



NOT REGISTERED - CAN BE USED FOR SUBMISSION TO BUILDING DEPARTMENTS PRIOR TO DECEMBER 31, 2023

CERTIFICATE OF VERIFICATION

Note: This table completed by HERS Registry.

Project Details

Table with 4 columns: Field Name, Data Entry, Field Name, Data Entry. Rows include Project Name, Dwelling Address, City and Zip Code, Enforcement Agency, Permit Number, Permit Application Date.

A. System Information

HERS Rater to field-verify all system information, discrepancies to be noted by overwriting entry.

Table with 3 columns: Field, Field Name, Data Entry. Rows 01-14 detailing system identification, condenser info, refrigerant type, and verification requirements.



15	Refrigerant Charge Verification Method Used by Installer	
16	Person Who Performed the Refrigerant Charge Verification Reported on the Certificate of Installation	
17	HERS Verification Compliance Requirement Status	
18	Refrigerant Charge Verification Method Used by HERS Rater	

MCH-25b - Refrigerant Charge Verification - Subcooling Method

B. Metering Device Verification

HERS Rater is required to visually field verify all information from C2R. Subcooling Method can only be used on systems that have a variable metering device.

Field	Field Name	Data Entry
01	Refrigerant Metering Device <i>(select option)</i>	
02	Subcooling Method Applicability Status	

C. Instrument Calibration

HERS Raters are required to calibrate their diagnostic tools. Procedures for instrument calibration are given in Reference Residential Appendix RA3.2.2 and RA3.2.2.2

Field	Field Name	Data Entry
01	Date of Digital Refrigerant Gauge Calibration	
02	Date of Digital Thermocouple Calibration	
03	Digital Refrigerant Gauge Calibration Status	
04	Digital Thermocouple Calibration Status	



D. Measurement Access Hole (MAH) Verification

HERS Raters are required to visually field verify MAH. Procedures for installing MAH are specified in Reference Residential Appendix RA3.2.2.3

Field	Field Name	Data Entry
01	Method Used to Demonstrate Compliance with the Measurement Access Hole (MAH) Requirement <i>(select option)</i>	

E. Minimum System Airflow Rate Verification

Procedures for verifying minimum system airflow are specified in Reference Residential Appendix RA3.3.3.

Field	Field Name	Data Entry
01	Indoor Unit Name or Description of Area Served	
02	Minimum Required System Airflow Rate (cfm)	
03	System Airflow Rate Verification Status <i>(select option)</i>	
04	Compliance Statement <i>(select option)</i>	

Notes

Data Entry



F. Data Collection and Calculations

HERS Rater must independently collect all data in this section. Procedures for Refrigerant Charge using the Standard Charge Verification Procedure are given in Reference Residential Appendix RA3.2.2.

Field	Field Name	Data Entry
01	Lowest Return Air Dry-bulb Temperature that Occurred During the Refrigerant Charge Verification Procedure (°F)	
02	Measured Condenser Air Entering Dry-bulb Temperature ($T_{condenser, db}$)	
03	Outdoor Temperature Qualification Status <i>Check box if table F field 02 < 55F</i>	o Subcooling refrigerant charge verification methods are not allowed to be used when the outdoor temperature is less than 55F, do not proceed
04	Measured Liquid Line Temperature (T_{liquid}) (°F)	
05	Measured Liquid Line Pressure (P_{liquid}) (psig)	
06	Condenser Saturation Temperature ($T_{condensor, sat}$) from Digital Gauge or P-T Table using Line F05 (°F)	
07	Measured Subcooling (Line F06 – Line F04) (°F)	
08	Target Subcooling from Manufacturer (°F)	
09	Compliance Statement	o System Complies with Subcooling Method – Must also pass Metering Device Verification, next section.



G. Metering Device Verification

HERS Rater must independently collect all data in this section. Procedures for the verification of proper metering device operation are specified in RA3.2.2.6.2.

