

Technical Bulletin

Variable Capacity Heat Pumps (VCHPs)

Mini-split heat pumps are becoming a more popular choice in the HVAC industry. These system types have the ability to deliver capacity above and below their normal rated capacity by changing the speed of the compressor, and modulating ancillary components like fans and expansion valves. This flexibility allows for similar component sizes to provide a wider range of delivered capacity. VCHP technology addresses the imbalance between heating and cooling load demands, while maintaining proper cooling and dehumidifying ability under partial loads.

VCHPs are split systems with an indoor unit (fan-coil, aka “head”) and an outdoor unit (condenser). These outdoor units can feed a single indoor head, or multiple indoor heads (multi-split), and can be ducted or ductless.

VCHP mini-split, and multi-split systems may qualify for a substantial credit (5% cooling and 12% heating), or both, when the performance compliance method is used.

When the compliance credit is claimed, the following HERS verifications are required:

- Confirm that all indoor heads, and ducts are within conditioned space.
- Refrigerant charge verification.
- Airflow to all habitable spaces either by use of a ductless indoor unit located in the room, or by use of ducts connected directly to the supply air outlet of a ducted indoor unit.
- Zones greater than 150 square feet have a wall-mounted thermostat.

If the System is Ducted, additional requirements will apply such as:

- Low leakage ducts located entirely inside conditioned space should be met.
- Ducted heads must have a minimum airflow rate of 350cfm/ton.
- Air filter sizing /Air filter maximum pressure drop.
- Ducted systems must be certified with the CEC by the manufacturer to be a “low-static” VCHP system. [Certified VCHP’s](#) (Updated 09/23/2020).

It is important to note the following:

- If the system is ducted and runs continuously, this will penalize the credit somewhat.
- Non-continuous fan operation must be certified to the CEC to take the credit.

The HERS Verification protocols for VCHP’s are scheduled to be implemented into the 2022 Residential Reference Appendices. The form currently used for HERS verification is the [CF3R-MCH-33](#). To review the Appendix B: Eligibility VCHP Verification protocols, please click [here](#).

Additional questions about [HERS Verification of VCHPs](#), may be directed to CalCERTS support: support@calcerts.com or (916) 985-3400, ext.*