The Effect of Solar Heating Gain on Energetic Thermal Consumption of Housing

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Abstract

The passive solar house is designed to prevent heat loss and to maximize thermal input from the sun. Our study focuses on the effect of solar and internal heat gain on energy consumption of a typical well insulated house. The degree day's method was used to determine the heat losses by transmission and ventilation according to international standards on thermal insulation of building (NBN B62-301). It was found that the results of the study are very interesting and promising. By including the solar and internal gains, varied from 900 to 1400 kWh, it was indicated that the energy consumption decreased significantly. The thermal load for heat reached 60 kWh, but by including the free thermal gains, 10 kWh of energy was saved per day.

Keywords

- heat transfer;
- degree day's method;
- heating of building