(Effective until July 1, 2020)

WAC 51-11C-403234 Table C403.2.3(4)—Minimum efficiency requirements—Warm air furnaces and unit heaters.

Table 403.2.3(4)
Warm Air Furnaces and Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces and Unit Heaters, Minimum Efficiency Requirements

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency[d, e]	Test Procedure[a]
Warm air furnaces, gas fired	< 225,000 Btu/h	—	78% AFUE or 80% E_t[c]	DOE 10 C.F.R. Part 430 or ANSI Z21.47
	≥ 225,000 Btu/h	Maximum capacity[c]	80% E_t[f]	ANSI Z21.47
Warm air furnaces, oil fired	< 225,000 Btu/h	—	78% AFUE or 80% E_t[c]	DOE 10 C.F.R. Part 430 or UL 727
	≥ 225,000 Btu/h	Maximum capacity[b]	81% E_t[g]	UL 727
Warm air duct furnaces, gas fired	All capacities	Maximum capacity[b]	80% E_c	ANSI Z83.8
Warm air unit heaters, gas fired	All capacities	Maximum capacity[b]	80% E_c	ANSI Z83.8
Warm air unit heaters, oil fired	All capacities	Maximum capacity[b]	80% E_c	UL 731

For SI: 1 British thermal unit per hour = 0.2931 W.

[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.

[b] Minimum and maximum ratings as provided for and allowed by the unit's controls.

[c] Combination units not covered by the National Appliance Energy Conservation Act of 1987 (NAECA) (3-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW]) shall comply with either rating.

[d] E_t = Thermal efficiency. See test procedure for detailed discussion.

[e] E_c = Combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

[f] E_c = Combustion efficiency. Units must also include an IID, have jackets not exceeding 0.75 percent 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.

[g] E_t = Thermal efficiency. Units must also include an IID, have jacket losses not exceeding 0.75 percent 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.

[Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-403234, filed 2/1/13, effective 7/1/13.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

(Effective July 1, 2020)

WAC 51-11C-403234 Table C403.3.2(4)—Minimum efficiency requirements—Warm air furnaces and unit heaters.

Table 403.3.2(4)
Warm Air Furnaces and Combination Warm Air Furnaces/Air-Conditioning Units, Warm Air Duct Furnaces and Unit Heaters, Minimum Efficiency Requirements

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency[d, e]	Test Procedure[a]
Warm air furnaces, gas fired	< 225,000 Btu/h	—	80% AFUE or 80% E_t[c]	DOE 10 C.F.R. Part 430 or ANSI Z21.47
	≥ 225,000 Btu/h	Maximum capacity[c]	80% E_t[f]	ANSI Z21.47
Warm air furnaces, oil fired	< 225,000 Btu/h	—	83% AFUE or 80% E_t[c]	DOE 10 C.F.R. Part 430 or UL 727
	≥ 225,000 Btu/h	Maximum capacity[b]	81% E_t[g]	UL 727

Equipment Type	Size Category (Input)	Subcategory or Rating Condition	Minimum Efficiency[d, e]	Test Procedure[a]
Warm air duct furnaces, gas fired	All capacities	Maximum capacity[b]	80% E_c	ANSI Z83.8
Warm air unit heaters, gas fired	All capacities	Maximum capacity[b]	80% E_c	ANSI Z83.8
Warm air unit heaters, oil fired	All capacities	Maximum capacity[b]	80% E_c	UL 731

For SI: 1 British thermal unit per hour = 0.2931 W.

[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.

[b] Minimum and maximum ratings as provided for and allowed by the unit's controls.

[c] Combination units not covered by the National Appliance Energy Conservation Act of 1987 (NAECA) (3-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW]) shall comply with either rating.

[d] E_t = Thermal efficiency. See test procedure for detailed discussion.

[e] E_c = Combustion efficiency (100% less flue losses). See test procedure for detailed discussion.

[f] E_c = Combustion efficiency. Units must also include an IID, have jackets not exceeding 0.75 percent 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.

[g] E_t = Thermal efficiency. Units must also include an IID, have jacket losses not exceeding 0.75 percent 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.

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-403234, filed 11/26/19, effective 7/1/20. Statutory Authority: RCW 19.27A.020, 19.27A.025 and chapters 19.27 and 34.05 RCW. WSR 13-04-056, § 51-11C-403234, filed 2/1/13, effective 7/1/13.]

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