

Summary

This project is a part of the calculations for the building of a solar house representing the HfT Stuttgart in the competence Solar Decathlon 2010.

Nowadays, the simulation of this solar house is made using the dynamic simulation program Trnsys16.1.

Since it is necessary to have a reference to compare the obtained results, in this project, the cooling load is calculated using two static methods, the methods presented in the VDI 2078 and the PHPP 2007.

The cooling load estimated with the VDI 2078 is the highest, followed by the results obtained with the PHPP 2007. The lowest value is calculated with the program Trnsys 16.1.

In the case of dynamic simulation program Trnsys 16.1, it is more detailed and precise, since it works with real hourly weather data, and takes into account the use of additional component such as a heat recovery system and an automatic control of the shadowing devices and the ventilation. In the case of the PHPP 2007, it works with monthly weather data, and considers the influence of ventilation in the house. The VDI 2078 takes less sources of reduction of energy, consequently the cooling load obtained with this method is higher than the two first.

Nowadays, the employing of additional innovative equipment like PV hybrid collectors is being studied with the program Trnsys 16.1.