

Object name

Family House M4**Croatia**

Object photo



Object description

The first passive house in Croatia was realized in November 2005. Four years of excellent experience in use is proved through measuring of energy consumption, research and monitoring on building envelope (air-tightness, infra-red analysing etc.).

The price of building was about 700,00 €/m² including additional thermal isolation, triple glazed windows and doors, air recuperator, earth collector and all other specific elements and works on their montage as under-construction for a roof thermal isolation. In comparison with standard building of family houses in Croatia this building was about 15% more expensive.

During the last three years (2005 - 2008) total energy consumption was 17.914 kWh. This results on an average of 5.971 kWh per year. For heating and cooling 59% of total energy consumption was used. For heating and cooling (during summer heat pump is not in function because the ventilation system which is connected with underground air collector is used) energy consumption is 3.520 kWh for the surface of 200 m² that equals 17,6 kWh/m²a. In this consumption heat losses through the garage door and through roof windows that are of lower energy standard are included. According to more precisely measuring and monitoring of three years energy consumption in closed living spaces in the ground floor with the surface of 100,0 m² and volume of 260,0 m³ consumption is under 15,0 kWh/m²a so in that part of the house criteria of passive house energy standard is achieved. Because of climatic conditions during April and May as during September and October mechanical ventilation is not needed. If it is sometimes shortly in use it is energetically omitted.

Fact sheet

Family house in 10437 / Bestovje, Zagreb

Treated Floor Area	194,4 m ²
Number of apartments	1
Completion date	2005

Energy standard [PHPP]

Heat requirement / year	11,3 kWh/m ² a
Heat load	9,9 W/m ²
Primary energy requ.	87 kWh/m ² a
Air-tightness (n ₅₀ -value)	0,50 1/h
Building type	Porous concrete blocks

U-value

Exterior wall	0,13 W/m ² K
Roof	0,12 W/m ² K
Basement floor / Floor slab	0,19 W/m ² K
Windows / average	0,84 W/m ² K

Specification ventilation system

Central system (heath pump, air exchanger, recuperator, earth collector)

Heating installation

Electricity, natural gas

Construction costs	700 Euro/m ²
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Building owner

Branko Mihaljev

Architect/Planner

Ljubomir Miščević (author of energy redesign)

Photo credits

Lj. Miščević