Field	Field Name	Data Entry
01	Measured Suction Line Temperature (T_{suction}) (°F)	
02	Measured Suction Line Pressure (P_{suction}) (psig)	
03	Evaporator Saturation Temperature ($T_{\text{evaporator, sat}}$) from Digital Gauge or P-T Table using line G02 (°F)	
04	Measured Superheat (Line G01 – Line G03) (°F)	
05	Measured Superheat (Line G04) is between 3°F and 26°F (inclusive) <i>(Check box if $3 \leq G04 \leq 26$)</i>	<input type="checkbox"/> Passes CEC requirement
06	Measured Superheat (Line G04) is within Manufacturer’s Specifications (if known) <i>(select option)</i>	
07	Compliance Statement	<input type="checkbox"/> Metering Device Verification Passes

H. Determination of HERS Verification Compliance

All applicable sections of this document shall indicate compliance with the specified verification protocol requirements in order for this Certificate of Verification as a whole to be determined to be in compliance.

Field	Field Description	Data Entry
01	Check complies or does not comply <i>(select option)</i>	



DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Verification documentation is accurate and complete.

SIGNATORY	Entry
Documentation Author Name	
Author Signature	
Company Name	
Date Signed	
CEA/HERS Certification Identification (if applicable)	
Address	
City/State/Zip	
Phone	

Responsible Person's Declaration Statement

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Verification is true and correct.
2. I am the certified HERS Rater who performed the verification identified and reported on this Certificate of Verification (responsible rater).
3. The installed features, materials, components, manufactured devices, or system performance diagnostic results that require HERS verification identified on this Certificate of Verification comply with the applicable requirements in Reference Appendices RA2, RA3, and the requirements specified on the Certificate of Compliance for the building approved by the enforcement agency.
4. The information reported on applicable sections of the Certificate(s) of Installation (LMCI) signed and submitted by the person(s) responsible for the construction or installation conforms to the requirements specified on the Certificate(s) of Compliance (LMCC) approved by the enforcement agency.
5. I understand that a registered copy of this Certificate of Verification shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to ensure this requirement is accomplished.

I understand that a registered copy of this Certificate of Verification is required to be included with the documentation the builder provides to the building.

Builder Or Installer Information As Shown On The Certificate Of Installation

SIGNATORY	Entry
Company Name	
Builder or Installer Name	
CSLB License	

HERS Provider Data Registry Information

SIGNATORY	Entry
Sample Group Number (if applicable)	
Dwelling Test Status in Sample Group (if applicable)	

HERS Rater Information

SIGNATORY	Entry
Company Name	
Responsible Rater Signature	
Responsible Rater Certification Number w/this HERS Provider	
Date Signed	

LMCC-MCH-25b-H User Instructions

Section A. System Information

1. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
2. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25) If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
3. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
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5. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
6. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25) If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
7. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25) If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail. Choose the type of refrigerant used by the system being verified. R-22 and R-410A are the most common, but other types may occasionally be encountered.
8. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). If "Other" is chosen in A07, then installer will indicate the type of refrigerant being used. If R-22 or R-410A is being used (regardless of trade name, Puron, Genetron, etc.) it should be indicated in A07, not here. This row is only for refrigerants other than R-22 and R-410a. Documentation of other refrigerants should be requested. If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.
9. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). If applicable, a liquid line filter drier shall be installed according to the manufacturer's specifications.
10. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). These are defined in detail the Residential Compliance Manual. If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail. Indicate whether the HVAC system is Completely New, Replacement or an Alteration.
11. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). Installer is to select the appropriate choice regarding whether this system has a Fault Indicator Display (FID). Qualifying FID's may exempt a system from HERS refrigerant charge verification. FID's are described in Joint Appendix JA6.1. Qualifying FID's must appear on a list of approved devices kept by the Commission. If installed system does not match the description here, it fails. Note: Installation of a FID does not exempt the installer from proper refrigerant charge verification. It may only exempt the need for third party refrigerant charge verification. Third party verification of the FID is required. Other requirements may also be triggered.
12. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). Most ducted split systems and package systems are of the type that minimum airflow can be verified using an approved measurement procedure. Examples of systems that do not meet this description are ductless systems. Selecting "No" here may subject the project to additional scrutiny by enforcement personnel.
13. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25) Most ducted split systems and package systems are of the type that approved refrigerant charge verification

procedures detailed in Residential Appendix RA3.2.2 or RA1 can be used (i.e., Standard Charge Verification procedures). Examples of systems that may not meet this description are “mini splits” or variable refrigerant flow systems that may only be charged using weigh-in procedures. Selecting “No” here may subject the project to additional scrutiny.

