HVAC Clogged Filter Detection Made Simple!

CFM-GM

CFM-WM

Now there is a fast and easy way to determine when your HVAC filter needs to be changed.

INTRODUCING THE CFM

The CFM simplifies the process of knowing when to change your air filter. This keeps the HVAC operating at peak efficiency which saves energy and money. The CFM attaches to the return grille or to a wall and requires no additional wiring. Just calibrate to a 1" filter & let the CFM do the rest!

PATENTABLE TECHNOLOGY

When the HVAC is on, the CFMs patent pending technology continuously monitors the filters differential pressure and will alert the homeowner when the filter needs to be changed.

The CFM can detect clogged filter conditions from 1-100% depending on calibration and the type of filter used, in single speed HVAC systems. It is easy to install and can run up to 3-years before the internal battery needs to be replaced.

To find out more about the CFM-GM or the CFM-WM, please contact us at info@airflow1.com or visit our website for additional information.

Dirty Air Filters Maybe Costing You More Than You Think!

FOR IMMEDIATE RELEASE

By Andy Durey

Dirty air filters may cost more than you thought.

(St. Petersburg, FL) In the few minutes that it takes to change your furnace or air conditioning filter, you might cut your electric bill by as much as $10 this month. Or $20. Or $80 or even more, depending on the type of filter you are using and how much you run your system.

Power company websites mention changing air filters as one way to save energy. If not maintained, that little filter could be one of the biggest energy wasters in your home. That's according to calculations derived from the ASHRAE (American Society of Heating Refrigerating and Air Conditioning Engineers) Handbook.

The calculations take into account your fan motor's efficiency, the cost of electricity in your area, airflow resistance of the air filter and the amount of time the fan motor is in use. For those of you with a technical mind, the formulae are presented at the end of this article.

The one value in these formulae that changes most frequently is the airflow resistance of the filter. Every filter has a certain amount of airflow resistance and dust building up on the filter eventually begins to block airflow. The longer the filter is used, the more dust it catches, the more it blocks airflow and thus…the more electricity it wastes. That's why electric companies remind us to change our air filter on a regular basis.

There's more to it than that. Some filters have an innately higher airflow resistance than others, even when brand new. Why? According to filter manufacturer Flanders Precisionaire, it's all about filtering performance. Technical Services Manager Hugh Cannon said "Typically, the more effective a filter has been at catching more and smaller particles, the higher the airflow resistance has been. For example, the very basic spun glass panel filter has resistance of about .04 inches water gauge. (Water gauge is an industry method of expressing airflow resistance. The higher the number, the higher the resistance. And the higher the resistance, the higher the energy cost.) But some of its ultra-high performance cousins may have resistance as high as .36 inches water gauge in high velocity systems before they've caught the first piece of dust."

Below are a few examples of how much that extra airflow resistance costs in energy. The figures are representative of a typical residence moving 820 cubic feet of air per minute, 24 hours per day at a cost of eight cents per kilowatt hour. (Some homes will not run their air conditioner 24 hours per day and electricity may cost more or less depending on area, but keep in mind that this energy waste represents JUST the cost of the fan running and does not account for wasted heat/cooling effect.)

Effect of initial resistance on daily electric cost

Inches Water Gauge	Daily Electric Cost
.05	$ .16
.10	$ .33
.16	$ .49
.20	$ .66
.25	$ .82
.30	$ .99
.35	$1.15

So are the "high performance" filters something to avoid? "Not at all" said Cannon, comparing them to automobiles: "A cheap economy car will get you to the store just as well as a big SUV. The SUV will get your there more comfortably and more safely, but you'll use a lot more gas. It's the same with filters. A basic spun glass filter will protect your equipment well if you change it monthly. But it's not going to catch much of the very small airborne particles, such as smoke, dust mite debris and grass pollen that a high performance one will. So the high performance one provides greater comfort and perhaps even safety."

"Stay tuned, though" Cannon said. "Just like the automobile manufacturers, there's pressure on filter manufacturers to improve energy efficiency. Very soon you'll be seeing filters that catch the very small stuff, but with much better energy efficiency. In the meantime, if every home with central air in this country just changed their filter every month, the savings for the country could be as much as a billion dollars or even more every month.

Total horse power required = (CFM) (SP)(6370)(0.65)

CFM is airflow expressed in cubic feet per minute

SP or Static Pressure is basically just another way of saying airflow resistance. It is expressed in inches water gauge.

6370 is a factor from ASHRAE Fundamentals 1989 Page 20.22

Kilowatt hours usage per year = (H.P. Required)(8760 hours)(0.746Kw/H.P.)

H.P. is rated horse power of the blower motor

Kw is the kilowatts of electricity used by the blower system.

8760 is the number of hours in a year

The assumed electrical consumption of the fan is 0.746 kw.

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