

TABLE 1 TO § 431.87—COMMERCIAL PACKAGED BOILER ENERGY CONSERVATION STANDARDS

| Equipment type | Subcategory | Size category (input) | Efficiency level—Effective date: March 2, 2012* |
|---|-------------------------------------|--------------------------------------|---|
| Hot Water Commercial Packaged Boilers ... | Gas-fired | ≥300,000 Btu/h and ≤2,500,000 Btu/h. | 80.0% E _T |
| Hot Water Commercial Packaged Boilers ... | Gas-fired | >2,500,000 Btu/h | 82.0% E _C |
| Hot Water Commercial Packaged Boilers ... | Oil-fired | ≥300,000 Btu/h and ≤2,500,000 Btu/h. | 82.0% E _T |
| Hot Water Commercial Packaged Boilers ... | Oil-fired | >2,500,000 Btu/h | 84.0% E _C |
| Steam Commercial Packaged Boilers | Gas-fired—all, except natural draft | ≥300,000 Btu/h and ≤2,500,000 Btu/h. | 79.0% E _T |
| Steam Commercial Packaged Boilers | Gas-fired—all, except natural draft | >2,500,000 Btu/h | 79.0% E _T |
| Steam Commercial Packaged Boilers | Gas-fired—natural draft | ≥300,000 Btu/h and ≤2,500,000 Btu/h. | 77.0% E _T |
| Steam Commercial Packaged Boilers | Gas-fired—natural draft | >2,500,000 Btu/h | 77.0% E _T |
| Steam Commercial Packaged Boilers | Oil-fired | ≥300,000 Btu/h and ≤2,500,000 Btu/h. | 81.0% E _T |
| Steam Commercial Packaged Boilers | Oil-fired | >2,500,000 Btu/h | 81.0% E _T |

*Where E_C is combustion efficiency and E_T is thermal efficiency as defined in § 431.82.

(c) Each commercial packaged boiler listed in Table 2 to § 431.87 and manufactured on or after the effective date listed in Table 2 of this section, must meet the applicable energy conservation standard in Table 2.

TABLE 2 TO § 431.87—COMMERCIAL PACKAGED BOILER ENERGY CONSERVATION STANDARDS

| Equipment type | Subcategory | Size category (input) | Efficiency level—Effective date: March 2, 2022* |
|---------------------------------------|-------------------------|-------------------------------------|---|
| Steam Commercial Packaged Boilers ... | Gas-fired—natural draft | ≥300,000 Btu/h and ≤2,500,000 Btu/h | 79.0% E _T |
| Steam Commercial Packaged Boilers ... | Gas-fired—natural draft | >2,500,000 Btu/h | 79.0% E _T |

*Where E_C is combustion efficiency and E_T is thermal efficiency as defined in § 431.82.

[74 FR 36355, July 22, 2009]

Subpart F—Commercial Air Conditioners and Heat Pumps

SOURCE: 69 FR 61969, Oct. 21, 2004, unless otherwise noted.

§ 431.91 Purpose and scope.

This subpart specifies test procedures and energy conservation standards for certain commercial air conditioners and heat pumps, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

[69 FR 61969, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005]

§ 431.92 Definitions concerning commercial air conditioners and heat pumps.

The following definitions apply for purposes of this subpart F, and of subparts J through M of this part. Any words or terms not defined in this sec-

tion or elsewhere in this part shall be defined as provided in 42 U.S.C. 6311.

Basic model means all units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

Coefficient of Performance, or COP means the ratio of the produced cooling effect of an air conditioner or heat pump (or its produced heating effect, depending on the mode of operation) to its net work input, when both the cooling (or heating) effect and the net work input are expressed in identical units of measurement.

Commercial package air-conditioning and heating equipment means air-cooled, water-cooled, evaporatively-cooled, or water source (not including ground water source) electrically operated, unitary central air conditioners and

central air-conditioning heat pumps for commercial application.

Computer Room Air Conditioner means a basic model of commercial package air-conditioning and heating equipment (packaged or split) that is: Used in computer rooms, data processing rooms, or other information technology cooling applications; rated for sensible coefficient of performance (SCOP) and tested in accordance with 10 CFR 431.96, and is not a covered consumer product under 42 U.S.C. 6291(1)–(2) and 6292. A computer room air conditioner may be provided with, or have as available options, an integrated humidifier, temperature, and/or humidity control of the supplied air, and reheating function.

