

Minimum efficiency requirements for space conditioning equipment are specified in a number of different locations. The following tables are intended to consolidate mandatory efficiency information for some common building space conditioning equipment. These efficiencies include federal defined efficiencies and state defined efficiencies as of July 31, 2025. However, these minimum values may have changed since this date, so Builders should refer to the federal efficiency requirements and the California Energy Code for the most up to date efficiency requirements.

Table 1: Air Conditioners and Condensing Units

Equipment Type	Size Category	Minimum Efficiency ^a	Test Procedures
Air conditioners, air cooled	≥65,000 Btu/h and <135,000 Btu/h	11.2 EER 14.8 IEER	AHRI 340/360
Air conditioners, air cooled	≥135,000 Btu/h and <240,000 Btu/h	11.0 EER 14.2 IEER	AHRI 340/360
Air conditioners, air cooled	≥240,000 Btu/h and <760,000 Btu/h	10.0 EER 13.2 IEER	AHRI 340/360
Air conditioners, air cooled	≥760,000 Btu/h	9.7 EER 12.5 IEER	AHRI 340/360
Air conditioners, water cooled	≥65,000 Btu/h and <135,000 Btu/h	12.1 EER 13.9 IEER	AHRI 340/360
Air conditioners, water cooled	≥135,000 Btu/h and <240,000 Btu/h	12.5 EER 13.9 IEER	AHRI 340/360
Air conditioners, water cooled	≥240,000 Btu/h and <760,000 Btu/h	12.4 EER 13.6 IEER	AHRI 340/360
Air conditioners, water cooled	≥760,000 Btu/h	12.2 EER 13.5 IEER	AHRI 340/360
Air conditioner, evaporatively cooled	≥65,000 Btu/h and <135,000 Btu/h	12.1 EER 12.3 IEER	AHRI 340/360
Air conditioner, evaporatively cooled	≥135,000 Btu/h and <240,000 Btu/h	12.0 EER 12.2 IEER	AHRI 340/360
Air conditioner, evaporatively cooled	≥240,000 Btu/h and <760,000 Btu/h	11.9 EER 12.1 IEER	AHRI 340/360
Air conditioner, evaporatively cooled	≥760,000 Btu/h	11.7 EER 11.9 IEER	AHRI 340/360
Condensing units, air cooled	≥135,000 Btu/h	10.5 EER 11.8 IEER	AHRI 365
Condensing units, water cooled	≥135,000 Btu/h	13.5 EER 14.0 IEER	AHRI 365
Condensing units, evaporatively cooled	≥135,000 Btu/h	13.5 EER 14.0 IEER	AHRI 365

- a. Deduct 0.2 from the required EERs and IEERs for units with a heating section other than electric resistance heat.

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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2025 Building Energy Efficiency Standards - <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

Table 2: Heat Pumps

Equipment Type	Size Category	Rating Condition	Minimum Efficiency ^a	Test Procedure
Air cooled (cooling mode)	≥65,000 Btu/h and <135,000 Btu/h		11.0 EER 14.1 IEER	AHRI 340/360
Air cooled (cooling mode)	≥135,000 Btu/h and <240,000 Btu/h		10.6 EER 13.5 IEER	AHRI 340/360
Air cooled (cooling mode)	≥240,000 Btu/h and <760,000 Btu/h		9.5 EER 12.5 IEER	AHRI 340/360
Water-to-air, water loop (cooling mode)	≥65,000 Btu/h and <135,000 Btu/h	86 °F entering water	13.0 EER	ISO 13256-1
Water-to-air, groundwater (cooling mode)	<135,000 Btu/h	59 °F entering water	18.0 EER	ISO 13256-1
Brine-to-air, ground loop (cooling mode)	<135,000 Btu/h	77 °F entering water	14.1 EER	ISO 13256-1
Water-to-water, water loop (cooling mode)	<135,000 Btu/h	86 °F entering water	10.6 EER	ISO 13256-2
Water-to-water, groundwater (cooling mode)	<135,000 Btu/h	59 °F entering water	16.3 EER	ISO 13256-2
Brine-to-water, ground loop (cooling mode)	<135,000 Btu/h	77 °F entering water	12.1 EER	ISO 13256-2
Air cooled (heating mode)	≥65,000 Btu/h and <135,000 Btu/h (cooling capacity)	47 °F db/43 °F wb outdoor air	3.4 COP	AHRI 340/360
Air cooled (heating mode)	≥65,000 Btu/h and <135,000 Btu/h (cooling capacity)	17 °F db/15 °F wb outdoor air	2.25 COP	AHRI 340/360
Air cooled (heating mode)	≥135,000 Btu/h and <240,000 Btu/h (cooling capacity)	47 °F db/43 °F wb outdoor air	3.3 COP	AHRI 340/360
Air cooled (heating mode)	≥135,000 Btu/h and <240,000 Btu/h (cooling capacity)	17 °F db/15 °F wb outdoor air	2.05 COP	AHRI 340/360