14. HERS rater to input date of their refrigerant charge verification.
15. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). The installer is to have selected the refrigerant charge verification method used from the choices provided:
 - Superheat (outdoor temperature must be $\geq 55^{\circ}\text{F}$); this verification method can only be used when the outdoor temperature is at or above 55°F . It is only used on systems with fixed orifice refrigerant metering devices (non-variable metering devices). This method is detailed in Reference Appendix RA3.2.2.6.1. Systems verified using this method may be eligible for HERS verification compliance using Group Sampling. Choosing this option will generate a LMCI-MCH-25a.
 - Subcooling (outdoor temperature must be $\geq 55^{\circ}\text{F}$); this verification method can only be used when the outdoor temperature is at or above 55°F . It is only used on systems with variable metering devices (TXV or EXV). This method is detailed in Reference Appendix RA3.2.2.6.2. Systems verified using this method may be eligible for HERS verification compliance using Group Sampling. Choosing this option will generate a LMCI-MCH-25b.
 - Weigh-in; this verification method can be used by the installer at any outdoor temperature allowed by the equipment manufacturer. This method is detailed in Reference Appendix RA3.2.3. Systems verified using this method are NOT eligible for HERS verification compliance using Group Sampling. Choosing this option will generate a LMCI-MCH-25c.
 - New Package Unit Factory Charge; the installer should choose this option when a new package unit is being installed that has an AHRI rating. This helps ensure that the unit was properly charged at the factory. HERS verification of refrigerant charge may not be required in this case. Choosing this option will generate a LMCI-MCH-25f.
16. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). The installer (or rater) is to have identified who performed the verification that is documented on the Certificate of Installation. Note that HERS verification compliance by Group Sampling requires that the installer perform their own refrigerant charge verification as part of the installation of the equipment prior to the system being put into a sample group for possible selection by a HERS rater for verification. If Group Sampling is not intended, the HERS Rater may perform the refrigerant charge verification on behalf of the Installing Contractor (applies to any method but Weigh-In) and the Rater will enter same results on both the LMCI and LMCC.
17. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). The Group Sampling status is automatically displayed based on the input results of A15 and A16 on the LMCI. Group Sampling procedures are detailed in Residential Appendix RA2.3.
18. Specify the refrigerant charge verification used by the HERS rater. Choices vary depending on what method was specified in A11, A12, and A15.

Section B. Metering Device Verification

1. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). Installer is to have selected the correct metering device used on the system being verified. This will check against the refrigerant charge verification method selected in A15. An error message will appear in B02 if the wrong verification method may have been selected. Superheat verification can only be used on

systems with fixed orifice and Subcool verification can only be used on systems with variable metering devices (TXV or EXV). This entry must match installed system to pass.

2. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). Superheat verification can only be used on systems with fixed orifice and Subcool verification can only be used on systems with variable metering devices (TXV or EXV).

Section C. Instrument Calibration

1. Enter the date of most recent Digital Refrigerant Gauge Calibration Field Check by rater. Analog gauges are not allowed for verification purposes under the 2016 Standards. Specification for pressure gauges is found in Residential Appendix RA3.2.2.2.3. Procedures for the field check procedure are detailed in RA3.2.2.4.2. Calibration field check must happen at least once every 30 days.
2. Enter the date of the most recent Digital Thermocouple Calibration by rater. Specifications for thermocouples and temperature sensors can be found in Residential Appendix RA3.2.2.2.2. Procedures for calibration are detailed in RA3.2.2.4.1. Calibration must happen at least once every 30 days.
3. Digital Refrigerant Gauge Calibration status will appear automatically. If the date entered in C01 is more than 30 days prior to date of verification this row will indicate that calibration is required and you will not be allowed to continue filling out this document until calibration is performed.
4. Digital Thermocouple Calibration status will appear automatically. If the date entered in C02 is more than 30 days prior to date of verification this row will indicate that calibration is required and you will not be allowed to continue filling out this document until calibration is performed.

