(Effective until July 1, 2020)

WAC 51-11C-403239 Table C403.2.3(9) and Table C403.2.3(10)—Minimum efficiency requirements.

Table C403.2.3(9)
Minimum Efficiency Requirements—Air Conditioners and Condensing Units Serving Computer Rooms

Equipment Type	Net Sensible Cooling Capacity[a]	Minimum SCOP-127[b] Efficiency Downflow units/Upflow units	Test Procedure
Air conditioners, air cooled	< 65,000 Btu/h (< 19 kW)	2.20/2.09	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	1.90/1.79	
Air conditioners, water cooled	< 65,000 Btu/h (< 19 kW)	2.60/2.49	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.50/2.39	
	≥ 240,000 Btu/h (≥ 70 kW)	2.40/2.29	
Air conditioners, water cooled with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.55/2.44	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19kW and < 70 kW)	2.45/2.34	
	≥ 240,000 Btu/h (≥ 70 kW)	2.35/2.24	
Air conditioners, glycol cooled (rated at 40% propylene glycol)	< 65,000 Btu/h (< 19 kW)	2.50/2.39	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.15/2.04	
	≥ 240,000 Btu/h (≥ 70 kW)	2.10/1.99	
Air conditioners, glycol cooled (rated at 40% propylene glycol) with fluid economizer	< 65,000 Btu/h (< 19 kW)	2.45/2.34	ANSI/ASHRAE 127
	≥ 65,000 Btu/h and < 240,000 Btu/h (≥ 19 kW and < 70 kW)	2.10/1.99	
	≥ 240,000 Btu/h (≥ 70 kW)	2.05/1.94	

[a] Net sensible cooling capacity: The total gross cooling capacity less the latent cooling less the energy to the air movement system. (Total Gross – Latent – Fan Power.)

[b] Sensible coefficient of performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheaters and humidifiers) at conditions defined in ASHRAE Standard 127. The net sensible cooling capacity is the gross sensible capacity minus the energy dissipated into the cooled space by the fan system.

Table C403.2.3(10)
Minimum Efficiency Requirements—Heat Transfer Equipment

Equipment Type	Subcategory	Minimum Efficiency	Test Procedure[a]
Liquid-to-liquid heat exchangers	Plate type	NR	AHRI 400

NR = No requirement.

[a] Chapter 6 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

[Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-403239, filed 1/19/16, effective 7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-403239, filed 2/1/13, effective 7/1/13.]

(Effective July 1, 2020)

WAC 51-11C-403239 Table C403.3.2(9) and Table C403.3.2(10)—Minimum efficiency requirements.

Table C403.3.2(9)
Minimum Efficiency Requirements—Air Conditioners and Condensing Units Serving Computer Rooms

Equipment Type	Net Sensible Cooling Capacity	Standard Model	Minimum Net Sensible COP_c			Test Procedure
			Return Air Dry-Bulb Temperature/Dew-Point Temperature			
			Class 1	Class 2	Class 3	
			75°F/ 52°F	85°F/ 52°F	95°F/ 52°F	
Air cooled	< 65,000 Btu/h	Downflow unit		2.30		AHRI 1360
		Upflow unit - Ducted		2.10		
		Upflow unit - Unducted	2.09			
		Horizontal-flow unit			2.45	
	≥ 65,000 Btu/h and < 240,000 Btu/h	Downflow unit		2.20		
		Upflow unit - Ducted		2.05		
		Upflow unit - Unducted	1.99			
		Horizontal-flow unit			2.35	
	≥ 240,000 Btu/h	Downflow unit		2.00		
		Upflow unit - Ducted		1.85		
		Upflow unit - Unducted	1.79			
		Horizontal-flow unit			2.15	
Water cooled	< 65,000 Btu/h	Downflow unit		2.50		AHRI 1360
		Upflow unit - Ducted		2.30		
		Upflow unit - Unducted	2.25			
		Horizontal-flow unit			2.70	
	≥ 65,000 Btu/h and < 240,000 Btu/h	Downflow unit		2.40		
		Upflow unit - Ducted		2.20		
		Upflow unit - Unducted	2.15			
		Horizontal-flow unit			2.60	
	≥ 240,000 Btu/h	Downflow unit		2.25		
		Upflow unit - Ducted		2.10		
		Upflow unit - Unducted	2.05			
		Horizontal-flow unit			2.45	

