



New EC fans in old system slash power consumption by half

Retrofitting makes good financial sense. As is the case at Lindegården, a home for the mentally ill in Denmark with 182 residents. New ebmpapst fans in the home's existing system have improved the indoor climate considerably and saved almost 37,000 euro or the equivalent of 50% on the electric bill. The investment will be recouped in two years.

Technical manager Jackie Nielsen, who is responsible for the indoor climate and energy consumption at Lindegård, has saved almost 135,000 euro over the past decade by focusing on an energy-efficient operation. Retrofitting the ventilation system has added almost 37,000 euro in annual savings to the budget. Jackie Nielsen and his colleagues have embarked on a positive cycle where investments and savings make it possible to afford new investments.

Better air for half the price

Lindegård had 11 ventilation systems that were too new to scrap, but they operated with outdated, energy-consuming fan technology. Each system had two belt-driven blowers and AC motors. They were removed and replaced by new backward curved centrifugal fans with EC motors from ebmpapst.



Technical manager Jackie Nielsen has saved almost 135,000 euro by focusing on energy savings.



Significant savings can always be achieved by switching from belt-driven AC fans to modern EC technology.

Savings in numbers

	Annual savings
Energy consumption	192,720 kWh
0.19 ¢ / kWh	36,781 EUR
Payback period	2 years

EC fans represent a technological leap forward compared to traditional AC fans, which run on the supply network's alternating current. EC motors use permanent magnets, which ensure a very high efficiency. The EC motor and impellers are integrated and aligned, which also improves the overall performance even more.

The EC motor also has a built-in controller, which means that only the required amount of energy is supplied in relation to the speed and task. The controller eliminates the need for a frequency converter. The EC motor can be adjusted from zero to one-hundred percent with a 0-10V DC signal.

Vertical wall mounting

Frank Hansen from a company called Energi & Miljøteknik, which has extensive experience with retrofitting, for example at Hillerød Hospital, carried out optimisation of the system at Lindegård. With his expertise, the project turned out to be quicker and cheaper than expected. Normally a base is built to mount the fans on, but Energi & Miljøteknik uses a much simpler, cheaper method.

“We mount the fan on a plate that can be screwed to the wall in the unit, which offers a variety of advantages. Materials for wall mounting are much cheaper than a custom-made base. Not only that, units with wall-fixed fans are much easier to service and clean,” explains Frank Hansen.

Calculations proved correct

Prior to replacement of the fans Frank Hansen calculated the savings on one of the buildings at Lindegård. After replacement the consumption was measured for the same building and only differed by 3 kWh, for the better, from his original estimate. With a savings of 50% the investment in the ventilation system at Lindegård will be recouped after two short years, which means that they will again be able to afford new investments for the benefit of the residents and the environment.