Air cooled (heating mode)	≥240,000 Btu/h and <760,000 Btu/h (cooling capacity)	47 °F db/43 °F wb outdoor air	3.2 COP	AHRI 340/360
Air cooled (heating mode)	≥240,000 Btu/h and <760,000 Btu/h (cooling capacity)	17 °F db/15 °F wb outdoor air	2.05 COP	AHRI 340/360
Water-to-air, water loop (cooling mode)	<135,000 Btu/h (cooling capacity)	68 °F entering water	4.3 COP	ISO 13256-1
Water-to-air, groundwater (cooling mode)	<135,000 Btu/h (cooling capacity)	50 °F entering water	3.7 COP	ISO 13256-1
Brine-to-air, ground loop (cooling mode)	<135,000 Btu/h (cooling capacity)	32 °F entering water	3.2 COP	ISO 13256-1
Water-to-water, water loop (cooling mode)	<135,000 Btu/h (cooling capacity)	68 °F entering water	3.7 COP	ISO 13256-2
Water-to-water, groundwater (cooling mode)	<135,000 Btu/h (cooling capacity)	50 °F entering water	3.1 COP	ISO 13256-2
Brine-to-water, ground loop (cooling mode)	<135,000 Btu/h (cooling capacity)	32 °F entering water	2.5 COP	ISO 13256-2

- a. Deduct 0.2 from the required EERs and IEERs for units with a heating section other than electric resistance heat.

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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Table 3: Air-cooled Gas-engine Heat Pumps

Equipment Type	Size Category	Rating Condition	Minimum Efficiency	Test Procedure
Air cooled gas-engine heat pump (cooling mode)	All capacities	95 °F db outdoor air	0.60 COP	ANSI Z21.40.4A
Air cooled gas-engine heat pump (heating mode)	All capacities	47 °F db/43 °F wb outdoor air	0.72 COP	ANSI Z21.40.4A

Reference:

2025 Building Energy Efficiency Standards - <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

Table 4: Water Chilling Packages

Equipment Type	Size Category	Path A Efficiency ^{a, b}	Path B Efficiency ^{a, b}	Test Procedure
Air cooled, with condenser, electrically operated	<150 tons	≥10.100 EER ≥13.700 IPLV	≥9.700 EER ≥15.800 IPLV	AHRI 550/590
Air cooled, with condenser, electrically operated	≥150 tons	≥10.100 EER ≥14.00 IPLV	≥9.700 EER ≥16.100 IPLV	AHRI 550/590
Air cooled, without condenser, electrically operated	All capacities	Air cooled chillers without condensers must be rated with matching condensers and comply with the air cooled chiller efficiency requirements.	Air cooled chillers without condensers must be rated with matching condensers and comply with the air cooled chiller efficiency requirements.	AHRI 550/590
Water cooled, electrically operated, reciprocating	All capacities	Reciprocating units must comply with the water cooled positive displacement efficiency requirements.	Reciprocating units must comply with the water cooled positive displacement efficiency requirements.	AHRI 550/590
Water cooled, electrically operated, positive displacement	<75 tons	≤0.750 kW/ton ≤0.600 IPLV	≤0.780 kW/ton ≤0.500 IPLV	AHRI 550/590
Water cooled, electrically operated, positive displacement	≥75 tons and <150 tons	≤0.720 kW/ton ≤0.560 IPLV	≤0.750 kW/ton ≤0.490 IPLV	AHRI 550/590
Water cooled, electrically operated, positive displacement	≥150 tons and <300 tons	≤0.660 kW/ton ≤0.540 IPLV	≤0.680 kW/ton ≤0.440 IPLV	AHRI 550/590
Water cooled, electrically operated,	≥300 tons and <600 tons	≤0.610 kW/ton ≤0.520 IPLV	≤0.625 kW/ton ≤0.410 IPLV	AHRI 550/590

positive displacement				
Water cooled, electrically operated, positive displacement	≥600 tons	≤0.560 kW/ton ≤0.500 IPLV	≤0.585 kW/ton ≤0.380 IPLV	AHRI 550/590
Water cooled, electrically operated, centrifugal	<150 tons	≤0.610 kW/ton ≤0.550 IPLV	≤0.695 kW/ton ≤0.440 IPLV	AHRI 550/590
Water cooled, electrically operated, centrifugal	≥150 tons and <300 tons	≤0.610 kW/ton ≤0.550 IPLV	≤0.635 kW/ton ≤0.400 IPLV	AHRI 550/590
Water cooled, electrically operated, centrifugal	≥300 tons and <400 tons	≤0.560 kW/ton ≤0.520 IPLV	≤0.595 kW/ton ≤0.390 IPLV	AHRI 550/590
Water cooled, electrically operated, centrifugal	≥400 tons and <600 tons	≤0.560 kW/ton ≤0.500 IPLV	≤0.585 kW/ton ≤0.380 IPLV	AHRI 550/590
Water cooled, electrically operated, centrifugal	≥600 tons	≤0.560 kW/ton ≤0.500 IPLV	≤0.585 kW/ton ≤0.380 IPLV	AHRI 550/590
Air cooled absorption, single effect	All capacities	≥0.600 COP	Not applicable	AHRI 560
Water cooled absorption, single effect	All capacities	≥0.700 COP	Not applicable	AHRI 560
Absorption double effect, indirect fired	All capacities	≥1.000 COP ≥1.050 IPLV	Not applicable	AHRI 560
Absorption double effect, direct fired	All capacities	≥1.000 COP ≥1.000 IPLV	Not applicable	AHRI 560
Water cooled gas engine driven chiller	All capacities	≥1.2 COP ≥2.0 IPLV	Not applicable	ANSI Z21.40.4A

