| DOCKETED | |
|---|---|
| **Docket Number:** | 19-BSTD-02 |
| **Project Title:** | Residential Alternative Calculation Method Variable Capacity Heat Pump Modeling Approach |
| **TN #:** | 230486 |
| **Document Title:** | Carrier Comments - Carrier comments to Docket 19-BSTD-02 CBECC Res VSHP |
| **Description:** | N/A |
| **Filer:** | System |
| **Organization:** | Carrier |
| **Submitter Role:** | Public |
| **Submission Date:** | 11/3/2019 11:08:04 AM |
| **Docketed Date:** | 11/3/2019 |

*Comment Received From: Carrier*
*Submitted On: 11/3/2019*
*Docket Number: 19-BSTD-02*

## Carrier comments to Docket 19-BSTD-02 CBECC Res VSHP

*Additional submitted attachment is included below.*

October 31, 2019

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 19-BSTD-02
1516 Ninth Street
Sacramento, CA 95814-5512

Dear California Energy Commission Staff,

Carrier, through its group of companies, provides fire safety, security, building automation, heating, ventilation, air conditioning and refrigeration systems and services to promote integrated, high performance buildings that are safer, smarter and sustainable. Carrier is a world leader in HVAC and refrigeration solutions with operations across the globe. Our range of products includes unitary and applied residential and commercial products, including ducted, ductless and variable refrigerant flow HVAC systems, transport refrigeration products, air and water cooled chillers, and HVAC building services and controls. Carrier is currently part of United Technologies Corporation, a leading provider to the aerospace and building systems industries worldwide. Carrier is in the process of spinning off from United Technologies Corporation into an independent company.

Carrier appreciates the CEC's field study efforts regarding the performance of variable capacity heat pump (VCHP) systems. We have reviewed the staff report on the Variable Capacity Heat Pump Performance Compliance Option and respectfully submit the following comments.

Carrier supports the credit approach for cooling at 5%, as well as the heating approach at 12%. In addition, we agree that the additional energy use for ducted systems due to continuous fan operation should be included in the software calculation.

Low Static Ducted Indoor Units

*Definition: Ducted indoor units for mini- and multi-split systems are classified as low-static systems when they produce greater than 0.01" w.c. and a maximum of 0.35" w.c. external static pressure when operated at the cooling full-load air volume rate not exceeding 400 cfm per rated ton of cooling.*

We are concerned that the availability of the VSHP Performance Compliance Option is limited to "low-static" classifications of ducted indoor mini- and multi-split units. As written, the VSHP Performance Credit scope only extends to systems with a maximum design static of 035" w.c. This limitation, when combined with the requirement to use MERV 13 filters which add 0.12" w.c. of external static pressure, will result in very few systems qualifying for the proposed credit.

Therefore, we propose that the scope of the VSHP Performance Credit be expanded to include mid-static systems which, under the 2017 DOE definition, extend up to .65" w.c. external static pressure. These units are able to accommodate the required MERV 13 filter static pressure and serve multiple rooms.

Wall Mounted Thermostats

*Requirement: Wall Mounted Thermostats in zones > 150 ft2. All VCHP indoor units serving zones larger than 150 square feet shall be controlled by external wall mounted thermostats located within the zone served.*

Carrier does not agree that this requirement will contribute to energy efficiency. Most VCHP systems, by default, use the return air sensor to control room temperature. As such, permanently mounting a thermostat is not likely to result in improved efficiency.

As always, Carrier appreciates the opportunity to submit comments and if further information or clarification is needed, please do not hesitate to contact me.

Respectfully submitted,

John J. Gibbons
Executive Director, Regulatory Affairs
Carrier

CC:
Mr. Matt Thornblad, Director, Government Relations, United Technologies Corporation
Ms. Meredith Emmerich, General Manager, VRF/Ductless Products, Carrier
Mr. Paul Rebelo, General Manager, VRF/Ductless Products, Carrier