



Passive family house Košćec in Sv. Ivan Zelina was designed in 2006, as an attempt to adapt basically standard design of family dwelling in the advanced design phase to passive house building standard. Compact rectangular form of residential part of the building with simple northern annex containing garage and the multipurpose/hobby room allowed for simple division of the building in two zones with different usage schedules.

Ground floor of the building consists of the spacious living area – living room, dining room and the kitchen - on the south and the library on the eastern elevation of the building, with utility room and the wardrobe, in the northern part of the ground floor. First floor contains five bedrooms and the bathroom.

Annex on the northern side of the building has double garage on the ground floor and multipurpose room on the first floor.

Design of the building was performed using hourly weather data and whole building thermal simulation which allowed for narrow design margins, including the detailed thermal simulation of sun shading and infiltration in winter and summer period.

Family house in Sv. Ivan Zelina

Treated Floor Area	294 m ²
Number of apartments	1
Completion date	2006

Energy standard

Heat requirement / year	11,91 kWh/m ² a
Heat load	6.7 W/m ²
Primary energy requ.	n/a kWh/m ² a
Air-tightness (n ₅₀ -value)	0,50 1/h
Building type	Masonry

U-value

Exterior wall	0,15 W/m ² K
Exterior wall to unheated	0,15 W/m ² K
Exterior wall to ground	0,18 W/m ² K
Ground floor slab	0,14 W/m ² K
Floor slab above unheated	0,17 W/m ² K
Floor slab to attic	0,11 W/m ² K
Windows / average	0,96 W/m ² K

Specification ventilation system

Central system (ventilation system with heat recovery and earth heat exchanger, with two AHU in parallel installation)

Heating installation

Electricity

Construction costs	800 Euro/m ²
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Building owner

Hrvoje Košćec

Architect/Planner

Toni Borković

Photo credits

Toni Borković