

2016 HERS Verification Summary - Alterations

| Scope of Work | Duct Testing | Refrigerant Charge | Cooling Coil Airflow | | Fan Efficacy |
|--|--------------------------------|-----------------------|---|-------------------|-------------------|
| | All Climate Zones | Climate Zones 2, 8-15 | All Climate Zones | All Climate Zones | All Climate Zones |
| New System New Equipment and New Duct System Includes Package Units & Mini-Splits | ≤ 5% <i>No Exceptions</i> | Verify Charge | ≥ 350/ton and ≤.58 Watts/cfm OR Return Duct Sizing, per Tables 150.0-B/C | | |
| New Duct System ≥75% New or Replaced; retained portions accessible and can be sealed | ≤ 5% <i>No Exceptions</i> | N/A | ≥ 350/ton and ≤.58 Watts/cfm OR Return Duct Sizing, per Tables 150.0-B/C | | |
| Altered Duct System >40' new or replaced, <i>but</i> <75% new duct material | ≤ 15% <i>See Exceptions</i> | N/A | N/A | N/A | N/A |
| Furnace/FAU Change-Out | ≤ 15% <i>See Exceptions</i> | N/A | N/A | N/A | N/A |
| Condenser or Coil Change-Out Includes Package Units & Mini-Splits | ≤ 15% <i>See Exceptions</i> | Verify Charge | ≥ 300/ton <i>if ducted</i> | N/A | N/A |
| Other Refrigerant Containing Components (e.g. Line-set, TXV/EXV, Compressor, or Filter drier) | N/A | Verify Charge | ≥ 300/ton <i>if ducted</i> | N/A | N/A |

Exceptions to Duct Sealing Verification

Exceptions do not apply to Entirely New or Replacement Space Conditioning Systems (Cut-In).

1. The system is not ducted (e.g., ductless mini-split, wall units, etc.).
2. There are less than 40 feet of ducts total in any space including plenums and the FAU.
3. The ducts are constructed, insulated, or sealed with asbestos.
4. The system was previously tested by a HERS Rater and that HERS Verification Certificate is available. Exception does not apply if more than 40 feet of ducts have been added or replaced since the original verification. It does apply to systems passed as part of a sample group.

Exceptions to the Refrigerant Charge Verification

1. Air conditioning not installed or determined to be non-operational by the local code enforcement agency.
2. New package units with factory charge certified by installer on the CF2R-MCH-25. Minimum airflow must still be verified for ducted systems.

Exceptions to System Airflow and Fan Efficacy Verification

1. The system is not ducted.
2. The system does not have air conditioning.
3. VRF (variable refrigerant flow) systems driving multiple indoor coils.

2016 HERS Verification Summary - Alterations

Duct Testing – MCH-20

In all climate zones, when space conditioning systems utilize forced air duct systems to supply conditioned air (heating or cooling), duct leakage verification will be required if;

- *Greater than 40' of new or replacement ducts are installed, or*
- *New or replacement space-conditioning system equipment is installed including the FAU, condenser, evaporator coil and/or heating coil.*

Compliance criteria:

- *New duct system shall have total duct leakage \leq 5%.*
- *Other duct systems shall have total duct leakage \leq 15%, duct leakage to outside \leq 10%, or use of the Seal All Accessible Leaks protocol with a Smoke Test.*

Airflow - MCH-23 / Fan-Efficacy - MCH-22

In all climate zones, when space conditioning systems utilize forced air duct systems to supply cooling, if a duct system meets the definition of a 'NEW' duct system then;

- *Measured Airflow shall be \geq 350 CFM/ton, and*
- *Measured Fan-Efficacy shall be \leq 0.58 Watts/CFM.*

Note: Cooling must be present but not necessarily newly installed to trigger this verification.

Alternative to measured Airflow/Fan-Efficacy

- *If the installed return system follows the sizing requirements of Table 150.0-B/C, reported on the MCH-28, testing Airflow and Fan-Efficacy is not required.*

Refrigerant Charge – MCH-25

In Climate Zones 2 or 8 - 15, if a refrigerant containing component is altered, replaced or newly installed, refrigerant charge verification will be required.

Note: Charge verification applies to all system types including package units and mini-split systems. Refrigerant containing components include the condenser, evaporator coil, compressor, line-set, TXV/EXV, or filter drier.

As part of all charge verifications, ducted systems shall demonstrate **minimum airflow** requirements:

- *New Duct Systems – See Airflow/Fan-Efficacy above.*
- *All other duct systems shall have measured **Airflow** \geq 300 CFM/ton. If the system fails to meet the required 300cfm/ton, the installer shall perform all applicable steps in the Airflow Remediation protocol RA3.3.3.1.5.*

Note: New package units are typically factory charged and are certified by the installer on the CF2R-MCH-25, in which case no CF3R will be required or generated. Mini-split and other VRF systems must use Rater Observation of the Installer's Weigh-in method.