Section D. Measurement Access Hole (MAH) Verification

1. This information is automatically pulled from the Certificate of Installation (LMCI-MCH-25). Installer is to have indicated the method used to demonstrate compliance with the MAH requirement by selecting the appropriate method from the drop down list. Procedures for installing MAH's are detailed in RA3.2.2.3. Selecting that the MAH cannot be installed consistent with Figure 3.2-1 may result in additional scrutiny by enforcement personnel.) If installed system does not match this entry, it can be overwritten by rater but it will be flagged as a possible fail.

Section E. Minimum System Airflow Rate Verification

1. This information is automatically calculated based on the information given in A10. This is the target minimum system airflow required for the system being verified.
2. This information is automatically calculated based on either the LMCC-MCH-23, or LMCC-MCH-28, which documents the rater's measured airflow of the system being verified (or alternative method). If the measured airflow is not adequate it will not comply with the airflow requirements and refrigerant charge verification cannot be performed.

Section F. Subcooling Charge Verification Method – Data Collection

1. The Rater must independently collect this data. Measure and record the lowest return air dry-bulb temperature that occurred during the refrigerant charge procedure in °F. This temperature must remain above 70°F during the verification procedure. This requirement is detailed in Residential Appendix RA3.2.2.5.
2. The Rater must independently collect this data. Measure and record the condenser air dry-bulb temperature ($T_{\text{condenser}}$) in °F. This value must be at least 55°F and no more than 115°F to use the Subcooling Charge Verification Method.

3. If a value less than 55°F or greater than 115°F is entered in F02 the Subcooling Method cannot be used.
4. The Rater must independently collect this data. Measure and record the liquid line temperature (T_{liquid}) in °F. This procedure is detailed in RA3.2.2.5. This value is used to calculate the measured subcool temperature.
5. The Rater must independently collect this data. Measure and record the liquid line pressure (P_{liquid}) in psig. This procedure is detailed in RA3.2.2.5. This value is used to determine the condenser saturation temperature ($T_{\text{condenser,sat}}$) from a pressure temperature chart for the appropriate refrigerant (can be internal to a digital gauge), which is entered into F06.
6. Enter the condenser saturation temperature ($T_{\text{condenser,sat}}$) from the digital gauge or a separate pressure-temperature chart that corresponds to the liquid line pressure entered in F05, in °F.
7. Measured Subcooling is automatically calculated as the difference between the liquid line temperature (F04) and the condenser saturation temperature (F06)
8. The Rater must independently collect this data. Enter target subcooling from manufacturer. This may be a challenge to find for older equipment. Internet searches can sometimes result in archived equipment specifications for the equipment in question, or sometimes a very similar model. If the manufacturer's target cannot be found the Commission's Executive Director may provide additional guidance for compliance.
9. System passes Subcooling method when F08 is within plus or minus 6°F of F07. Note that the target for the installer, on the LMCI, is plus or minus 3°F.

Section G. Metering Device Verification

1. The Rater must independently collect this data. Measure and record the suction line temperature (T_{suction}) in °F. This procedure is detailed in RA3.2.2.5. This value is used to calculate the measured superheat.
2. The Rater must independently collect this data. Measure and record the suction line pressure (P_{suction}) in psig. This procedure is detailed in RA3.2.2.5. This value is used to determine the evaporator saturation temperature ($T_{\text{evaporator,sat}}$) from a pressure temperature chart for the appropriate refrigerant (can be internal to a digital gauge), which is entered into G03.
3. Enter the evaporator saturation temperature ($T_{\text{evaporator,sat}}$) from the digital gauge or a separate pressure-temperature chart that corresponds to the suction line pressure entered in G02, in °F.
4. Measured superheat is automatically calculated as the difference between the suction line temperature (G01) and the evaporator saturation temperature (G03).
5. There are two possible criteria for passing. If the manufacturer's specification is known it should be used, otherwise the CEC requirement is that the superheat be between 4°F and 25°F, inclusive. This row checks the CEC requirement.
6. If the manufacturer's target superheat for ensuring proper metering device operation is known, it supersedes the CEC requirement of being between 4°F and 25°F. If "Yes, documentation to be provided upon request." is selected, the installer should be prepared to provide documentation for the target values used.
7. There are two possible criteria for passing. If the manufacturer's specification is known it should be used, otherwise the CEC requirement is that the superheat be between 4°F and 25°F, inclusive. If "Yes, documentation to be provided upon request." is selected in G06, the installer should be prepared to provide documentation for the target values used.