

Building material sales outlet – heating with low-temperature ECOSUN panels

Historically, the popularity of electric heating has been very unstable and due to the increasing price of electricity, these systems have not been among those most widely-used. At present, the situation is changing - thanks to the ever-better thermal properties of new buildings and a steady decrease in their energy consumption for heating, the amount of applications for which electric heating is chosen is increasing fast - its characteristic properties can now fully compensate for the possible higher price of electrical energy.

Electric heating features excellent adjustability, low acquisition costs in comparison with other systems, easy installation and minimum (in fact zero) maintenance requirements. One of the options available is the ECOSUN panel system which operates using the principle of infra-red radiation. The radiation doesn't heat the air but rather the objects which it encounters. ECOSUN panels are therefore mainly suitable for areas where large amounts of people moving around and hence higher air exchange is expected - in shops, offices, various sales outlets or industrial operations.

The panels are preferably placed on the ceiling so that the convective component (heat removal via air circulation) is suppressed to the maximum. Due to the fact that the panels are not cooled by convection, the maximum energy is conveyed into the room by infra-red radiation. This principle enables the division of the room into several zones with different temperatures - for example, the sales part of the store is heated only to approx. 15 - 17 °C but above the customer service area the panels are placed so that they "warm" the people there directly via their radiation and create the needed thermal comfort in this way. In transitional periods when there is no need to heat the whole store, only the panels above the customer service area are in operation.

The possibility of heating the building to lower temperatures, or heating only in the customer service area, thus brings huge energy consumption savings in comparison with heating the whole area to 20° C. Last but not least, the placement of the heating elements on the ceiling brings another practical advantage - the use of the room is not limited in any way by radiators on the walls or heating water distribution systems.

The applied use of this system can be found at the STAVEBNINY plus spol. s r.o. building material sales outlet in Ivančice.



The store consists of a hall with the dimensions 32x13m, which is a total of 416 m² of heated area. Originally, the investor considered gas heating but with regards to its higher acquisition price, the necessity to build a new gas connection (which would not only be very expensive but also demanding

due to the related legislation and production of project documentation) and also due to the above-mentioned advantages of electric heating, he decided for low-temperature ECOSUN panels in the end.



49 ECOSUN 600 U (29.4 kW) panels were installed in three rows in the store. They were basically self-installed by the store. The panels are divided into three sections which can be switched on gradually, depending on the performance requirements. According to the owner of the building, only one section was in operation for the whole 2007/2008 heating season due to the mild winter.



As customers don't usually take their outer layers of clothing off when entering the store, the whole store is heated to approx. 13-15°C only. For a person who enters the store in winter clothing from the outside, it is a lot more pleasant than if it were 20°C in the store. However, in order to prevent the shop assistants from "freezing", a row of heating panels is installed above the sales counter area to create the needed thermal comfort.



The whole system is most economical while the needed thermal comfort is created both for the customers and for the employees of the company. As the building material sales outlet is a self-service store, it is commonly accessible to the public - those who might be interested in heating using the ECOSUN panels can visit this outlet and view them 'in action'.

Size of the store: 416 m²

Total number of panels: ECOSUN 600U - 53 pieces

Wattage of the installed heating: 31.8 kW

Acquisition costs: 151, 898 CZK before VAT (only the ECOSUN panels)

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