

§ 431.97

10 CFR Ch. II (1–1–06 Edition)

TABLE 2 TO § 431.96—TEST PROCEDURES FOR SMALL COMMERCIAL PACKAGE AIR CONDITIONING AND HEATING EQUIPMENT ≥65,000 BTU/H AND <135,000 BTU/H (OTHER THAN WATER-SOURCE EQUIPMENT)—Continued

Category	Energy efficiency descriptor	Use tests, conditions and procedures ¹ in	With these additional stipulations ²
Water Cooled AC	EER	ARI Standard 340/360–2000.	<p>2. <i>Models Manufactured Without Indoor Air-Circulating Fans:</i> (a) Establish Standard Ratings of units which do not have indoor air circulating fans furnished as part of the model, <i>i.e.</i>, split systems with indoor coil alone, by subtracting from the total cooling capacity 1,250 Btu/h per 1,000 cfm [775 W/m³/s], and by adding the same amount to the heating capacity. Increase total power input for both heating and cooling by 365 W per 1,000 cfm [226 W/m³/s] of indoor air circulated.</p> <p>(b) Equipment which does not incorporate an indoor fan, but is rated in combination with a device employing a fan, shall be rated as described in 6.1.3.2a of 340/360–2000. For equipment of this class which is rated for general use to be applied to a variety of heating units, the indoor-coil airflow rate shall be (1) specified by the manufacturer in Standard Ratings, not to exceed 37.5 SCFM/1,000 Btu/h [0.06 m³/s per 1,000 W] of rated capacity, or (2) the airflow rate obtained through the indoor coil assembly when the pressure drop across the indoor coil assembly and the recommended enclosures and attachment means is not greater than 0.30 inch of water [75 Pa], whichever is less.</p> <p>3. <i>Models with Indoor Fans, Not Made for Use With Field Installed Duct Systems:</i> (a) Equipment with indoor fans not made for use with field installed duct systems (free discharge) shall be rated at the indoor-coil airflow rate delivered when operating at 0 inches of water [0 Pa] external pressure as specified by the manufacturer.</p> <p>(b) Test indoor air-moving equipment not intended for use with field installed duct systems (free discharge) at 0 inches of water [0 Pa] external pressure.</p> <p>4. <i>Water cooled models:</i> For Standard Ratings of water-cooled units add a total allowance for cooling tower fan motor and circulating water pump motor power inputs in the amount of 10.0 W per 1,000 Btu/h [34.1 W per 1,000 W] cooling capacity.</p>
Evaporately Cooled AC.	EER	ARI Standard 340/360–2000.	

¹ Incorporated by reference, see § 431.95.
² The content of stipulations 1, 2(a), 2(b), 3(a), 3(b), and 4 is taken from Sections 2.2.5, 6.1, 6.1.3.3 (c), 6.1.3.3 (b), 6.1.3.6, and 6.1, respectively, of ARI Standard 210/240–2003.

ENERGY EFFICIENCY STANDARDS

§ 431.97 Energy efficiency standards and their effective dates.

(a) Each commercial air conditioner or heat pump manufactured on or after January 1, 1994 (except for large com-

mercial package air-conditioning and heating equipment, for which the effective date is January 1, 1995) and before January 1, 2010 must meet the applicable minimum energy efficiency standard level(s) set forth in Tables 1 and 2 of this section.

TABLE 1 TO § 431.97—MINIMUM COOLING EFFICIENCY LEVELS

Product	Category	Cooling capacity	Sub-category	Efficiency level ¹	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled, 3 phase.	<65,000 Btu/h	Split System	SEER = 10.0	SEER = 10.0.
			Single Package	SEER = 9.7	SEER = 9.7.
	Air Cooled	≥65,000 Btu/h and <135,000 Btu/h.	All	EER = 8.9	EER = 8.9.

TABLE 1 TO § 431.97—MINIMUM COOLING EFFICIENCY LEVELS—Continued

Product	Category	Cooling capacity	Sub-category	Efficiency level ¹			
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003		
	Water Cooled Evaporatively Cooled and Water-Source.	<17,000 Btu/h	AC	EER = 9.3	EER = 12.1.		
			HP	EER = 9.3	EER = 11.2.		
		≥17,000 Btu/h and <65,000 Btu/h.	AC	EER = 9.3	EER = 12.1.		
			HP	EER = 9.3	EER = 12.0.		
		≥65,000 Btu/h and <135,000 Btu/h.	AC	EER = 10.5	EER = 11.5. ²		
			HP	EER = 10.5	EER = 12.0.		
		Large Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled	≥135,000 Btu/h and <240,000 Btu/h.	All	EER = 8.5	EER = 8.5.
			Water-Cooled and Evaporatively Cooled.	≥135,000 and <240,000 Btu/h.	All	EER = 9.6	EER = 9.6. ³
Packaged Terminal Air Conditioners and Heat Pumps.	All	<7,000 Btu/h	All	EER = 8.88	EER = 8.88.		
		≥7,000 Btu/h and ≤15,000 Btu/h.		EER = 10.0 – (0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb temperature]).	EER = 10.0 – (0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb temperature]).		
		>15,000 Btu/h		EER = 7.6	EER = 7.6.		

