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Subject: HVI Response to ENERGY STAR Program Requirements Product Specification for Residential Ventilating Fans Version 4.1 Draft Proposal

The Home Ventilating Institute (HVI) is North America's premier nonprofit trade association representing the residential ventilation industry. HVI membership consists of the leading manufacturers of ventilation products including bathroom fans, heat/energy recovery ventilators and kitchen range hoods. Founded in 1955, we are champions of healthy indoor air working together to advance and promote dependable ventilation practices through product certification, consumer and contractor education, and codes and standards participation.

Thank you for the opportunity to provide the following input to the ENERGY STAR Program Requirements Product Specification for Residential Ventilating Fans Version 4.1 Draft Proposal. By working together, US EPA and key stakeholders, most notably HVI, can continually advance the adoption and growth of energy-saving ENERGY STAR products in the marketplace.

Point 1: *[V4.1, section 1) Definitions]*

HVI supports the updates to the definitions as proposed. Consistency across all ENERGY STAR programs is critical to help eliminate the opportunity for variances in interpretation by entities which may be less familiar with the specifications and industry(ies).

Point 2: *[V4.1, section 1) Definitions]*

HVI welcomes the inclusion of supply fans in the definition for residential ventilating fan and the removal of supply fans from the listing of excluded products.

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Point 3: *[V4.1, section 3) Certification Criteria, sub-section A. Efficacy and Fan Sound Requirements, Table 2: Criteria for ENERGY STAR Certified Residential Bathroom] and In-Line (Single-port and Multi-port) Fans]*

HVI supports the inclusion of supply fans within the Table 2 criteria. We also agree that a supply fan without a filter should be held to the same requirements as an inline fan.

Point 4: *[V4.1, section 3) Certification Criteria, sub-section A. Efficacy and Fan Sound Requirements, Table 2: Criteria for ENERGY STAR Certified Residential Bathroom] and In-Line (Single-port and Multi-port) Fans]*

We recommend modifications to the Table 2 Minimum Efficiency Level (CFM/W) for inline (single-port and multi-port) fans tested with a filter in place. We would like to see the supply fan term added to the product type. While most of the current supply fans utilize an inline fan type of device, we should not preclude other current or future technologies and fan types from being certified as supply fans.

HVI's limited research indicates that the proposed Table 2 Minimum Efficacy Level for fans tested with a filter in place is too aggressive at 3.7 CFM/W. We have examined certification submission data for a very small population of supply fans and observed an approximate 25% reduction in efficacy when the supply fan is used with a filter (up to MERV 13). We have also received test data directly from manufacturers which shows a similar decrease in efficacy in fans used with filters in place. If US EPA wishes to have a specification for supply fans used with a filter, we recommend that the threshold be set at 75% of efficacy of the fan tested without a filter. That level, even if used with a 3.8 CFM/W minimum efficacy fan without a filter, would then be 2.9 CFM/W efficacy with a filter. That level is defensible as it is still a higher efficacy than standard bath fans. The 75% tested with filter efficacy would also reward those manufacturers who are striving for the highest energy efficiency.

Point 5: *[V4.1, section 3) Certification Criteria, sub-section D. Installed Fan Performance]*

The installed fan performance requirements should include supply fans as an exception for continuity in the program requirements.

Point 6: *[V4.1, section 3) Certification Criteria, sub-section E. Reporting Requirements]*

HVI has a major concern with the addition of section 3) sub-section E. Reporting Requirements along with Table 3: Efficacy and Fan Sound Reporting Requirements. We are concerned that US EPA is requiring manufacturers and certification bodies to supply supplemental information for US EPA "to understand how products function in poor installation where static pressures measurements may be higher than is currently specified by industry test methods". If US EPA wishes to conduct in-depth research on the topic of poor installations, receiving supplemental information without understanding all scenarios will result in ill-advised and incorrect conclusions. US EPA reinforces our

concern by noting in section 7) sub-section B. that it recognizes use of six-inch diameter ducting may not face higher pressure issues. HVI recommends that the additional reporting requirements identified in sub-section E and Table 3 be removed from the final specification.

Point 7: [V4.1, section 3) Certification Criteria, sub-section E. Reporting Requirements, Note]

HVI welcomes the opportunity to work with US EPA and ICFI on the topic of poor installations. US EPA, ASHRAE and CEC all are working to define what makes a good or bad installation and the corresponding impacts.

