



# ENERGY STAR® Program Requirements Product Specification for Residential Ceiling Fans

## Eligibility Criteria

### Draft Version 3.1

Following is the **Version 3.1** product specification for ENERGY STAR certified residential ceiling fans. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

**1) Definitions:** Below are the definitions of the relevant terms in this document.

- A. Residential Ceiling Fan: A non-portable device designed for home use that is suspended from the ceiling for circulating air via the rotation of fan blades. Some ceiling fans are sold with light kits.
- B. Light Kit: A complete lighting unit consisting of lamp(s) and ballasting (when applicable) or LED Light Engine(s), together with the parts designed to distribute the light, position and protect the light sources, and connect the sources to the mains.
- C. Controls: Controls enable the user to turn on/off or adjust the lighting and fan movement. Controls may be in the form of pull chain, slide switch, wall switch/panel, or remote control.
- D. Airflow: The rate of air movement at a specific fan setting expressed in cubic feet per minute (CFM).
- E. Airflow Efficiency: The ratio of airflow divided by power at a specific residential ceiling fan setting expressed in CFM per watt (CFM/watt).
- F. Power Consumption: Defined as the active power and expressed in watts.
- G. Hugger Fan: A fan style where the motor mounts directly to the ceiling. Hugger fans are most commonly used in rooms with low ceilings. Hugger fans are manufactured and marketed as such and should not be confused with multi-mount (traditional) fans that can be hung without the down rod, giving the same effect as a hugger fan. Hugger fans are designed to allow installations on 7'6" – 8' height ceilings when using a fan light kit in a location where walking under the fan will occur.
- H. Product Family: Ceiling fan models are identical in every respect, with the exception of finish. Differences that would require separate testing include, but may not be limited to: motor type or size; rotational speed; control type; blade weight, number, size, or pitch; and housing (i.e., size, design, ventilation). Light kits are required to meet the product family definition provided in the ENERGY STAR Luminaires specification.

**2) Scope:**

- A. Included Products: Products that meet the definitions of a Residential Ceiling Fan as specified herein are eligible for ENERGY STAR certification, with the exception of products listed in Section 2.B. Ceiling fan light kits sold separately are eligible under the ENERGY STAR Luminaires specification.
- B. Excluded Products: Hugger fans, as defined above, are not eligible for ENERGY STAR.

**3) Certification Criteria:**

A. Airflow Efficiency Requirements:

Table 1: Air Flow Efficiency Requirements		
Fan Speed	Minimum Airflow	Minimum Efficiency Requirement
Low	1,250 CFM	155 CFM/watt
Medium	3,000 CFM	100 CFM/watt
High	5,000 CFM	75 CFM/watt

- a. Certified products shall meet or exceed the minimum requirements presented in Table 1, above, when operating in a downward-blowing direction.
- b. Efficiency shall be measured on each of three fan speeds (i.e., low, medium, high). For those ceiling fan models that offer more than three speeds manufacturer may choose the three individual speed settings (representative of low, medium, and high) that should be used to comply with the performance levels set forth in Table 1, above.

B. Lighting Requirements: With the exception of Section 11.5, Standby Power Consumption, all light kits shipped with ceiling fans shall meet the *ENERGY STAR Program Requirements, Product Specification for Luminaires – Eligibility Criteria* in effect at the time of certification. Ballast or driver case temperature testing shall be conducted with the ceiling fan turned off.

**Note:** EPA proposes to exempt ceiling fans from standby power requirement of the Luminaires specification. The Luminaires V2.0 standby power requirement is too stringent at this time for control of both lighting and fans. EPA is exempting ceiling fan light kits from standby power requirements until the new Federal test method and metric, which take standby power into account, are incorporated through a more extensive revision.

Certified residential ceiling fans sold without light kits shall provide information on product packaging or with product instructions regarding ENERGY STAR certified light kits that may be used with that particular residential ceiling fan.

C. Controls: Certified products shall permit convenient consumer adjustment of fan speed. This may be accomplished by means of one or more wall-mounted switch(es), a remote control, or readily accessible pull chains. For purposes of this specification, “readily accessible” shall be defined as a length sufficient to reach a height of no more than 80 inches (203 cm) above the floor when the residential ceiling fan is mounted according to the residential ceiling fan’s installation instructions. For those residential ceiling fans that can accommodate light kits, the lights and the fans shall be able to be controlled separately, allowing users to switch off lights during fan operation or operate the lights without using the residential ceiling fan.

Certified products shall also provide for consumer adjustment of airflow direction (upward or downward) by one of the following means:

- A vertically or horizontally mounted slide switch on the motor housing. For vertically mounted switches, the downward position shall correspond to downward airflow. For horizontally mounted switches, airflow direction shall be clearly identified on the switch housing or within the product literature.
- A wall-mounted switch
- A remote control
- A readily accessible pull chain

D. Minimum Warranty: Certified products shall provide a warranty of at least 30 years for the motor and at least one year for all other components of certified residential ceiling fans. Light kit warranty requirements are provided in the ENERGY STAR Luminaires specification.

E. Significant Digits and Rounding:

- a. All calculations shall be carried out with directly measured (unrounded) values.
- b. Unless otherwise specified, compliance with specification limits shall be evaluated using directly measured or calculated values without any benefit from rounding.
- c. Directly measured or calculated values that are submitted for reporting on the ENERGY STAR website shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

**4) Test Requirements:**

- A. Representative Models shall be selected for testing per the following requirements:
  - a. For certification of an individual product model, the representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR.
  - b. For certification of a product family, any model within that product family can be tested and serve as the representative model.
- B. When testing residential ceiling fans, the following test methods shall be used to determine ENERGY STAR certification:

<b>Table 2: Test Methods for ENERGY STAR Certification</b>	
<b>ENERGY STAR Requirement</b>	<b>Test Method Reference</b>
Airflow and Airflow Efficiency	ENERGY STAR Testing Facility Guidance Manual Version 1.2: <i>Building a Testing Facility and Performing the Solid State Test Method for ENERGY STAR Qualified Ceiling Fans</i>
Lighting Requirements	See <i>ENERGY STAR® Program Requirements, Product Specification for Luminaires - Eligibility Criteria</i>

- a. At time of testing, measurements shall be taken at all discrete operating speeds.
- b. Products shipped with light kits shall be tested with those light sources mounted in their intended position and switched off.

- 5) Effective Date:** The ENERGY STAR Residential Ceiling Fan specification shall take effect on **April 1, 2012**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled.
- 6) Future Specification Revisions:** EPA reserves the right to change this specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that the ENERGY STAR certification is not automatically granted for the life of a product model.