a. No requirements for:

1. Centrifugal chillers with design leaving evaporator temperature <36 °F; or
2. Positive displacement chillers with design leaving fluid temperature ≤32 °F; or
3. Absorption chillers with design leaving fluid temperature < 40 °F.

- b. Must meet the minimum requirements of Path A or Path B. However, both the full load (COP) and IPLV must be met to fulfill the requirements of the applicable path.

Reference:

2025 Building Energy Efficiency Standards - <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

Table 5: Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps

Equipment Type	Size Category	Minimum Efficiency	Test Procedure
PTAC, standard size	<7,000 Btu/h	11.9 EER	AHRI 310/380
PTAC, standard size	≥7,000 Btu/h and ≤15,000 Btu/h	14.0 – (0.300 x Cap) EER ^a	AHRI 310/380
PTAC, standard size	>15,000 Btu/h	9.5 EER	AHRI 310/380
PTAC, nonstandard size	<7,000 Btu/h	9.4 EER	AHRI 310/380
PTAC, nonstandard size	≥7,000 Btu/h and ≤15,000 Btu/h	10.9 – (0.213 x Cap/1000) EER ^a	AHRI 310/380
PTAC, nonstandard size	>15,000 Btu/h	7.7 EER	AHRI 310/380
PTHP, standard size	<7,000 Btu/h	11.9 EER 3.3 COP	AHRI 310/380
PTHP, standard size	≥7,000 Btu/h and ≤15,000 Btu/h	14.0 – (0.300 x Cap) EER ^a 3.7 – (0.052 x Cap) COP ^a	AHRI 310/380
PTHP, standard size	>15,000 Btu/h	9.5 EER 2.9 COP	AHRI 310/380
PTHP, nonstandard size	<7,000 Btu/h	9.3 EER 2.7 COP	AHRI 310/380
PTHP, nonstandard size	≥7,000 Btu/h and ≤15,000 Btu/h	10.8 – (0.213 x Cap) EER ^a 2.9 – (0.026 x Cap) COP ^a	AHRI 310/380
PTHP, nonstandard size	>15,000 Btu/h	7.6 EER 2.5 COP	AHRI 310/380
SPVAC	<65,000 Btu/h	11.0 EER	AHRI 390
SPVAC	≥65,000 Btu/h and <135,000 Btu/h	10.0 EER	AHRI 390
SPVAC	≥135,000 Btu/h and <240,000 Btu/h	10.0 EER	AHRI 390
SPVHP	<65,000 Btu/h	11.0 EER 3.3 COP	AHRI 390
SPVHP	≥65,000 Btu/h and <135,000 Btu/h	10.0 EER 3.0 COP	AHRI 390
SPVHP	≥135,000 Btu/h and <240,000 Btu/h	10.0 EER 3.0 COP	AHRI 390

a. "Cap" means cooling capacity in thousand Btu/h at 95 °F outdoor dry-bulb temperature.

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

Table 6: Heat Rejection Equipment

Equipment Type	Total System Heat Rejection Capacity at Rated Conditions	Subcategory or Rating Condition	Performance Required ^{a, b, c, d}	Test Procedure
Propeller or axial fan open-circuit cooling towers	All	95 °F entering water 85 °F leaving water 75 °F entering air wb	≥42.1 gpm/hp	CTI ATC-105 and CTI STD-201RS
Centrifugal fan open-circuit cooling towers	All	95 °F entering water 85 °F leaving water 75 °F entering air wb	≥20.0 gpm/hp	CTI ATC-105 and CTI STD-201RS
Propeller or axial fan closed-circuit cooling towers	All	102 °F entering water 90 °F leaving water 75 °F entering air wb	≥16.1 gpm/hp	CTI ATC-105S and CTI STD-201RS
Centrifugal fan closed-circuit cooling towers	All	102 °F entering water 90 °F leaving water 75 °F entering air wb	≥7.0 gpm/hp	CTI ATC-105S and CTI STD-201RS
Propeller or axial fan evaporative condensers	All	R-448A test fluid 165 °F entering gas temperature 105 °F condensing temperature 75 °F entering air wb	≥157,000 Btu/h hp	CTI ATC-106
Propeller or axial fan evaporative condensers	All	Ammonia test fluid 140 °F entering gas temperature 96.3 °F condensing temperature 75 °F entering air wb	≥134,000 Btu/h hp	CTI ATC-106

