



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

OFFICE OF  
AIR AND RADIATION

October 27, 2014

Dear ENERGY STAR® Ventilating Fan Manufacturer or Other Interested Party:

In order to allow for additional dialog with stakeholders prior to releasing the Final Draft of the Version 4.0 ENERGY STAR Ventilating specification, the Environmental Protection Agency (EPA) is sharing this supplemental proposal that addresses two topics: installation instructions and lighting requirements.

In the time since Draft 1 Version 4 was released, it has come to EPA's attention that section 5 (Inclusion of Installation Instructions and Consumer Recommendations) in the current version 3.2 is frequently misinterpreted, and some provisions are not viable for some types of fans. To address this, EPA will revise the section in Version 4. In addition, EPA proposes an adjustment to the Draft 1 lighting-related proposal to ensure that lamps shipped with vent fans deliver the same efficiency as those shipped with other types of luminaires. Each of these topics is discussed further below.

Thank you for your continuing efforts to contribute detailed feedback to inform the specification development process. Any comments on this supplemental proposal should be submitted to EPA at [ventilatingfans@energystar.gov](mailto:ventilatingfans@energystar.gov) no later than November 10, 2014.

**Installation Instruction Requirements**

Through discussion with building science experts and vent fan stakeholders, EPA has developed updated language that is more specific and therefore clearer. In addition, provisions that were not applicable to all fans were modified or removed. EPA proposes the following for Section 5:

**5) Inclusion of Installation Instructions and Consumer Recommendations:** Picture diagram-type installation instructions shall be included with each certified ventilating fan. The instructions shall include the following:

- How to properly seal the fan, ducts and penetrations with caulk or other similar material to create an air-tight path from the ventilated space to the building exterior.
- A recommendation to use vibration-deadening materials, for example insulated flexible duct, to minimize noise in operation.
- How to properly install insulation around the fan and/or ducts to minimize building heat loss and gain and reduce the potential for condensation.
- For range hoods, indication that short straight ducts are needed to achieve the desired airflow.
- For bathroom and utility room fans, this table or equivalent information, and indication that larger ducts must be used if the duct length requirements cannot be met. It is recommended, but not required, that this information also be printed on the carton.

**Table 3: Maximum Allowable Flex Duct Length (ft)** <sup>2, 3, 4</sup>

Rated Airflow	Achievable Airflow at rated power	Duct Diameter <sup>1</sup>		
		4"	6"	8"
50 CFM	50 CFM	5	NL	NL
	35 CFM	55	NL	NL
80 CFM	80 CFM	X	85	NL
	56 CFM	5	NL	NL
100 CFM	100 CFM	X	40	NL
	70 CFM	X	160	NL
125 CFM	125 CFM	X	10	130
	87.5 CFM	X	90	NL
150 CFM	150 CFM	X	X	80
	105 CFM	X	50	NL
200 CFM	200 CFM	X	X	25
	140 CFM	X	10	125
250 CFM	250 CFM	X	X	X
	175 CFM	X	X	65
300 CFM	300 CFM	X	X	X
	210 CFM	X	X	35

<sup>1</sup> For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.

<sup>2</sup> This table assumes no elbows. Deduct 15 ft of allowable duct length for each elbow, e.g. a 4 inch round duct attached to a 50 CFM fan and with two bends must be 25 ft or shorter to guarantee at least 35 CFM of actual airflow.

<sup>3</sup> NL = no limit on duct length of this size.

<sup>4</sup> X = not allowed; any length of duct of this size with assumed turns and fitting will exceed the rated pressure drop.

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

To ensure quiet operation of ENERGY STAR certified 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 insulated flexible duct should be installed between the exhaust or supply grille(s) and the fan. For kitchen range hood remote ventilation applications, where metal duct is generally required by code, a metal sound attenuator should be installed between the range hood and the fan.

EPA's intention in requiring that installation instructions include specific information about required lengths is to work with partners to educate installers, many of whom are not HVAC specialists, about the impact of duct design on installed performance. We believe our vent fan partners share our desire that consumers get the noise and airflow performance they expect from their ENERGY STAR vent fan.

The numbers in Table 3 come from two sources: the 0.25 in w.g. numbers (with 70% of airflow as required by this specification) are from ASHRAE 62.2-2013 Table 5.3, rounded to the nearest 5 ft. The 0.1 in w.g. numbers (with 100% of rated airflow) were calculated by EPA, reflect

similar assumptions as those used for the ASHRAE table in terms of fittings and terminations. In the coming weeks, EPA will contact members of the ASHRAE 62.2 technical committee to confirm our calculation, and we invite partners to confirm as well.

### Lighting Requirements

In Draft 1, Version 4, EPA proposed the option to allow ENERGY STAR ventilating fans that include lighting to ship with an ENERGY STAR certified lamp. In doing so, the Agency neglected to reference two additional requirements necessary to ensure that lighting performance under this option remains consistent with that required under the ENERGY STAR luminaire specification. Proposed requirements have been adjusted for bathroom vent fans because they are often used for general lighting, unlike range hoods. This adjusted proposal is outlined below.

A. Lighting Requirements: Residential ventilating fans that include lighting shall **either**:

(1) meet the *ENERGY STAR® Program Requirements, Product Specification for Luminaires - Eligibility Criteria* for non-directional luminaires that is in effect at the time of certification of the ventilating fan to this Version 4.0. Ventilating fan lighting shall be exempt from the Product Labeling and Packaging Requirements in the Luminaires specification. Night lights shall be exempt from the total light output requirement as well. **or**

(2) ship with a bulb in the package that has been certified to the *ENERGY STAR® Program Requirements, Product Specification for Lamps (Light Bulbs)* that is in effect at the time of manufacture of the ventilating fan. Ventilating fan lighting shall be exempt from the Packaging Requirements in the Lamps specification. ENERGY STAR lamps used in ventilating fans shall be safety rated for damp locations and, if appropriate, for enclosed fixtures or recessed fixtures. Product literature (such as a parts list) shall specify use of an ENERGY STAR lamp appropriate for the fixture. For bathroom and utility ventilating fans, lamps shall have efficacy of 65 lumens/W or greater, and the fixture shall comply with thermal management requirements appropriate to the light source type as specified in the *ENERGY STAR® Program Requirements, Product Specification for Luminaires - Eligibility Criteria* in effect at the time the product is manufactured.

### Submitting Comments

Stakeholders are encouraged to provide written comments for EPA consideration to [ventilatingfans@energystar.gov](mailto:ventilatingfans@energystar.gov) by **November 10, 2014**. All comments will be posted to the ENERGY STAR Product Development website unless the submitter requests otherwise.

To track EPA's progress in developing the ENERGY STAR Ventilating Fan specification, visit the ENERGY STAR website at [www.energystar.gov/revisedspecs](http://www.energystar.gov/revisedspecs) (click on the Ventilating Fan Version 4.0 link). Please direct any specific questions to Abigail Daken, EPA, at [daken.abigail@epa.gov](mailto:daken.abigail@epa.gov) or 202-343-9375 and Sarah Medepalli, ICF International, at [sarah.medepalli@icfi.com](mailto:sarah.medepalli@icfi.com) or 202-677-5201. Thank you for taking the time to review this supplemental proposal.

Sincerely,



Abigail Daken, Product Manager  
ENERGY STAR for HVAC