Energy Efficiency Ratio, or EER means the ratio of the produced cooling effect of an air conditioner or heat pump to its net work input, expressed in Btu/watt-hour.

Heat Recovery (in the context of variable refrigerant flow multi-split air conditioners or variable refrigerant flow multi-split heat pumps) means that the air conditioner or heat pump is also capable of providing simultaneous heating and cooling operation, where recovered energy from the indoor units operating in one mode can be transferred to one or more other indoor units operating in the other mode. A variable refrigerant flow multi-split heat recovery heat pump is a variable refrigerant flow multi-split heat pump with the addition of heat recovery capability.

Heating seasonal performance factor, or HSPF means the total heating output of a central air-conditioning heat pump during its normal annual usage period for heating, expressed in Btu's and divided by the total electric power input, expressed in watt-hours, during the same period.

Large commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated—

- (1) At or above 135,000 Btu per hour; and
- (2) Below 240,000 Btu per hour (cooling capacity).

Non-standard size means a packaged terminal air conditioner or packaged terminal heat pump with existing wall

sleeve dimensions having an external wall opening of less than 16 inches high or less than 42 inches wide, and a cross-sectional area less than 670 square inches.

Packaged terminal air conditioner means a wall sleeve and a separate unencased combination of heating and cooling assemblies specified by the builder and intended for mounting through the wall, and that is industrial equipment. It includes a prime source of refrigeration, separable outdoor louvers, forced ventilation, and heating availability by builder's choice of hot water, steam, or electricity.

Packaged terminal heat pump means a packaged terminal air conditioner that utilizes reverse cycle refrigeration as its prime heat source, that has a supplementary heat source available, with the choice of hot water, steam, or electric resistant heat, and that is industrial equipment.

Seasonal energy efficiency ratio or SEER means the total cooling output of a central air conditioner or central air-conditioning heat pump, expressed in Btu's, during its normal annual usage period for cooling and divided by the total electric power input, expressed in watt-hours, during the same period.

Sensible Coefficient of Performance, or SCOP means the net sensible cooling capacity in watts divided by the total power input in watts (excluding reheaters and humidifiers).

Single package unit means any central air conditioner or central air-conditioning heat pump in which all the major assemblies are enclosed in one cabinet.

Single package vertical air conditioner means air-cooled commercial package air conditioning and heating equipment that—

- (1) Is factory-assembled as a single package that—
 - (i) Has major components that are arranged vertically;
 - (ii) Is an encased combination of cooling and optional heating components; and
 - (iii) Is intended for exterior mounting on, adjacent interior to, or through an outside wall;
- (2) Is powered by a single-or 3-phase current;

(3) May contain 1 or more separate indoor grilles, outdoor louvers, various ventilation options, indoor free air discharges, ductwork, well plenum, or sleeves; and

(4) Has heating components that may include electrical resistance, steam, hot water, or gas, but may not include reverse cycle refrigeration as a heating means.

Single package vertical heat pump means a single package vertical air conditioner that—

(1) Uses reverse cycle refrigeration as its primary heat source; and

(2) May include secondary supplemental heating by means of electrical resistance, steam, hot water, or gas.

Small commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated below 135,000 Btu per hour (cooling capacity).

Split system means any central air conditioner or central air conditioning heat pump in which one or more of the major assemblies are separate from the others.

Standard size means a packaged terminal air conditioner or packaged terminal heat pump with wall sleeve dimensions having an external wall opening of greater than or equal to 16 inches high or greater than or equal to 42 inches wide, and a cross-sectional area greater than or equal to 670 square inches.

Variable Refrigerant Flow Multi-Split Air Conditioner means a unit of commercial package air-conditioning and heating equipment that is configured as a split system air conditioner incorporating a single refrigerant circuit, with one or more outdoor units, at least one variable-speed compressor or an alternate compressor combination for varying the capacity of the system by three or more steps, and multiple indoor fan coil units, each of which is individually metered and individually controlled by an integral control device and common communications network and which can operate independently in response to multiple indoor thermostats. Variable refrigerant flow implies three or more steps of capacity control on common, inter-connecting piping.

