



Mo Madani, Technical Director
Building Codes & Standards Office
2601 Blair Stone Road, Tallahassee, Florida 32399

Dear Mo,

Date: August 22, 2025.

Subject: FBC Approval for Update to 2023 FL Energy Code Compliance software Version 9.00

FSEC is pleased to request approval of EnergyGauge Summit 9.00 software by the Florida Building Commission. The software (v9.00) is an update to version 8.00 currently in use for compliance with the Florida Building Code Eighth Edition (2023) - Energy Conservation related to commercial buildings.

Background:

VRF (Variable Refrigerant Flow) systems are highly efficient HVAC solutions that connect one or more outdoor units to multiple indoor units. VRF systems are becoming increasingly popular in commercial and multi-family residential settings due to their flexibility and ability to accommodate varying occupancy levels and usage patterns.

The Issue:

Accurate modeling of VRF systems requires that the correct part-load and temperature-dependent performance curves be available and used in the modeling scenario. However, the current DOE 2.1E engine used in EnergyGauge Summit, while allowing entry of user-defined curves, does not contain any VRF performance curves.

The Update:

FSEC has implemented a new feature whereby the user can select a specific VRF performance curve when VRF systems are used in the compliance modeling. These are:

- 1) Generic VRF performance curves that are used by default. The data for these curves were obtained from a peer-reviewed published source (*Bereket Nigusse & Richard Raustad, Verification of a VRF heat pump computer model in EnergyPlus, ASHRAE Transactions 119, Jan 2013*)
- 2) Performance curves for two specific commercial VRF systems. The data were obtained from the manufacturer's published data (Daikin: VRV-III & VRV-IV) and vetted at FSEC before implementation.

Approval Request:

FSEC seeks approval for the following

- 1) Approval of EnergyGauge Summit 9.00, including the Generic VRF performance curves
- 2) Approval of EnergyGauge Summit 9.00, including the manufacturer's VRF performance curves for the two specific systems.
- 3) Approval of EnergyGauge Summit 9.00 to further include manufacturers' VRF performance curves after thorough vetting and verification, as and when they become available or requested.

Please let us know if you require anything further.

Sincerely,

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