

Product category briefing: radiator boosters

The amount of artificial heat that a building needs in order to maintain a certain steady temperature difference over the outside air depends on three things: the insulation of the structure; the rate of ventilation air make-up; and the amount of casual heat gain from sources such as lighting, equipment or occupants.

For intermittently-heated spaces the time schedule has an impact and some savings may be possible if startup times are postponed intelligently until the last possible moment consistent with achieving target conditions at the start of occupancy.

Over the long term, given a constant ventilation rate and occupation levels, the total heat loss from the building depends upon the average difference between the inside and outside air temperatures. It would be true to say that whenever the building needs its heating on, increasing the average internal temperature will increase its heating requirement and *vice versa*, meaning that increasing the heat input will raise the inside-outside temperature difference.

There are vendors who claim that energy can be saved by boosting the output from heating radiators. This is only true if the time control is actively optimised and is able to postpone the startup time to take advantage of more rapid heating. If no changes are made to the time schedule the building will warm up faster, slightly increasing the time spent at set-point temperature and thus increasing daily heat loss and, as a result, fuel consumption. Note that when the building is up to temperature the thermostatic control would tend to turn the radiators off for longer to compensate for any increased output, and there would be no saving.

Because the market for radiator booster fans is small and probably not very profitable it is likely that the vendors of these and other similar products are simply naïve and insufficiently knowledgeable to understand the flaws in their logic. If they cite endorsements from previous customers it is most likely that the customers in question are simply gullible and genuinely believe that they did not waste their money.

V O Vesma MA(Oxon) CEng MEI
Pound House
Market Square
Newent
Glos GL18 1PS

01531 821350
Vilnis@Vesma.com
18 May 2017
Revised 22 July 2021

File ref R107