

March 14, 2024

RE: N-generation A1 Model Energy Efficiency and Code Requirements for VRF Energy Efficiency

To Whom It May Concern:

You may have noticed that the cooling efficiencies (EER and IEER) for the A1 models have decreased compared to the previous A models. This is because the A1 models were tested to the new AHRI 1230 standards (AHRI 1230-2021), effective on 1/1/2024. AHRI 1230-2021 has requirements for sensible heat ratio thresholds, whereas the previous standard, AHRI 1230-2014, did not. As a result, the cooling EER and IEER of A1 models from performance testing showed decreased values.

Most energy codes enforced at the time of this letter (e.g., 2021 IECC and 2022 Title 24) require minimum efficiencies based on AHRI standard 1230-2014, not AHRI standard 1230-2021, for VRF equipment. Therefore, an A1 model outdoor unit may have a rated EER value below the minimum requirement per your state's current energy code.

ASHRAE Standard 90.1-2022 lists minimum efficiency values for VRF equipment based on both AHRI 1230-2014 and AHRI 1230-2021. All A1 model outdoor units meet the minimum efficiency requirements per Standard 90.1-2022 based on the AHRI 1230-2021 test procedure. A table from ASHRAE Standard 90.1-2022 is provided on the next page for reference.

As state energy codes are updated and eventually adopt the new minimum cooling efficiencies per test procedure AHRI 1230-2021, this confusion and discrepancy will be dispelled.

Regards,

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**Table 6.8.1-9 Electrically Operated Variable-Refrigerant-Flow and Applied Heat Pumps—
Minimum Efficiency Requirements**

Equipment Type	Size Category	Heating Section Type	Subcategory or Rating Condition	Minimum Efficiency	Test Procedure
VRF air cooled (cooling mode)	<65,000 Btu/h Three-phase for applications in the U.S. and single- and three-phase for applications outside the U.S.	All	VRF multisplit system	13.0 SEER Before 1/1/2023 SEER2 = 13.4 On or after 1/1/2023	AHRI 1230-2014 with Addendum 1 before 1/1/2023 AHRI 210/240-2023 on or after 1/1/2023
	≥65,000 Btu/h and <135,000 Btu/h	Electric resistance (or none)		11.0 EER 14.6 IEER Before 1/1/2024 10.3 EER 14.6 IEER On or after 1/1/24	AHRI 1230-2014 with Addendum 1 before 1/1/2024 AHRI 1230-2021 on or after 1/1/2024
			VRF multisplit system with heat recovery	10.8 EER 14.4 IEER Before 1/1/2024 10.1 EER 14.4 IEER On or after 1/1/24	
			VRF multisplit system	10.6 EER 13.9 IEER Before 1/1/2024 9.9 EER 13.9 IEER On or after 1/1/24	
	≥135,000 Btu/h and <240,000 Btu/h		VRF multisplit system with heat recovery	10.4 EER 13.7 IEER Before 1/1/2024 9.7 EER 13.7 IEER On or after 1/1/24	
	≥240,000 Btu/h		VRF multisplit system	9.5 EER 12.7 IEER Before 1/1/2024 9.1 EER 12.7 IEER On or after 1/1/24	
			VRF multisplit system with heat recovery	9.3 EER 12.5 IEER Before 1/1/2024 8.9 EER 12.5 IEER On or after 1/1/24	

Reference Table 6.8.1-9 taken from ASHRAE Standard 90.1-2022