

Air Filtration - Total Cost of Ownership

Hospital Realizes Significant Reduction in Filters Used, Filter Labor Expenses, and Energy Costs

Company Profile:

A medium-size hospital with 350 beds specializing in cardiac surgery, catheterization lab, PET (Positron Emission Tomography) for cancer diagnosis and treatment.

The Situation:

As a member of a purchasing group with 13 hospitals in Illinois, the hospital thought they were receiving the best price for their air filtration needs. The hospital has two large buildings covering 21 acres. American Air Filter® (AAF) was supplying PerfectPleat® pre-filters with VariCel® final filters for 13 years and two years prior converted them to the VariCel M-Pak 90. AAF had presented the M-Pak as being lighter weight, using less inventory space with less disposal cost.

Energy costs had also risen 37% in Illinois. This resulted in a mandate to reduce overall facility costs. The facility engineers identified the filters as a potential opportunity to save energy. With the assistance of their local Camfil Farr representative, the facility set out to find the lowest “total cost of ownership” for their filters by using the Camfil Farr Life Cycle Cost (LCC) analysis modeling software and real-life test bank data from other hospitals in the purchasing group.

The Action:

The hospital examined their HVAC units and created an inventory of every filter on site, its location, and how long each filter lasted in a system. Using parameters of long service life and low energy consumption, the facility engineers changed their pre-filters from the PerfectPleat with three-month change intervals to the Camfil Farr 30/30® which would provide a life of six months. They also selected the Camfil Farr Durafil® to replace the AAF M-Pak. The change interval for the final filters would increase from 12 months to two years.



The Result:

The facility was able to reduce the number of filters used by the facility by a factor of 50%. The energy savings projected based upon the filters selected through LCC analysis were dramatic. Labor and annualized filter expenditures were also dramatically reduced. Historical problems, such as pre-filter failure and air-starved systems, because of the high pressure drop of the M-Pak, were eliminated. The facility was also able to meet air filtration efficiency requirements as the 30/30 provides a true MERV 8 efficiency as required by the Department of Health & Human Services. Airflow to critical air areas was also increased due to the decreased filter resistance resulting in increased air changes to the space and cleaner air.



“The savings in energy alone for one filter bank was \$15,106.”

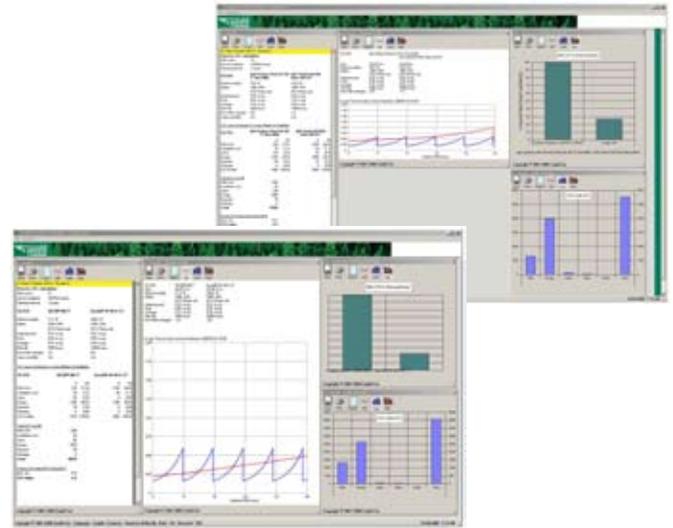
The Proof:

At installation, the initial pressure drop of the Durafil® filter was only 0.37 w.g. — 43% less than the AAF® M-Pak. For one of the systems, with 83 filters, the energy savings alone would be \$15,106.

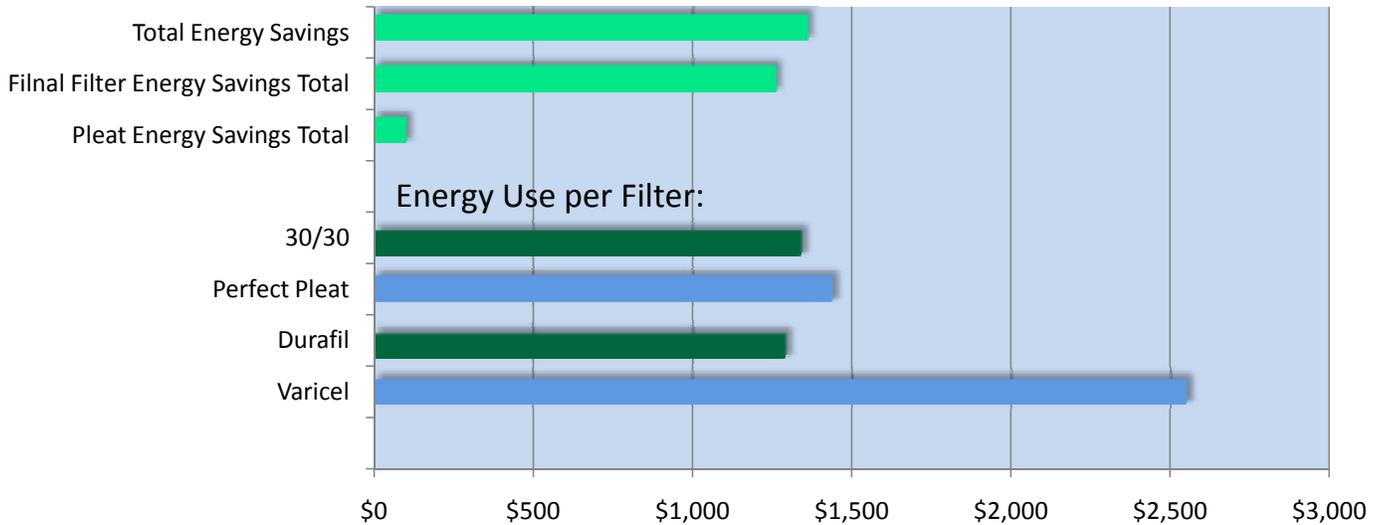
The two screen shots of the LCC software demonstrate the advantages of using Camfil Farr's green-driven products as opposed to AAF's first-cost, economy driven products. Using the same parameters of operation for a 10-filter system, the AAF PerfectPleat® and M-Pak require changes of 6.6 and 1.4 respectively over three years. The Camfil Farr 30/30® and Durafil require only 3.4 and 0.6 changes respectively, and the mean life efficiency, removing critical-size particles, increases by almost 5%.

Fewer filter changes, decreased landfill, decreased energy usage, and cleaner air — a “green” solution all-around.

Even discounting the green value of fewer filter changes and the improved air quality, the energy savings mean it's like getting Camfil Farr filters for free.



Energy Analysis for 10 Filter System



The combination of the 30/30 and Durafil produced energy savings that were almost half of the cost of operating the competitor's filters. With energy costs projected to increase, the facility's savings will rise exponentially.