

# Solar system in Modranka pri Trnave, Slovakia

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## SUMMARY

Solar collectors have been installed on the roof of two-stored private house in Modranka pri Trnave, Slovakia. As a result the house benefits from using solar energy for three purposes:

- Solar energy for preparation
  - Floor heating 120 m<sup>2</sup>
  - Heating of inside swimming-pool water
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## PROJECT OBJECTIVES

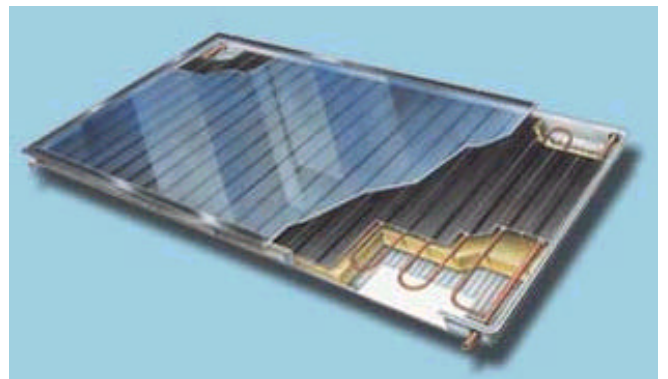
- make the household partially self-sufficient in energy supply
- achieve energy savings
- lower utility bills

## THE PROJECT

Three solar collectors of type Heliostar 202 N have been mounted on the roof on its southern-eastern side and three on southern-western side. The highest efficiency with a fixed flat-plate collector is obtained if it faces approximately south and slopes at an angle to the horizon equal to the latitude plus about 15 degrees.

A flat plate collector of this type is designed for vertical installation in solar systems with a circulating pump. The collectors are connected in one line, eight of them together at the maximum. The main parameters of the collectors are following:

- the solar collectors' area of absorption: 21.12 m<sup>2</sup>
- maximum energy gain: 15 324 kWh/year
- volume of liquid: 1.3 l
- working temperature: <100 C



- maximum liquid pressure: 600kPa

The solar collectors cooperate with classical electric heating. The investment cost was cover by the owners of the house. The installation has been carried out by the company AQUA-SOLAR.

### **THE RESULTS: GENERAL**

The installed solar collectors enabled the house owners to secure preparation of domestic hot water, floor heating and heating of inside swimming pool:

- Solar energy for preparation of DHW 500 l/day bivalent
- Floor heating 120 m<sup>2</sup>
- Heating of inside swimming-pool water of 30 m<sup>3</sup>

Maximum energy gain generated annually is 15 324 kWh what cover significant part of energy consumption of the household.

### **THE RESULTS: ENVIRONMENTAL, SOCIAL & ECONOMIC**



Installation of solar collectors made the house energy efficient and cut energy bills of the house owners. The installation proved to be a wise decision, especially in the situation when gas and electricity prices are constantly growing in the country.

Besides, the collectors contribute to the aesthetic look of the house.

Using of solar energy reduces consumption

of fossil fuels and natural gas what decreases production of harmful emissions therefore this is an environmental friendly option. In a broad content the using of thermal solar enhances national security, improves the quality of the environment and helps the country to meet its Kyoto objectives

**Information**

Installation organisation  
Miroslav Matuska - AQUA-SOLAR  
S.Partosovej 3/23  
965 01 Ziar nad Hronom  
tel/fax + 421 045 6734513  
mobile: +421 903 220 710