Initial Comments of Proctor Engineering Group, Ltd. Concerning Air Filter Labeling Standard Docket 12-AAER-2E

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For more in depth information see October 2012 ASHRAE Journal
http://www.nxtbook.com/nxtbooks/ashrae/ashraejournal_201210/ Pages 92 and 93 as well as the ECO report
www.proctoreng.com/dnld/**ECOReport**CEC-500-2012-062.pdf

1. Product definition

The products are residential air filters for use in central forced air heating and/or cooling systems.

2. How many products in the market are currently labeled with Minimum Efficiency Reporting Value (MERV) rating?

Very few of the products are currently labeled with the MERV rating. Particular manufacturers have their own rating system and do not use the ASHRAE Standard Ratings.

HOWEVER THE MERV RATING IS NOT THE IMPORTANT ISSUE HERE.

It would be acceptable from an energy efficiency standpoint if the MERV rating was not on the label. ASHRAE and AHRI equipment manufacturers are well aware of the problems high resistance air filters cause – reduced efficiency and reduced equipment lifetimes. For those reasons, the equipment manufacturers got together and agreed on the label shown below. The essential issue addressed by this label is the pressure drop associated with each airflow. These are the left two columns of the AHRI 680 Standard label.

AHRI 680 Standard Rating				
Airflow Rate (CFM)	Initial Resistance ("wc)	Final Resistance ("wc)	Dust Holding Capacity (g)	Particle Size Efficiency (0.30 -1.0µm)%
400	0.03			
800	0.13			
1200	0.29	0.50	45	17

3. What is the estimated cost to manufacturers to produce and affix a label? Does it differ by label location and format?

The manufacturers already use a label, generally in the form of a piece of paper slipped into the plastic bag that holds the filter. That label could be easily modified to include the AHRI 680 Standard table shown above. The cost would be limited to some graphic artist's time. The cost would be less than 1 cent per filter.

4. What are the estimated costs to manufacturers to alter an existing label?

The manufacturers already use a label, generally in the form of a piece of paper slipped into the plastic bag that holds the filter. That label could be easily modified to include the AHRI 680 Standard table shown above. The cost would be limited to some graphic artist's time. The cost would be less than 1 cent per filter.

5. Are there technical or logistical barriers to labeling air filters?

No

6. What are the current annual sales 2008-2013 and estimated Compound Annual Growth Rate (in CA and nationwide)?

According to the Residential Appliance Saturation Survey (KEMA 2010) 10.2% of the homes in California do not have a central air conditioner. 77.6% of the homes have one air conditioner while 9.5% have two or more. This averages to 1 central AC with a filter per house. According to the 2010 Census the number of households in California was 12.58 Million. There are therefore approximately 12.58 million air filters in place in California. If they are changed at least twice a year the annual sales are 25.16 million filters per year.

7. What is an appropriate location of the label so that energy efficiency information is easily accessible to consumer?

The manufacturer's marketing label is clearly in front of the customer at the time of sale. The AHRI Standard label should be in the same location clearly in front of the customer at the time of sale.

8. Other than the MERV is there other efficiency related information that could be on an air filter?

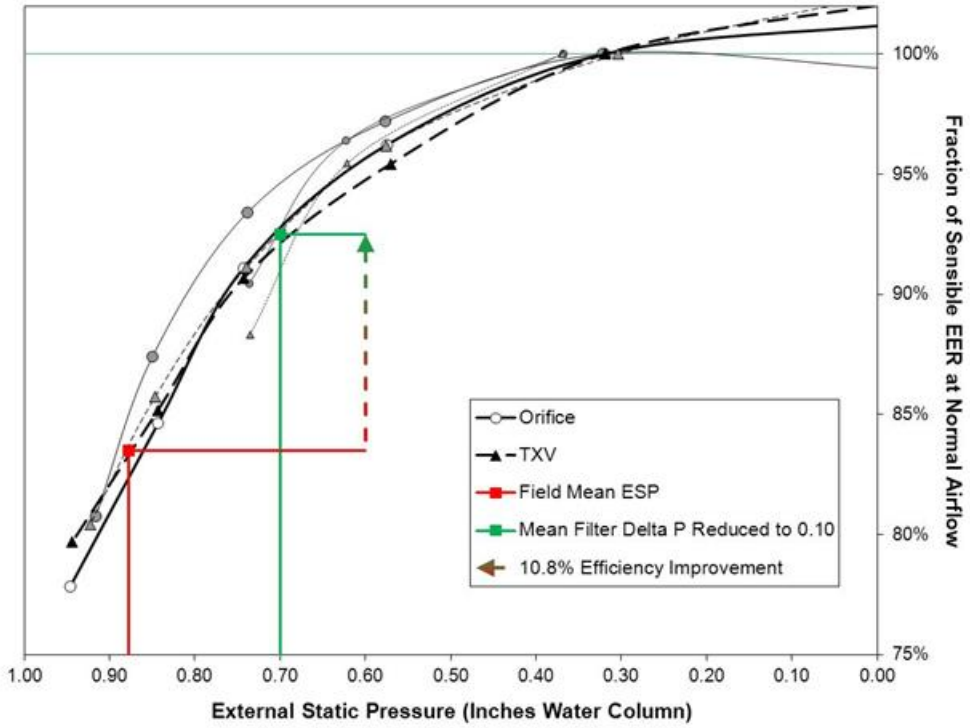
As noted above the MERV rating is not necessary. The efficiency information that is needed is the relationship between the airflow and pressure drop across the filter (the first two columns in the AHRI 680 table.

9. What are the benefits of affixing labels to products?

Currently there is no way for a consumer to determine whether the filter they are buying will have a deleterious effect on their air conditioner or furnace efficiency and longevity. As a result they are buying filters that are inappropriate to their equipment and lowering its life expectancy and efficiency. Beginning with 2014, new homes in California will have a label on the filter location that indicates what type of filter should be installed (It will indicate the maximum pressure drop allowable at a particular airflow. When the AHRI label is on the filters, the homeowners can then select the correct filter for their system.

10. How does the MERV and other factors of an air filter impact the performance of HVAC equipment?

All else being equal a higher MERV rated filter will have more resistance to airflow, will reduce the airflow through the system (with a common PSC Fan motor) and will reduce the efficiency of the furnace, heat pump, or air conditioner. The graph below shows the difference between a filter that produces a pressure drop of 0.28 IWC and a correct filter that produces 0.10 IWC. The increase in sensible EER is 10.8%.



11. How many small businesses are involved in the manufacture, sale, or installation of these products?

Very few.