Centrifugal fan evaporative condensers	All	R-448A test fluid 165 °F entering gas temperature 105 °F condensing temperature 75 °F entering air wb	≥135,000 Btu/h hp	CTI ATC-106
Centrifugal fan evaporative condensers	All	Ammonia test fluid 140 °F entering gas temperature 96.3 °F condensing temperature 75 °F entering air wb	≥110,000 Btu/h hp	CTI ATC-106
Air cooled condensers	All	190° F entering gas temperature 125 °F condensing temperature 15 °F subcooling 95 °F entering air db	≥176,000 Btu/h hp	AHRI 460
Propeller or axial fan dry coolers (air cooled fluid coolers)	All	115 °F entering water 105 °F leaving water 95 °F entering air db	≥4.5 gpm/hp	CTI ATC-105DS

- For purposes of this table, open-circuit cooling tower performance is defined as the water flow rating of the tower at the given rated conditions divided by the fan motor nameplate power.
- For purposes of this table, closed-circuit cooling tower performance is defined as the process water flow rating of the tower at the given rated conditions divided by the sum of the fan motor nameplate rated power and the integral spray pump motor nameplate power.
- For purposes of this table dry cooler performance is defined as the process water flow rating of the unit at the given thermal rating condition divided by the total fan motor nameplate power of the unit and air-cooled condenser performance is defined as the heat rejected from the refrigerant divided by the fan motor nameplate power of the unit.
- Open cooling towers shall be tested using the test procedures in CTI ATC-105. Performance of factory assembled open cooling towers shall be either certified as base models as specified in CTI STD-201 or verified by testing in the field by a CTI approved testing agency. Open factory assembled cooling towers with custom options added to a CTI certified base model for the purpose of safe maintenance or to reduce environmental or noise impact shall be rated at 90 percent of the CTI certified performance of the associated base model or at the manufacturer's stated performance, whichever is less. Base models of open factory assembled cooling towers are

open cooling towers configured in exact accordance with the Data of Record submitted to CTI as specified by CTI STD-201. There are no certification requirements for field erected cooling towers.

Reference:

2025 Building Energy Efficiency Standards - <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

Table 7: Electrically Operated Variable Refrigerant Flow Air Conditioners

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
VRF air conditioners, air cooled	<65,000 Btu/h	All	VRF multi-split system	13.4 SEER2	AHRI 210/240
VRF air conditioners, air cooled	≥65,000 Btu/h and <135,000 Btu/h	All	VRF multi-split system	10.5 EER 15.5 IEER	AHRI 1230
VRF air conditioners, air cooled	≥135,000 Btu/h and <240,000 Btu/h	All	VRF multi-split system	10.3 EER 14.9 IEER	AHRI 1230
VRF air conditioners, air cooled	≥240,000 Btu/h and <760,000 Btu/h	All	VRF multi-split system	9.5 EER 13.9 IEER	AHRI 1230

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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Table 8: Electrically Operated Variable Refrigerant Flow Air-to-Air and Applied Heat Pumps

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency^{a, b}	Test Procedure
VRF air cooled (cooling mode)	<65,000 Btu/h	All	VRF multi-split system	13.4 SEER2	AHRI 210/240
VRF air cooled (cooling mode)	≥65,000 Btu/h and <135,000 Btu/h	Electric resistance (or none)	VRF multi-split system	10.3 EER 14.6 IEER	AHRI 1230
VRF air cooled (cooling mode)	≥135,000 Btu/h and <240,000 Btu/h	Electric resistance (or none)	VRF multi-split system	9.9 EER 13.9 IEER	AHRI 1230
VRF air cooled (cooling mode)	≥240,000 Btu/h and <760,000 Btu/h	Electric resistance (or none)	VRF multi-split system	9.1 EER 12.7 IEER	AHRI 1230
VRF water source (cooling mode)	<65,000 Btu/h	All	VRF multi-split system 86 °F entering water	12.0 EER 16.0 IEER	AHRI 1230
VRF water source (cooling mode)	≥65,000 Btu/h and <135,000 Btu/h	All	VRF multi-split system 86 °F entering water	12.0 EER 16.0 IEER	AHRI 1230
VRF water source (cooling mode)	≥135,000 Btu/h and <240,000 Btu/h	All	VRF multi-split system 86 °F entering water	10.0 EER 14.0 IEER	AHRI 1230
VRF water source (cooling mode)	≥240,000 Btu/h and <760,000 Btu/h	All	VRF multi-split system 86 °F entering water	10.0 EER 12.0 IEER	AHRI 1230
VRF groundwater source (cooling mode)	<135,000	All	VRF multi-split system 59 °F entering water	16.2 EER	AHRI 1230
VRF groundwater source (cooling mode)	≥135,000	All	VRF multi-split system 59 °F entering water	13.8 EER	AHRI 1230

