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3M Comments for California Energy Commission's Air Filter Labeling Proposal
Docket # 14-AAER-1, Appliance Efficiency Pre-Rulemaking

June 5th, 2014

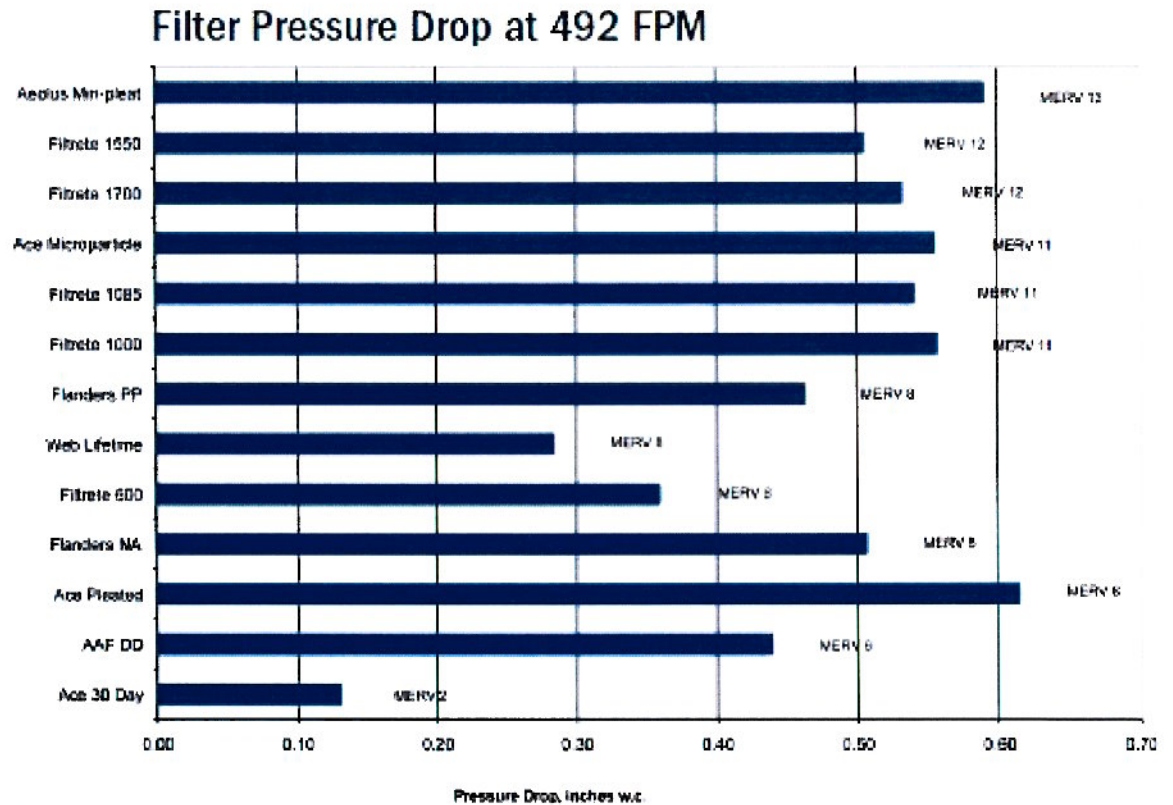
Dear California Energy Commission:

Thank you for offering us the opportunity to provide comments to the Air Filter Labeling proposal by California Energy Commission. We carefully reviewed the labeling proposal and would like to provide the following comments for your consideration.

- (1) **The maximum allowable pressure drop should be consistent with actual filter performance.**

