

## Greenheck Response to Energy Star Proposal (Version 2.1) Energy Star Program Requirement for Residential Ventilating Fans

After reviewing the proposed Energy Star Program Requirements for Residential Fans (version 2.1) Greenheck's comments are as follows:

- I. We support the removal of HVI 920.
- II. Section 4) Product Testing, Section 4C. Sound Rating (sone) and Section 4 Note:  
  
These should include reference to AMCA 311 Certified Rating Program - Product Rating Manual for Fan Sound Performance because AMCA 311 now includes the spherical sone rating.  
  
"Sound must be rated in accordance with HVI 915 Procedure for Loudness Rating of Residential Fan Products **or AMCA 311 Spherical Sone Rating**"
- III. Section 5 - Laboratory Qualification  
  
Greenheck would like to see Energy Star accept data obtained in AMCA Accredited Labs. These labs are checked on a continuous basis by AMCA to make sure they are following accepted testing and calibration procedures that render their results reliable and allows comparison of results independent of the lab that performs the testing.
- IV. On the subject of verifying performance, Greenheck would be in favor of allowing AMCA Licensed data under the AMCA Certified Ratings Program satisfy this verification requirement. AMCA is one of the most respected and recognized third party verification organizations for the air movement industry.
- V. Greenheck would like to see sones removed as a qualifier for Energy Star. Sones are not an indication of energy efficiency. I understand that Energy Star views their program as some assurance of quality or assurance of customer satisfaction in addition to efficiency, but sones are not necessarily a good indication of quality.

A risk in utilizing unnecessarily low sone levels as one of the criteria for selection is that pursuing low sones can actually decrease efficiencies. There can be definite trade-offs in energy for unnecessarily low sones. The use of forward-curved wheels in bathroom fan designs rather than backward inclined wheels has led to slower running quieter fans for a given CFM, but forward-curved wheels are less efficient than backward-inclined. This isn't GREEN. Adding insulation to get unnecessarily low sones isn't GREEN. Adding material to the motor to get unnecessarily low sones isn't GREEN. Going to large boxes and larger wheels to slow down the fan to get unnecessary low sones isn't GREEN.

If sones are not removed from the Energy Star ratings program our suggestion would be to at least relax the sone requirement levels. Sound levels of 3 sones should be quiet enough for all CFM ranges where bathroom fans are applied. 3 sones will not be offensive or unacceptable to the consumer in a bathroom.

Reporting sones below 3 sones is questionable. Measuring sone levels lower than 3 sones is difficult to do accurately and can be hard to repeat.

3 sones is quiet enough and allows for GREENER fans and more realistic and accurate sone comparisons between results from different labs.

3 sones for 500 CFM is too prohibitive as it would exclude almost all fans in the 500 CFM class. ASHRAE 62.2, Section 7.2.2 states "maximum 3 sones unless maximum airflow exceeds 400 CFM".

- VI. Greenheck would like to see the test set-ups in AMCA 210 and AMCA 300 be allowed. In some instances they are, in our opinion, more realistic than the HVI test set-ups. For example, in the HVI sound test set-up, the whole fan and duct work are in the room, which is not the way they are applied in the field. In the AMCA 300 set-up, all that is in the room is the grill on the inlet of the fan, which is how they are installed in the field.
- VII. There are three locations (Table 1, Table 4 and Product Category on page 12) in the new draft that define the CFM range for each category. It appears these should be updated to include CFMs between 80-90 CFM and 130-140 CFM.
  - Range Hoods - up to 500 CFM (max)
  - Bathroom and Utility Room Fans - 10 to 89 CFM
  - Bathroom and Utility Room Fans - 90 to 139 CFM
  - Bathroom and Utility Room Fans - 140 to 400 CFM
  - In-Line (single-port & multi-port) Ventilating Fans

VIII. Section C

In-Line Fan (Additional Installation) Instructions: Manufacturers must include the following information on the in-line product or in product literature:

To ensure quiet operation of ENERGY STAR qualified in-line and remote fans, each fan should be installed using sound attenuation techniques appropriate for the installation. For bathroom and general ventilation applications, at least 8 feet of R-4 insulated flexible duct or greater must be installed between the exhaust or supply grille(s) and the fan.

We would suggest not encouraging the use of "flexible" duct as flexible duct cases high energy consumption.

- IX. We recommend that to get Energy Star it should be required to catalog performance at both 0.1 and 0.25 inches water gauge.