VRF ground source (cooling mode)	<135,000	All	VRF multi-split system 77 °F entering water	13.4 EER	AHRI 1230
VRF groundwater source (cooling mode)	≥135,000	All	VRF multi-split system 77 °F entering water	11.0 EER	AHRI 1230
VRF air cooled (heating mode)	<65,000 Btu/h (cooling capacity)	--	VRF multi-split system	7.5 HSPF2	AHRI 210/240
VRF air cooled (heating mode)	≥65,000 Btu/h and <135,000 Btu/h (cooling capacity)	--	VRF multi-split system 47 °F db/43 °F wb outdoor air	3.3 COP	AHRI 1230
VRF air cooled (heating mode)	≥65,000 Btu/h and <135,000 Btu/h (cooling capacity)	--	VRF multi-split system 17 °F db/15 °F wb outdoor air	2.25 COP	AHRI 1230
VRF air cooled (heating mode)	≥135,000 Btu/h and (cooling capacity)	--	VRF multi-split system 47 °F db/43 °F wb outdoor air	3.2 COP	AHRI 1230
VRF air cooled (heating mode)	≥135,000 Btu/h (cooling capacity)	--	VRF multi-split system 17 °F db/15 °F wb outdoor air	2.05 COP	AHRI 1230
VRF water source (heating mode)	<65,000 Btu/h (cooling capacity)	--	VRF multi-split system 68 °F entering water	4.3 COP	AHRI 1230
VRF water source (heating mode)	≥65,000 Btu/h and <135,000 Btu/h (cooling capacity)	--	VRF multi-split system 68 °F entering water	4.3 COP	AHRI 1230
VRF water source (heating mode)	≥135,000 Btu/h and <240,000 Btu/h (cooling capacity)	--	VRF multi-split system 68 °F entering water	4.0 COP	AHRI 1230

VRF water source (heating mode)	≥240,000 Btu/h and <760,000 Btu/h (cooling capacity)	--	VRF multi-split system 68 °F entering water	3.9 COP	AHRI 1230
VRF groundwater source (cooling mode)	<135,000 (cooling capacity)	--	VRF multi-split system 50 °F entering water	3.6 COP	AHRI 1230
VRF groundwater source (cooling mode)	≥135,000 (cooling capacity)	--	VRF multi-split system 50 °F entering water	3.3 COP	AHRI 1230
VRF ground source (cooling mode)	<135,000 (cooling capacity)	--	VRF multi-split system 32 °F entering water	3.1 COP	AHRI 1230
VRF groundwater source (cooling mode)	≥135,000 (cooling capacity)	--	VRF multi-split system 32 °F entering water	2.8 COP	AHRI 1230

- a. Deduct 0.2 from the required EERs and IEERs for units with a heating recovery section.
- b. IEERs are only applicable to equipment with capacity control as specified by AHRI 1230 test procedures.

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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Table 9: Warm-Air Furnaces and Combination Warm-Air Furnaces/Air-Conditioning Units, Warm-Air Duct Furnaces, and Unit Heaters

Equipment Type	Size Category	Subcategory or Rating Condition ^a	Minimum Efficiency ^{b, c}	Test Procedure
Warm air-furnace, gas-fired	≥225,000 Btu/h	Maximum capacity	81% Et	ANSI Z21.47
Warm-air furnace, oil-fired	≥225,000 Btu/h	Maximum capacity	82% Et	ANSI Z21.47
Warm-air duct furnaces, gas-fired	All capacities	Maximum capacity	80% Ec	ANSI Z83.8
Warm-air unit heaters, gas-fired	All capacities	Maximum capacity	80% Ec	ANSI Z83.8
Warm-air unit heaters, oil-fired	All capacities	Maximum capacity	81% Ec	Section 40 UL 731

- a. Compliance of multiple firing rate units shall be at maximum firing rate.
- b. Et= thermal efficiency. Units must also include an interrupted or intermittent ignition device (IID), have jacket losses not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.
- c. Ec= combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-D>

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Table 10: Gas- and Oil-Fired Boilers