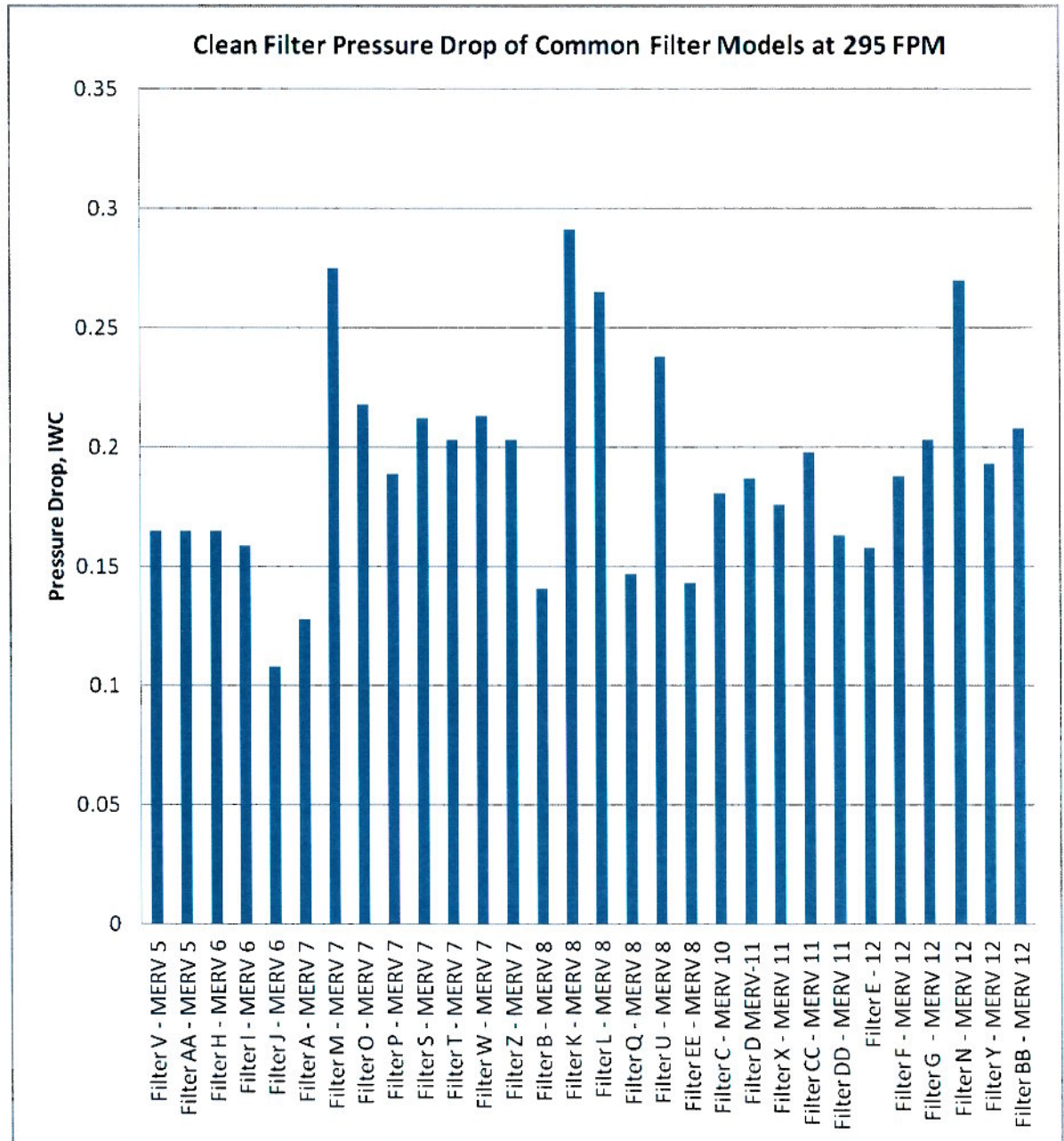
As shown by data in "Staff Analysis of HVAC Air Filters, Dimming Fluorescent Ballasts, and Heat Pump Water Chilling Packages" (see Figure 1), none of current MERV 6 or higher filters achieved 0.1 IWC (inches of water column) at 500 FPM, which is ACCA's rule of thumb recommendation for maximum allowable pressure drop. Even at a much lower air velocity, 295 FPM, none of the MERV 6 or higher filters meets the 0.1 IWC or lower recommendation (see Figure 2), according to 3M internal testing of a wide range of common air filter models. Therefore, the maximum allowable pressure drop should be a reasonable value. **0.25 IWC at 295FPM is a reasonable value that most of MERV 6 or higher filters can meet.**

Figure 1. Clean Filter Pressure Drop of 13 Common Air Filter Models



Source: David. "Is There a Downside to High-MERV Filters?" *Home Energy Magazine*. November 2, 2009.

Figure 2. Clean Filter Pressure Drop of Common Air Filter Models at 295 FPM



Source: 3M internal test data per ASHRAE 52.2

(2) Air velocity for MERV rating must be specified in the filter label.

It is known in the filtration industry that the MERV value is a function of the air velocity. To make a fair comparison, all air filters should be rated at a standard velocity that reflects the air velocity in actual use. 295 FPM (1.5 m/s) is the typical velocity specified in ASHRAE 52.2 for testing residential HVAC air filters. This velocity is also widely used in the industry for testing residential HVAC air filters. **We recommend reporting the MERV value of air filters at 295 FPM.**

(3) Allowance for testing one filter size and scaling off of that for other sizes of the same grade.

Residential HVAC air filters have more than 70 different filter sizes. Testing filters of each size will be a huge burden to manufacturers and will also add unnecessary cost to consumers. Filter pressure drop is directly related to the air velocity. Filters of different sizes made with the same filter media and having the same pleat density have the same pressure drop when operating at the same air velocity. Manufacturers thus design filters of different sizes to achieve the similar performance level based on the constant air velocity.

We propose allowance for testing one filter size and scaling off that for other sizes of the same performance grade. We recommend allowing several common filter sizes to be used for the scaling, such as 20x25", 24x24", 20x20", or 16x25".

(4) Allowance for printing or affixing the label on the filter frame or pleat pack.

Some filters are designed to use a permanent frame with refillable pleat packs of different performance grades. Labeling on the pleat pack will allow consumers to easily check the efficiency and pressure drop of the filter media that they choose to use.

We propose allowance for printing or affixing the label on the filter frame or pleat pack.

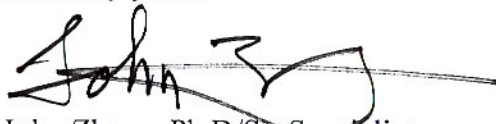
(5) Guidance for statistical procedures.

The labeling proposal should provide guidance on the statistical procedures such as the specification limit and confidence level, etc. for determining the performances: MERV rating and pressure drop. For example, does the printed pressure drop represent the average (typical) pressure drop of the filter, or does it represent an upper limit under which 95% of all filters would be expected to fall. These statistical procedures will help ensure a level playing field among manufacturers.

- (6) **Using one test method (ASHRAE 52.2) to simplify/standardize the testing and level the playing field.**

To simplify and standardize the labeling testing, one test standard should be used for testing all filters. ASHRAE 52.2 is a national standard that has been widely used by the residential air filter industry for testing and report filter performance. We would like to recommend ASHRAE 52.2 as the only test for filter labeling.

Sincerely yours,

A handwritten signature in black ink, appearing to read "John Zhang", with a long horizontal line extending to the right.

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