Point 8: [V4.1, section 3) Certification Criteria, sub-section E. Reporting Requirements, Table 3: Efficacy and Fan Sound Reporting Requirements]

Of concern in section 3) is that Table 3 does not identify that the supplemental information requested does not have to meet the efficacy and fan sound requirements found in Tables 1 and 2. We recommend, if the additional reporting requirements are not eliminated as recommended in Point 6, that US EPA add a note to clarify that the Table 3 requirements do not have to meet the certification criteria requirements of Tables 1 and 2.

Point 9: [V4.1, section 3) Certification Criteria, sub-section E. Reporting Requirements, Table 3: Efficacy and Fan Sound Reporting Requirements]

The request in Table 3 for range hood efficacy and sound levels at 0.1 in. w.g. is very confusing as the specification already establishes that range hoods are tested and certified at working speed.

When a range hood is HVI-Certified, it is tested at its maximum operating speed at 0.1 in. w.g. Using the fan curve, the appropriate static pressure is established for working speed. US EPA defines working speed as “The speed that produces 100 CFM, or the lowest speed above 100 CFM that a range hood can produce, when working on the same duct system as the maximum speed test”. As such, working speed will never see 0.1 in. w.g. To introduce a new metric would cause significant confusion. HVI recommends removal of any range hood requirement that is not at working speed.

Point 10: [V4.1, section 3) Certification Criteria, sub-section E. Reporting Requirements, Table 3: Efficacy and Fan Sound Reporting Requirements]

While all ENERGY STAR ventilating fans require the “installed fan performance” airflow be at 70% at 0.25 in. w.g. that does not mean the fans would necessarily also be sound-tested at 0.25 in. w.g. To require sound at 0.25 in. w.g. could potentially cause some manufacturers not to offer ENERGY STAR certified product(s). ASHRAE 62.2-2016 only requires sound certification at 0.1 in. w.g. HVI reiterates its recommendation that sub-section E and Table 3 be eliminated.

Point 11: [V4.1, section 4) Test Requirements, sub-section C. Static Pressure Reference Measurements, Table 5: Static Pressure Reference Measurements]

HVI review of internal product data indicates that 73% of the products currently certified with airflow ratings at 0.25 in. w.g. do not have corresponding certified sound ratings at 0.25 in. w.g. The sound data is not available in existing lab reports; consequently, if a sound rating at 0.25 in. w.g. should become a requirement, HVI has significant concerns related to lab throughput and timing as well as the burden which would be placed on the manufacturers. HVI recommends the removal of the 0.25 in. w.g. requirement from Table 5.

Point 12: [V4.1, section 4) Test Requirements, sub-section C. Static Pressure Reference Measurements, Note: after Table 5: Static Pressure Reference Measurements]

In the note that follows Table 5, it states, perhaps incorrectly, that the static pressure reference measurements have not changed. The note following Table 5 identifies the requirement for 0.25 in. w.g. for fans as a specification requirement whereas Table 3 where the data appears to be for supplemental research purposes. We request US EPA clarify whether the 0.25 in. w.g. is, in fact, a specification change.

Point 13: [V4.1, section 4) Test Requirements, sub-section C. Static Pressure Reference Measurements, Table 5: Static Pressure Reference Measurements]

Table 5 identifies a 0.1 in. w.g. reporting requirement for range hoods at working speed that is confusing and incorrect. As noted in Point 9, working speed is never rated at 0.1 in. w.g. We recommend eliminating the 0.1 in. w.g. requirement for range hood working speed from this table.

Point 14: [V4.1, section 5) Inclusion of Installation Instructions and Consumer Recommendations]

The ducting verbiage change in section 5) is unnecessary. The original ducting note is still valid for supply fans as ducting is required from the fan to the outside. Our concern with the proposed change is with derived models. We recommend the fourth sentence of the note be changed to, "To avoid unnecessary updates to product literature, manufacturers with currently-certified products, and derivatives of those products, may continue to use the statement found in Version 4.0".

Point 15: [V4.1, section 7) Future Specification Revisions]

We are concerned with the section 7) Future Revisions topics. Bullet A. appears to indicate that a raise in the standard rating static pressure point for fans is a *fait accompli*. We caution against moving too quickly without the required research.

Point 16: [V4.1, section 7) Future Specification Revisions]

An added dynamic in the standard rating static pressure discussion are the bath fans that have constant rated airflow at higher static pressures due to the use of BLDC motors and controls. Many of these fans are awarded the ENERGY STAR “Most Efficient” designations. PSC motors do not have that capability. US EPA must be careful to avoid creating a specification which limits the technology that can be used.

We wish to thank you again for seeking stakeholder comments and recommendations for the V4.1 update. HVI stands ready to provide further commentary. Please reach out to Jim Boldt, HVI Engineering Director, at industry@hvi.org with any questions you may have.

Kind regards,



Jacki Donner, CAE
CEO