Equipment Type	Size Category	Subcategory	Efficiency ^a	Test Procedure
Boiler, hot water	<300,000 Btu/h	Gas-fired	84% AFUE	10 CFR Part 430
Boiler, hot water	≥300,000 Btu/h and ≤2,500,000 Btu/h	Gas-fired	80.0% Et	10 CFR 431.86
Boiler, hot water	>2,500,000 Btu/h	Gas-fired	82.0% Ec	10 CFR 431.86
Boiler, hot water	<300,000 Btu/h	Oil-fired ^b	86% AFUE	10 CFR Part 430
Boiler, hot water	≥300,000 Btu/h and ≤2,500,000 Btu/h	Oil-fired ^b	82.0% Et	10 CFR 431.86
Boiler, hot water	>2,500,000 Btu/h	Oil-fired ^b	84.0% Ec	10 CFR 431.86
Boiler, steam	<300,000 Btu/h	Gas-fired	82% AFUE	10 CFR Part 430
Boiler, steam	≥300,000 Btu/h and ≤2,500,000 Btu/h	Gas-fired	79.0% Et	10 CFR 431.86
Boiler, steam	>2,500,000 Btu/h	Gas-fired	79.0% Et	10 CFR 431.86
Boiler, steam	<300,000 Btu/h	Oil-fired ^b	85% AFUE	10 CFR Part 430
Boiler, steam	≥300,000 Btu/h and ≤2,500,000 Btu/h	Oil-fired ^b	81.0% Et	10 CFR 431.86
Boiler, steam	>2,500,000 Btu/h	Oil-fired ^b	81.0% Et	10 CFR 431.86

a. Where Ec is combustion efficiency and Et is thermal efficiency.

b. Includes oil-fired (residual)

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-E/subject-group-ECFR0f6eefb37f6d425/section-431.87>

10CFR Part 430 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-430/subpart-C>

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Table 11: Direct Expansion-Dedicated Outside Air Systems and Remote Condenser

Equipment Type	Heat Recovery	Subcategory or Rating Condition	Efficiency	Test Procedure
Air cooled (dehumidification mode)	Without energy recovery	Not applicable	3.8 ISMRE2	AHRI 920
Air source heat pump (dehumidification mode)	Without energy recovery	Not applicable	3.8 ISMRE2	AHRI 920
Water cooled (dehumidification mode)	Without energy recovery	Cooling tower condenser water	4.7 ISMRE2	AHRI 920
Water source heat pump (dehumidification mode)	Without energy recovery	Ground source, closed and open loop	4.6 ISMRE2	AHRI 920
Water source heat pump (dehumidification mode)	Without energy recovery	Water source	3.8 ISMRE2	AHRI 920
Air source heat pump (heating mode)	Without energy recovery	Not applicable	2.05 ISCOP2	AHRI 920
Water source heat pump (heating mode)	Without energy recovery	Ground source, closed and open loop	2.13 ISCOP2	AHRI 920
Water source heat pump (heating mode)	Without energy recovery	Water source	2.13 ISCOP2	AHRI 920
Air cooled (dehumidification mode)	With energy recovery	Not applicable	5.0 ISMRE2	AHRI 920
Air source heat pump (dehumidification mode)	With energy recovery	Not applicable	5.0 ISMRE2	AHRI 920
Water cooled (dehumidification mode)	With energy recovery	Cooling tower condenser water	5.1 ISMRE2	AHRI 920
Water source heat pump (dehumidification mode)	With energy recovery	Ground source, closed and open loop	5.0 ISMRE2	AHRI 920
Water source heat pump	With energy recovery	Water source	4.6 ISMRE2	AHRI 920

(dehumidification mode)				
Air source heat pump (heating mode)	With energy recovery	Not applicable	3.2 IS COP2	AHRI 920
Water source heat pump (heating mode)	With energy recovery	Ground source, closed and open loop	3.5 IS COP2	AHRI 920
Water source heat pump (heating mode)	With energy recovery	Water source	4.04 IS COP2	AHRI 920

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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2025 Building Energy Efficiency Standards - <https://www.energy.ca.gov/publications/2025/2025-building-energy-efficiency-standards-residential-and-nonresidential>

Table 12: Floor-Mounted Computer Room Air Conditioners and Condensing Units

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (Dry Bulb/Dew Point)	Test Procedure
Air cooled	Downflow	< 80,000 Btu/h	2.70	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.58	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Downflow	≥295,000 Btu/h	2.36	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Upflow - ducted	<80,000 Btu/h	2.67	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.55	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Upflow - ducted	≥295,000 Btu/h	2.33	85 °F / 52 °F (Class 2)	AHRI 1360
Air Cooled	Upflow - nonducted	<65,000 Btu/h	2.16	75°F / 52°F (Class 1)	AHRI 1360
Air Cooled	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	2.04	75°F / 52°F (Class 1)	AHRI 1360
Air Cooled	Upflow - nonducted	≥240,000 Btu/h	1.89	75°F / 52°F (Class 1)	AHRI 1360
Air Cooled	Horizontal	<65,000 Btu/h	2.65	95°F / 52°F (Class 3)	AHRI 1360
Air Cooled	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.55	95°F / 52°F (Class 3)	AHRI 1360
Air Cooled	Horizontal	≥240,000 Btu/h	2.47	95°F / 52°F (Class 3)	AHRI 1360
Air cooled with fluid economizer	Downflow	<80,000 Btu/h	2.70	85°F / 52°F (Class 2)	AHRI 1360
Air cooled with fluid economizer	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.58	85°F / 52°F (Class 2)	AHRI 1360
Air cooled with fluid economizer	Downflow	≥295,000 Btu/h	2.36	85°F / 52°F (Class 2)	AHRI 1360
Air cooled with fluid economizer	Upflow - ducted	<80,000 Btu/h	2.67	85°F / 52°F (Class 2)	AHRI 1360