¹ For equipment rated according to the ARI standards, all EER values must be rated at 95 °F outdoor dry-bulb temperature for air-cooled products and evaporatively-cooled products and at 85 °F entering water temperature for water-cooled products. For water-source heat pumps rated according to the ISO standard, EER must be rated at 30 °C (86 °F) entering water temperature.

² Deduct 0.2 from the required EER for units with heating sections other than electric resistance heat.

³ Effective 10/29/2004, the minimum value becomes EER = 11.0.

TABLE 2 TO § 431.97—MINIMUM HEATING EFFICIENCY LEVELS

Product	Category	Cooling capacity	Sub-category	Efficiency level ¹	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment.	Air Cooled, 3 Phase.	<65,000 Btu/h	Split System	HSPF = 6.8	HSPF = 6.8.
			Single Package	HSPF = 6.6	HSPF = 6.6.
	Water-source	<135,000 Btu/h	Split System and Single Package.	COP = 3.8	COP = 4.2.
	Air Cooled	≥65,000 Btu/h and <135,000 Btu/h.	All	COP = 3.0	COP = 3.0.

TABLE 2 TO § 431.97—MINIMUM HEATING EFFICIENCY LEVELS—Continued

Product	Category	Cooling capacity	Sub-category	Efficiency level ¹	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Large Commercial Packaged Air Conditioning Package and Heating Equipment.	Air Cooled	≥135,000 Btu/h and <240,000 Btu/h.	Split System and Single Package.	COP = 2.9	COP = 2.9.
Packaged Terminal Heat Pumps.	All	All	All	COP = 1.3+(0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels).	COP = 1.3+(0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels).

¹For units tested by ARI standards, all COP values must be rated at 47 °F outdoor dry-bulb temperature for air-cooled products, and at 70 °F entering water temperature for water-source heat pumps. For heat pumps tested by the ISO Standard 13256-1, the COP values must be obtained at the rating point with 20 °C (68 °F) entering water temperature.

(b) Commercial package air conditioning and heating equipment manufactured on or after January 1, 2010, shall have Energy Efficiency Ratio and Coefficient of Performance no less than:

Product	Cooling capacity (Btu/h)	Category	Efficiency level†
Small commercial package air-conditioning and heating equipment (air-cooled).	≥65,000 and <135,000	AC	EER = 11.2* EER = 11.0**
		HP	EER = 11.0* EER = 10.8**
Large commercial package air-conditioning and heating equipment (air-cooled).	≥135,000 and <240,000	AC	EER = 11.0* EER = 10.8**
		HP	EER = 10.6* EER = 10.4**
Very large commercial package air-conditioning (air-cooled).	≥ 240,000 and <760,000	AC	EER = 10.0* EER = 9.8**
		HP	EER = 9.5* EER = 9.3**
Small commercial package air-conditioning heat pump.	≥65,000 and <135,000	HP	COP = 3.3
Large commercial package air-conditioning heat pump.	≥135,000 and <240,000	HP	COP = 3.2
Very large commercial package air-conditioning heat pump.	≥ 240,000 and <760,000	HP	COP = 3.2

* This EER level applies to equipment that has electric resistance heat or no heating.
 ** This EER level applies to equipment with all other heating-system types that are integrated into the unitary equipment.
 †EER at a standard temperature rating of 95 °F dry-bulb and COP at a high temperature rating of 47 °F dry-bulb.

[69 FR 61969, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005; 70 FR 61698, Oct. 25, 2005]

Subpart G—Commercial Water Heaters, Hot Water Supply Boilers and Unfired Hot Water Storage Tanks

SOURCE: 69 FR 61983, Oct. 21, 2004, unless otherwise noted.

§ 431.101 Purpose and scope.

This subpart contains energy conservation requirements for certain commercial water heaters, hot water supply boilers and unfired hot water storage tanks, pursuant to Part C of Title III of the Energy Policy and Conservation Act, as amended, 42 U.S.C. 6311–6317.

[69 FR 61983, Oct. 21, 2004, as amended at 70 FR 60415, Oct. 18, 2005]