Proposed Recognition Criteria
Central Air Conditioners, Heat Pumps, and Geothermal Heat Pumps

Scope

Included products: Residential conventional ducted split-system and single-package central air conditioners, central air conditioning heat pumps, and geothermal heat pumps, as defined below, are eligible for ENERGY STAR® Most Efficient recognition in 2023.

Central air conditioner (CAC) or central air conditioning heat pump (HP)[1]: A product, other than a packaged terminal air conditioner or packaged terminal heat pump, which is powered by single phase electric current, air cooled, rated below 65,000 Btu per hour, not contained within the same cabinet as a furnace, the rated capacity of which is above 225,000 Btu per hour, and is a heat pump or a cooling unit only.

A central air conditioner or central air conditioning heat pump may consist of: A single-package unit; an outdoor unit and one or more indoor units; an indoor unit only; or an outdoor unit with no match. In the case of an indoor unit only or an outdoor unit with no match, the unit must be tested and rated as a system (combination of both an indoor and an outdoor unit).

Single-package unit[1]: Any central air conditioner or heat pump that has all major assemblies enclosed in one cabinet.

Split system[1]: Any air conditioner or heat pump that has at least two separate assemblies that are connected with refrigerant piping when installed. One of these assemblies includes an indoor coil that exchanges heat with the indoor air to provide heating or cooling, while one of the others includes an outdoor coil that exchanges heat with the outdoor air. Split systems may be either blower coil systems or coil-only systems.

Ducted system[1]: An air conditioner or heat pump that is designed to be permanently installed equipment and delivers conditioned air to the indoor space through a duct(s). The air conditioner or heat pump may be either a split-system or a single-package unit. A ducted system may be any one of the following configurations:

a. Ceiling-mount blower coil system: A split system for which a) the outdoor unit has a certified cooling capacity less than or equal to 36,000 Btu/h; b) the indoor unit(s) is/are shipped with manufacturer-supplied installation instructions that specify to secure the indoor unit only to the ceiling, within a furred-down space, or above a dropped ceiling of the conditioned space, with return air directly to the bottom of the unit without ductwork, or through the furred-down space, or optional insulated return air plenum that is shipped with the indoor unit; c) the installed height of the indoor unit is no more than 12 inches (not including condensate drain lines) and the installed depth (in the direction of airflow) of the indoor unit is no more than 30 inches; and d) supply air is discharged horizontally.

b. Low-static blower coil system: A ducted multi-split or multi-head mini-split system for which all indoor units produce greater than 0.01 in. wc. and a maximum of 0.35 in. wc.

[1] 10 CFR Part 430, Subpart B, Appendix M - Uniform Test Method for Measuring the Energy Consumption of Central Air Conditioners and Heat Pumps.

external static pressure when operated at the cooling full-load air volume rate not exceeding 400 cfm per rated ton of cooling.

c. Mid-static blower coil system: A ducted multi-split or multi-head mini-split system for which all indoor units produce greater than 0.20 in. wc. and a maximum of 0.65 in. wc. when operated at the cooling full-load air volume rate not exceeding 400 cfm per rated ton of cooling.

d. Mobile home blower coil system: A split system that contains an outdoor unit and an indoor unit that meet the following criteria:

    i. Both the indoor and outdoor units are shipped with manufacturer-supplied installation instructions that specify installation only in a mobile home with the home and equipment complying with HUD Manufactured Home Construction Safety Standard 24 CFR part 3280;

    ii. The indoor unit cannot exceed 0.40 in. wc. when operated at the cooling full-load air volume rate not exceeding 400 cfm per rated ton of cooling; and

    iii. The indoor and outdoor unit each must bear a label in at least 1⁄4 inch font that reads “For installation only in HUD manufactured home per Construction Safety Standard 24 CFR part 3280.”

e. Small-duct, high-velocity system: A split system for which all indoor units are blower coil indoor units that produce at least 1.2 inches (of water column) of external static pressure when operated at the full-load air volume rate certified by the manufacturer of at least 220 scfm per rated ton of cooling.

f. Conventional ducted system: All ducted central air conditioners and heat pumps not otherwise listed above, tested at a minimum external static pressure of 0.50 in. Wc.

Geothermal Heat Pump (GHP): A geothermal heat pump uses the thermal energy of the ground or groundwater to provide residential space conditioning and/or domestic water heating. A GHP model normally consists of one or more factory-made assemblies that include indoor conditioning and/or domestic water heat exchanger(s), compressors, and a ground-side heat exchanger. A GHP model may provide space heating, space cooling, domestic water heating, or a combination of these functions and may also include the functions of liquid circulation, thermal storage, air circulation, air cleaning, dehumidifying, or humidifying. A GHP system generally consists of one or more GHP models, the ground heat exchanger(s), the air and/or hydronic space conditioning distribution system(s), temperature controls, and thermal storage tanks.

Excluded products: The following products are not eligible for ENERGY STAR Most Efficient recognition in 2023 under this specification:

- Units that run on three-phase power.
- Central Air Conditioner or Air Conditioning Heat Pump models rated for more than 65,000 Btu/h of cooling. This limit does not apply to GHPs.
- Non-ducted Single-split, Mini-split, and Multi-split systems are eligible for ENERGY STAR Most Efficient in 2023 with different requirements under the Non-Ducted Split Air Conditioners and Heat Pumps recognition criteria.
- Mobile home blower coil systems.

Recognition Criteria

1) Product must be ENERGY STAR certified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specifications for Residential Heat Pumps and Central Air Conditioners, Version 6.1 or Geothermal Heat Pumps, Version 3.2. Product performance must be certified by a certification body recognized by the U.S. Environmental Protection Agency (EPA).

2) Products must meet the following cooling and heating performance levels:

Product type	SEER2	EER2	HSPF2
Split system CAC	16.9	12.4	
Split system HP	16.9	12.0	8.2
Single-package CAC	15.2	11.5	
Single-package HP	15.2	11.5	7.2
Cold Climate HP	15.2	11.0	8.5

Product type	EER	COP
Closed Loop Water-to-Air GHP	17.1	3.6
Open Loop Water-to-Air GHP	21.1	4.1
Closed Loop Water-to-Water GHP	16.1	3.1
Open Loop Water-to-Water GHP	20.1	3.5
DGX-to-Air	16.0	3.6
DGX-to-Water	15.0	3.1

A. To be recognized as ENERGY STAR Most Efficient Cold Climate, heat pumps must be certified as cold climate heat pumps under Version 6.1 of the Central Air Conditioners and Heat pumps specification.

3) Products must be able to provide heating and cooling (as applicable) at two or more capacity levels. Water-to-Water and DGX-to-Water GHP products are exempt from this requirement.

4) CAC and HP Products must be recognized as having installation benefits per the ENERGY STAR Program Requirements Product Specifications for Residential Heat Pumps and Air Conditioners, Version 6.1, Section 3.C.

Recognition Period

The U.S. Environmental Protection Agency (EPA) will add qualifying models to the ENERGY STAR Most Efficient 2023 product list for central air conditioners and heat pumps models from January 1, 2023, through December 31, 2023. The ENERGY STAR Most Efficient 2023 designation may be used in association with models recognized during this period for as long as the model remains on the market.