Air cooled with fluid economizer	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.55	85°F / 52°F (Class 2)	AHRI 1360
Air cooled with fluid economizer	Upflow - ducted	≥295,000 Btu/h	2.33	85°F / 52°F (Class 2)	AHRI 1360
Air cooled with fluid economizer	Upflow - nonducted	<65,000 Btu/h	2.09	75°F / 52°F (Class 1)	AHRI 1360
Air cooled with fluid economizer	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	1.99	75°F / 52°F (Class 1)	AHRI 1360
Air cooled with fluid economizer	Upflow - nonducted	≥240,000 Btu/h	1.81	75°F / 52°F (Class 1)	AHRI 1360
Air cooled with fluid economizer	Horizontal	<65,000 Btu/h	2.65	95°F / 52°F (Class 3)	AHRI 1360
Air cooled with fluid economizer	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.55	95°F / 52°F (Class 3)	AHRI 1360
Air cooled with fluid economizer	Horizontal	≥240,000 Btu/h	2.47	95°F / 52°F (Class 3)	AHRI 1360
Water cooled	Downflow	<80,000 Btu/h	2.82	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.73	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Downflow	≥295,000 Btu/h	2.67	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Upflow - ducted	<80,000 Btu/h	2.79	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.70	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Upflow - ducted	≥295,000 Btu/h	2.64	85°F / 52°F (Class 2)	AHRI 1360
Water cooled	Upflow - nonducted	<65,000 Btu/h	2.43	75°F / 52°F (Class 1)	AHRI 1360
Water cooled	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	2.32	75°F / 52°F (Class 1)	AHRI 1360
Water cooled	Upflow - nonducted	≥240,000 Btu/h	2.20	75°F / 52°F (Class 1)	AHRI 1360
Water cooled	Horizontal	<65,000 Btu/h	2.79	95°F / 52°F (Class 3)	AHRI 1360

Water cooled	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.68	95°F / 52°F (Class 3)	AHRI 1360
Water cooled	Horizontal	≥240,000 Btu/h	2.60	95°F / 52°F (Class 3)	AHRI 1360
Water cooled with fluid economizer	Downflow	<80,000 Btu/h	2.77	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.68	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Downflow	≥295,000 Btu/h	2.61	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Upflow - ducted	<80,000 Btu/h	2.74	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.65	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Upflow - ducted	≥295,000 Btu/h	2.58	85°F / 52°F (Class 2)	AHRI 1360
Water cooled with fluid economizer	Upflow - nonducted	<65,000 Btu/h	2.35	75°F / 52°F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	2.24	75°F / 52°F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Upflow - nonducted	≥240,000 Btu/h	2.12	75°F / 52°F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Horizontal	<65,000 Btu/h	2.71	95°F / 52°F (Class 3)	AHRI 1360
Water cooled with fluid economizer	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.60	95°F / 52°F (Class 3)	AHRI 1360
Water cooled with fluid economizer	Horizontal	≥240,000 Btu/h	2.54	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled	Downflow	<80,000 Btu/h	2.56	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.24	85°F / 52°F (Class 2)	AHRI 1360

Glycol cooled	Downflow	≥295,000 Btu/h	2.21	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled	Upflow - ducted	<80,000 Btu/h	2.53	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.21	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled	Upflow - ducted	≥295,000 Btu/h	2.18	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled	Upflow - nonducted	<65,000 Btu/h	2.08	75°F / 52°F (Class 1)	AHRI 1360
Glycol cooled	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	1.90	75°F / 52°F (Class 1)	AHRI 1360
Glycol cooled	Upflow - nonducted	≥240,000 Btu/h	1.81	75°F / 52°F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	<65,000 Btu/h	2.48	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.18	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	≥240,000 Btu/h	2.18	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled with fluid economizer	Downflow	<80,000 Btu/h	2.51	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Downflow	≥80,000 Btu/h and <295,000 Btu/h	2.19	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Downflow	≥295,000 Btu/h	2.15	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Upflow - ducted	<80,000 Btu/h	2.48	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Upflow - ducted	≥80,000 Btu/h and <295,000 Btu/h	2.16	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Upflow - ducted	≥295,000 Btu/h	2.12	85°F / 52°F (Class 2)	AHRI 1360
Glycol cooled with fluid economizer	Upflow - nonducted	<65,000 Btu/h	2.00	75°F / 52°F (Class 1)	AHRI 1360

Glycol cooled with fluid economizer	Upflow - nonducted	≥65,000 Btu/h and <240,000 Btu/h	1.82	75°F / 52°F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Upflow - nonducted	≥240,000 Btu/h	1.73	75°F / 52°F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	<65,000 Btu/h	2.44	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	≥65,000 Btu/h and <240,000 Btu/h	2.10	95°F / 52°F (Class 3)	AHRI 1360
Glycol cooled with fluid economizer	Horizontal	≥240,000 Btu/h	2.10	95°F / 52°F (Class 3)	AHRI 1360