Variable Refrigerant Flow Multi-Split Heat Pump means a unit of commercial package air-conditioning and heating equipment that is configured as a split system heat pump that uses reverse cycle refrigeration as its primary heating source and which may include secondary supplemental heating by means of electrical resistance, steam, hot water, or gas. The equipment incorporates a single refrigerant circuit, with one or more outdoor units, at least one variable-speed compressor or an alternate compressor combination for varying the capacity of the system by three or more steps, and multiple indoor fan coil units, each of which is individually metered and individually controlled by a control device and common communications network and which can operate independently in response to multiple indoor thermostats. Variable refrigerant flow implies three or more steps of capacity control on common, inter-connecting piping.

Very large commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated—

(1) At or above 240,000 Btu per hour; and

(2) Below 760,000 Btu per hour (cooling capacity).

[69 FR 61969, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005; 73 FR 58828, Oct. 7, 2008; 74 FR 12073, Mar. 23, 2009; 76 FR 12503, Mar. 7, 2011; 77 FR 28988, May 16, 2012]

EFFECTIVE DATE NOTE: At 78 FR 79598, Dec. 31, 2013, § 431.92 was amended by revising the definition of “basic model”, effective Jan. 30, 2014. For the convenience of the user, the revised text is set forth as follows:

§ 431.92 Definitions concerning commercial air conditioners and heat pumps.

* * * * *

Basic model includes:

(1) *Packaged terminal air conditioner (PTAC)* or packaged terminal heat pump (PTHP) means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparable compressors, same or comparable heat exchangers, and same or comparable air moving systems that have a cooling capacity within 300 Btu/h of one another.

(2) *Small, large, and very large air-cooled or water-cooled commercial package air conditioning and heating equipment* means all units

Department of Energy

§ 431.95

manufactured by one manufacturer within a single equipment class, having the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common "nominal" cooling capacity.

(3) *Single package vertical units* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a rated cooling capacity within 1500 Btu/h of one another.

(4) *Computer room air conditioners* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common "nominal" cooling capacity.

(5) *Variable refrigerant flow systems* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s) that have a common "nominal" cooling capacity and the same heat rejection medium (e.g., air or water) (includes VRF water source heat pumps).

(6) *Small, large, and very large water source heat pump* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparable compressors, same or comparable heat exchangers, and same or comparable "nominal" capacity.

* * * * *

TEST PROCEDURES

§ 431.95 Materials incorporated by reference.

(a) *General.* DOE incorporates by reference the following test procedures into subpart F of part 431. The materials listed have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Any subsequent amendment to the listed materials by the standard-setting organization will not affect the DOE regulations unless and until such regulations are amended by DOE. Materials are incorporated as they exist on the date of the approval, and a notice of any changes in the materials will be published in the FEDERAL REGISTER. All approved materials

are available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. Also, this material is available for inspection at U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, 6th Floor, 950 L'Enfant Plaza SW., Washington, DC 20024, (202) 586-2945, or go to: http://www1.eere.energy.gov/buildings/appliance_standards/. The referenced test procedure standards are listed below by relevant standard-setting organization, along with information on how to obtain copies from those sources.

(b) *AHRI.* Air-Conditioning, Heating, and Refrigeration Institute, 2111 Wilson Blvd., Suite 500, Arlington, VA 22201, (703) 524-8800, or go to: <http://www.ahrinet.org>.

(1) ARI Standard 210/240-2003, "2003 Standard for Unitary Air-Conditioning & Air-Source Heat Pump Equipment," published in 2003 (AHRI 210/240-2003), IBR approved for § 431.96.

(2) ANSI/AHRI Standard 210/240-2008, "2008 Standard for Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment," approved by ANSI on October 27, 2011 and updated by addendum 1 in June 2011 and addendum 2 in March 2012 (AHRI 210/240-2008), IBR approved for § 431.96.

(3) ARI Standard 310/380-2004, "Standard for Packaged Terminal Air-Conditioners and Heat Pumps," published September 2004 (AHRI 310/380-2004), IBR approved for § 431.96.

(4) ARI Standard 340/360-2004, "2004 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment," published in 2004 (AHRI 340/360-2004), IBR approved for § 431.96.

(5) ANSI/AHRI Standard 340/360-2007, "2007 Standard for Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment," approved by ANSI on October 27, 2011 and updated by addendum 1 in December 2010 and addendum 2 in June 2011 (AHRI 340/360-2007), IBR approved for § 431.96.