Equipment Type	Net Sensible Cooling Capacity	Standard Model	Minimum Net Sensible COP_c Return Air Dry-Bulb Temperature/Dew-Point Temperature Class 1 75°F/52°F	Class 2 85°F/52°F	Class 3 95°F/52°F	Test Procedure
Water cooled with fluid economizer	< 65,000 Btu/h	Downflow unit		2.45		AHRI 1360
		Upflow unit - Ducted		2.25		
		Upflow unit - Unducted	2.20			
		Horizontal-flow unit			2.60	
	≥ 65,000 Btu/h and < 240,000 Btu/h	Downflow unit		2.35		
		Upflow unit - Ducted		2.15		
		Upflow unit - Unducted	2.10			
		Horizontal-flow unit			2.55	
	≥ 240,000 Btu/h	Downflow unit		2.20		
		Upflow unit - Ducted		2.05		
		Upflow unit - Unducted	2.00			
		Horizontal-flow unit			2.40	
Glycol cooled	< 65,000 Btu/h	Downflow unit		2.30		AHRI 1360
		Upflow unit - Ducted		2.10		
		Upflow unit - Unducted	2.00			
		Horizontal-flow unit			2.40	
	≥ 65,000 Btu/h and < 240,000 Btu/h	Downflow unit		2.05		
		Upflow unit - Ducted		1.85		
		Upflow unit - Unducted	1.85			
		Horizontal-flow unit			2.15	
	≥ 240,000 Btu/h	Downflow unit		1.95		
		Upflow unit - Ducted		1.80		
		Upflow unit - Unducted	1.75			
		Horizontal-flow unit			2.10	
Glycol cooled with fluid economizer	< 65,000 Btu/h	Downflow unit		2.25		AHRI 1360
		Upflow unit - Ducted		2.10		
		Upflow unit - Unducted	2.00			
		Horizontal-flow unit			2.35	
	≥ 65,000 Btu/h and < 240,000 Btu/h	Downflow unit		1.95		
		Upflow unit - Ducted		1.80		
		Upflow unit - Unducted	1.75			
		Horizontal-flow unit			2.10	
	≥ 240,000 Btu/h	Downflow unit		1.90		
		Upflow unit - Ducted		1.80		
		Upflow unit - Unducted	1.70			
		Horizontal-flow unit			2.10	

Table C403.3.2(10)
Minimum Efficiency Requirements—
Heat Transfer Equipment

Equipment Type	Subcategory	Minimum Efficiency	Test Procedure[a]
Liquid-to-liquid heat exchangers	Plate type	NR	AHRI 400

NR = No requirement.

[a] Chapter 12 of the referenced standard contains a complete specification of the referenced test procedure, including the referenced year version of the test procedure.

Table C403.3.2(11)
Minimum Efficiency Requirements: Electrically Operated DX-DOAS Units, Single-package and Remote Condenser, Without Energy Recovery

EQUIPMENT TYPE	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY	TEST PROCEDURE
Air cooled (dehumidification mode)		4.0 ISMRE	AHRI 920
Air source heat pumps (dehumidification mode)		4.0 ISMRE	AHRI 920
Water cooled (dehumidification mode)	Cooling tower condenser water	4.9 ISMRE	AHRI 920
	Chilled water	6.0 ISMRE	
Air source heat pump (heating mode)		2.7 ISCOP	AHRI 920
Water source heat pump (dehumidification mode)	Ground source, closed loop	4.8 ISMRE	AHRI 920
	Ground-water source	5.0 ISMRE	
	Water source	4.0 ISMRE	
Water source heat pump (heating mode)	Ground source, closed loop	2.0 ISCOP	AHRI 920
	Ground-water source	3.2 ISCOP	
	Water source	3.5 ISCOP	

Table C403.3.2(12)
Minimum Efficiency Requirements: Electrically Operated DX-DOAS Units, Single-package and Remote Condenser, with Energy Recovery

EQUIPMENT TYPE	SUBCATEGORY OR RATING CONDITION	MINIMUM EFFICIENCY	TEST PROCEDURE
Air cooled (dehumidification mode)		5.2 ISMRE	AHRI 920
Air source heat pumps (dehumidification mode)		5.2 ISMRE	AHRI 920
Water cooled (dehumidification mode)	Cooling tower condenser water	5.3 ISMRE	AHRI 920
	Chilled water	6.6 ISMRE	
Air source heat pump (heating mode)		3.3 ISCOP	AHRI 920
Water source heat pump (dehumidification mode)	Ground source, closed loop	5.2 ISMRE	AHRI 920
	Ground-water source	5.8 ISMRE	
	Water source	4.8 ISMRE	
Water source heat pump (heating mode)	Ground source, closed loop	3.8 ISCOP	AHRI 920
	Ground-water source	4.0 ISCOP	
	Water source	4.8 ISCOP	

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-403239, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.025, 19.27A.160, and 19.27.074. WSR 16-03-072, § 51-11C-403239, filed 1/19/16, effective

7/1/16. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-403239, filed 2/1/13, effective 7/1/13.]