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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Table 13: Ceiling-Mounted Computer Room Air Conditioners and Condensing Units

Equipment Type	Standard Model	Net Sensible Cooling Capacity	Minimum Net Sensible COP	Rating Conditions Return Air (Dry Bulb/Dew Point)	Test Procedure
Air cooled with free air discharge condenser	Ducted	<29,000 Btu/h	2.05	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Ducted	≥29,000 Btu/h and <65,000 Btu/h	2.02	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Ducted	≥65,000 Btu/h	1.92	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Nonducted	<29,000 Btu/h	2.08	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Nonducted	≥29,000 Btu/h and < 5,000 Btu/h	2.05	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Nonducted	≥65,000 Btu/h	1.94	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser with fluid economizer	Ducted	<29,000 Btu/h	2.01	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser with fluid economizer	Ducted	≥29,000 Btu/h and <65,000 Btu/h	1.97	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser	Ducted	≥65,000 Btu/h	1.87	75 °F / 52 °F (Class 1)	AHRI 1360

with fluid economizer					
Air cooled with free air discharge condenser with fluid economizer	Nonducted	<29,000 Btu/h	2.04	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser with fluid economizer	Nonducted	≥29,000 Btu/h and <65,000 Btu/h	2.00	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with free air discharge condenser with fluid economizer	Nonducted	≥65,000 Btu/h	1.89	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Ducted	<29,000 Btu/h	1.86	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Ducted	≥29,000 Btu/h and <65,000 Btu/h	1.83	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Ducted	≥65,000 Btu/h	1.73	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Nonducted	<29,000 Btu/h	1.89	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Nonducted	≥29,000 Btu/h and <65,000 Btu/h	1.86	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with ducted condenser	Nonducted	≥65,000 Btu/h	1.75	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with fluid economizer and ducted condenser	Ducted	<29,000 Btu/h	1.82	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with fluid economizer and ducted	Ducted	≥29,000 Btu/h and < 65,000 Btu/h	1.78	75 °F / 52 °F (Class 1)	AHRI 1360

condenser					
Air cooled with fluid economizer and ducted condenser	Ducted	$\geq 65,000$ Btu/h	1.68	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with fluid economizer and ducted condenser	Nonducted	$< 29,000$ Btu/h	1.85	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with fluid economizer and ducted condenser	Nonducted	$\geq 29,000$ Btu/h and $< 65,000$ Btu/h	1.81	75 °F / 52 °F (Class 1)	AHRI 1360
Air cooled with fluid economizer and ducted condenser	Nonducted	$\geq 65,000$ Btu/h	1.70	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Ducted	$< 29,000$ Btu/h	2.38	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Ducted	$\geq 29,000$ Btu/h and $< 65,000$ Btu/h	2.38	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Ducted	$\geq 65,000$ Btu/h	2.18	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Nonducted	$< 29,000$ Btu/h	2.41	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Nonducted	$\geq 29,000$ Btu/h and $< 65,000$ Btu/h	2.31	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled	Nonducted	$\geq 65,000$ Btu/h	2.20	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Ducted	$< 29,000$ Btu/h	2.33	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Ducted	$\geq 29,000$ Btu/h and $< 65,000$ Btu/h	2.23	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Ducted	$\geq 65,000$ Btu/h	2.13	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Nonducted	$< 29,000$ Btu/h	2.36	75 °F / 52 °F (Class 1)	AHRI 1360

Water cooled with fluid economizer	Nonducted	≥29,000 Btu/h and <65,000 Btu/h	2.26	75 °F / 52 °F (Class 1)	AHRI 1360
Water cooled with fluid economizer	Nonducted	≥65,000 Btu/h	2.16	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Ducted	<29,000 Btu/h	1.97	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Ducted	≥29,000 Btu/h and <65,000 Btu/h	1.93	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Ducted	≥65,000 Btu/h	1.78	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Nonducted	<29,000 Btu/h	2.00	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Nonducted	≥29,000 Btu/h and <65,000 Btu/h	1.98	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled	Nonducted	≥65,000 Btu/h	1.81	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Ducted	<29,000 Btu/h	1.92	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Ducted	≥29,000 Btu/h and <65,000 Btu/h	1.88	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Ducted	≥65,000 Btu/h	1.73	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Nonducted	<29,000 Btu/h	1.95	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Nonducted	≥29,000 Btu/h and <65,000 Btu/h	1.93	75 °F / 52 °F (Class 1)	AHRI 1360
Glycol cooled with fluid economizer	Nonducted	≥65,000 Btu/h	1.76	75 °F / 52 °F (Class 1)	AHRI 1360

Reference:

10 CFR Part 431 - <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-431/subpart-F>

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