

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



OFFICE OF
AIR AND RADIATION

January 26, 2021

Dear ENERGY STAR® CAC/HP Brand Owner or Other Interested Party,

As part of the specification revision process for ENERGY STAR CAC/HP, the U.S. Environmental Protection Agency (EPA) is seeking stakeholder input on a proposal regarding the installation criteria. This proposal follows the release of the Final Draft Version 6.0 specification in October 2020. Feedback received in response to this letter, along with feedback provided on the Final Draft proposal, will inform the Final Version 6.0 specification. Stakeholders may provide comments on this limited topic proposal no later than **February 23, 2021**.

Proposed Amendment to the Installation Criteria

On October 22, 2020, EPA released the [Final Draft Version 6.0 ENERGY STAR Central Air Conditioner and Heat Pump Specification](#), which included several changes to the certification levels for CAC/HP products and removed the explicit requirement that all products must be variable or staged capacity. In light of feedback received on this draft and subsequent conversations with stakeholders, EPA is proposing refinements to the installation criteria through this limited topic proposal.

The conversation centered on two aspects of the criteria. First, for centrally ducted systems, criteria b and c below rely on sensor data from the main blower fan, which is typically not part of the CAC/HP. Second, criteria b, c, e, and f cannot be met unless there is two-way digital communication between the various components of the heating and cooling system. Variable speed products typically use such communication for basic control functions, but it is unusual in other systems. Even single- and two-speed systems that are capable of such communication are often installed without thermostats required to enable such a network. While EPA wants to encourage the adoption of capabilities supporting excellent installation in all products, EPA also wants to ensure that an appropriate percentage of models are eligible for ENERGY STAR, including models that are more competitively priced. As such, EPA will focus installation criteria on products that have three or more capacities or are continuously variable.

This limited topic proposal for CAC/ASHP installation criteria adds text to the **3) Certification Criteria** section from the CAC/ASHP Version 6 Final Draft specification.

3) Certification Criteria:

- C. Installation Capabilities: To certify as ENERGY STAR, all CAC/HPs that have three or more capacities, or are continuously variable, must be capable of providing at least three of the following capabilities to aid in quality installation. For purposes of this section, a thermostat or controller can be considered part of the system. Items a, b, and c are understood to be measured at maximum fan speed and capacity. Single-stage or two-stage CAC/HPs are exempt from this requirement but should report these features if they are available with some controllers.
 - a. Refrigerant charge – System can verify that the refrigerant charge is within manufacturer recommended tolerances at a range of conditions including outdoor temperatures at least as low as 55°F.

- b. Airflow measurement or external static pressure – System shall have some capability to display airflow and confirm that it is within the OEM recommended settings, or to display external static pressure and fan speed setting. For split systems, this capability may be contingent on the recognized product being paired with a specific furnace or air handler. (Not relevant to ductless units)
- c. Blower fan power draw – System shall have the capability to measure and report the watt draw of the blower fan. For split systems, this capability may be contingent on the recognized product being paired with a specific furnace or air handler.
- d. If systems DO NOT include any of the capabilities in a, b, or c, and have multiple or variable capacities, the system provides an easily accessible test mode that locks the system into the highest fan speed and compressor capacity setting available in that installation, such that a technician can measure the quantities in a, b, and c with external equipment.
- e. Automatic system discovery – System is capable of automatically recognizing compatible communicating indoor/outdoor units, furnaces. Automatic discovery of humidifiers and dehumidifiers is encouraged.
- f. Preprogrammed system tests – System shall automatically prompt the installer to run preconfigured system tests following the initial setup. These tests should verify, at a minimum, fan blower, cooling-mode, defrost mode, heat pump only heating, and auxiliary heating tests as applicable to the product. The test should require installer verification of the results before exiting test mode.

Note: Limiting the installation criteria to variable capacity products in Version 6 reflects the current market and available technologies. Stakeholders affirmed that products with communicating capabilities and ductless products will be able to meet these criteria without adding cost. EPA firmly believes in the role of advanced product capabilities to address poor installation for all products and looks forward to working with stakeholders to identify a practical path to expand their availability. EPA encourages partners to report whether single stage and two-stage products can meet any of these capabilities with the right controller, and that information will be displayed in the QPL.

Additionally, EPA has clarified that airflow measurement or external static pressure and blower fan power draw capabilities may require that a split system unit is paired with a specific furnace or air handler.

Lastly, as these capabilities rely on particular sensor data from blower fans, EPA anticipates proposing that ENERGY STAR products with blower fans (e.g. furnaces) provide that data in future versions. In addition, EPA is currently working to add communicating controllers to the ENERGY STAR Connected Thermostat specification, and anticipates proposing that such controllers enable installation capabilities that rely on them.

Stakeholders are encouraged to provide written comments for EPA consideration to CACASHP@energystar.gov by February 23, 2021. All comments will be posted to the [ENERGY STAR CAC-ASHP Product Development website](#) unless the submitter requests otherwise.

Please direct any specific questions to Abigail Daken, EPA, at daken.abigail@epa.gov or (202) 343-9375, and Julia Hegarty, ICF, at julia.hegarty@icf.com or (202) 862-1163. For test procedure inquiries, please contact Catherine Rivest, U.S. Department of Energy, Catherine.Rivest@ee.doe.gov or (202) 586-7335.

Thank you for your continued support of ENERGY STAR.

Sincerely,

A handwritten signature in black ink, appearing to read "Abigail Daken". The signature is fluid and cursive, with the first name being more prominent.

Abigail Daken, Product Manager
ENERGY STAR for HVAC