

GAP Energy Efficiency and Consultant Incubation Center is a pilot project and a good example of energy-efficient renovation. It provided lots of information to the Government that helped in the development of the "*Energy Efficiency in Public Buildings*" projects going on.

The planned EnerPHit design delivers a reduction of the space heating demand by 87% and a reduction of the overall demand of delivered energy by 75%.
Cost €: 174,000
Construction Period: 4 Months

See more details about this project

https://passivehouse-database.org/index.php?lang=en#d_4974

Photo credit

Tugba Salman Gurcan

Stakeholders

Contractor

Name : Government of Turkey

Construction Manager

Name : Tugba Salman Gurcan, Ekho Architecture and Consultancy
www.ekho.com.tr

Stakeholders

Function : Others

Cakmanus Engineering

Building Services

Function : Construction company

San-is Construction

Function : Construction Manager

United Nations Development Program Turkey

https://www.tr.undp.org/

Function : Certification company

Passive House Institute Darmstadt

https://passivehouse.com/

Energy

Energy consumption

Primary energy need : 79,00 kWhpe/m^2.year

Calculation method : Other

Breakdown for energy consumption : Primary energy consumption is calculated according to PHPP Annual heating demand 20 kWh /(m2a) Heating load 19 W/m2

Envelope performance

Envelope U-Value : 0,10 $W.m^{-2}.K^{-1}$

More information :
- Super-insulated building fabric (walls and roof: 200 mm rockwool – 0,033 w/mK, ground floor and foundation wall: 200mm XPS, 0,035 w/mK).
A building envelope with minimized thermal bridges and air leakage.

- Airtightness Test Result: Before Renovation 9 ach50 - After Renovation 1 ach50

- Triple Glazed, Low -E insulated frame windows with U value: 0.81 W/(m 2K) were installed

Renewables & systems

Systems

Heating system :
- Heat pump
- Low temperature floor heating

Hot water system :
- Solar Thermal

Cooling system :
- Floor cooling

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Heat pump

Other information on HVAC :
- Besides energy efficiency the building with thermal insulation, airtightness and ventilation guaranteed new and healthy air, without any risk of disease related to non-controlled ambient moisture. Also, insulation in combination with good ventilation and airtightness brought the building sustainability, which avoids all the nuisances such as moisture that generates molds and irreversible disorders like saltpeter, which was observed on the existing interior walls before the renovation.

- The ventilation system was designed with steel ductwork and highly energy-efficient MVHR unit (heat recovery efficiency: 75%)

-Heating and cooling was performed by using a radiant floor heating/cooling system activated by an air sourced heat pump.
- Solar panel system was placed on the roof to meet hot water demand.

Costs

Construction and exploitation costs

Total cost of the building : 174 000 €

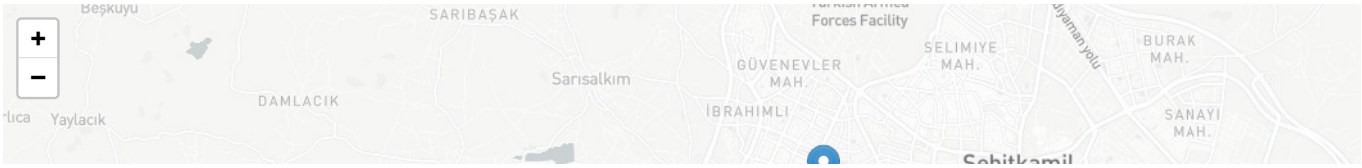
Contest

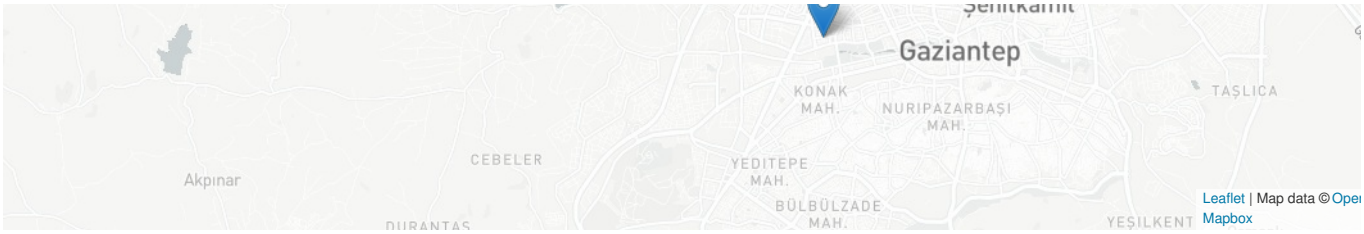
Reasons for participating in the competition(s)

- Very efficient renovation
- Good air quality

Building candidate in the category

Energy & Temperate Climates





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