

**RETURN DUCT DESIGN AND AIR FILTER DEVICE SIZING
ACCORDING TO TABLES 160.3-A OR B**



CALIFORNIA ENERGY COMMISSION

CEC-LMCV-MCH-28-H

SAMPLE FORM – NOT VALID FOR SUBMISSION TO BUILDING DEPARTMENTS

CERTIFICATE OF VERIFICATION

Note: This table completed by HERS Registry.

Project Name:	Enforcement Agency:
Dwelling Address:	Permit Number:
City and Zip Code:	Permit Application Date:

A. System Information

01	System Identification or Name	
02	System Location or Area Served	
03	Indoor Unit Name or Description of Area Served	
04	Nominal Cooling Capacity (tons) of Condenser	
05	Number of Return Ducts Used for Compliance	
06	Number of Additional Return Ducts (Not Used for Compliance)	

B. One Return Duct

01	Return Duct Minimum Nominal Diameter (inches)	
02	Installed Return Duct Nominal Diameter (inches)	
03	Minimum Total Return Filter Grille Nominal Area (inch ²)	
04	Installed Total Return Filter Grille Nominal Area (inch ²)	
05	Compliance Statement:	

C. Two Return Ducts

01	Minimum Return Duct1 Nominal Diameter (inches)	
02	Installed Return Duct1 Nominal Diameter (inches)	
03	Minimum Return Duct2 Nominal Diameter (inches)	
04	Installed Return Duct2 Nominal Diameter (inches)	
05	Minimum Total Return Filter Grille Nominal Area (inch ²)	
06	Installed Total Return Filter Grille Nominal Area (inch ²)	
07	Compliance Statement:	

D. Additional Requirements for Compliance

01	Qualification for the Alternative to Section 160.3(b)5Lii and iv requires that the ducted space conditioning system shall not use zoning dampers. Systems that use zoning dampers shall comply with the requirements of Section 160.3(b)5Liii.	
02	The return duct length for each return air filter grille shall not exceed 30 linear feet.	
03	The return duct(s) shall not contain more than a total of 180° of bend.	
04	If the return duct contains more than 90° of bend, one of the bends shall be a metal elbow.	
05	Return grille devices shall be labeled in accordance with the requirements in section 160.2(b)1Biv to disclose the grille's design airflow rate and a maximum allowable clean-filter pressure drop of 25 Pa (0.1 inches water) for the air filter when tested using ASHRAE Standard 52.2, or as rated in accordance with AHRI Standard 680 for the design airflow rate for the return grille.	
06	Verification Status:	<ol style="list-style-type: none"> 1. <u>Pass</u> - all applicable requirements are met; or 2. <u>Fail</u> - one or more applicable requirements are not met. Enter reason for failure in corrections notes field below; or 3. <u>All N/A</u> - This entire table is not applicable
07	Correction Notes:	

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met unless otherwise noted in the Verification Status and the Correction Notes.

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E. Hole for the placement of a Static Pressure Probe (HSPP), and Permanently installed Static Pressure Probe (PSPP) in the Supply Plenum

Procedures for installing HSPP or PSPP are specified in RA3.3.1.1.

01	Method Used to Demonstrate Compliance with the HSPP/PSPP Requirement	
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F. 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.

01	
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G. Additional Return Ducts (Not Used for Compliance)

01	02
Installed Return Duct Nominal Diameter (inches)	Installed Total Return Filter Grille Nominal Area (inch ²)

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

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For information only. Not valid until registered with a HERS provider

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

1. I certify that this Certificate of Verification documentation is accurate and complete.	
Documentation Author Name:	Documentation Author Signature:
Company:	Date Signed:
Address:	CEA/HERS Certification Information (if applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

2. 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.
6. 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

Company Name (Installing Subcontractor, General Contractor, or Builder/Owner):	
Responsible Builder or Installer Name:	CSLB License:

HERS PROVIDER DATA REGISTRY INFORMATION

Sample Group Number (if applicable):	Dwelling Test Status in Sample Group (if applicable):
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HERS RATER INFORMATION

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

For assistance or questions regarding the Energy Standards, contact the Energy Hotline at: 1-800-772-3300

CERTIFICATE OF VERIFICATION – USER INSTRUCTIONS	LMCV-MCH-28-H
Return Duct Design and Air Filter Device Sizing According to Tables 160.3-A or B	(Page 1 of 2)

LMCV-MCH-28-H User Instructions

Section A. System Information

1. System Identification or Name: This field is filled out automatically. It is referenced from the LMCI-MCH-01, which must be completed prior to this document.
2. System Location or Area Served: This field is filled out automatically. It is referenced from the LMCI-MCH-01, which must be completed prior to this document.
3. Indoor Unit Name: This field is filled out automatically. It is referenced from the LMCI-MCH-01, which must be completed prior to this document.
4. Nominal Cooling Capacity (tons) of Condenser: This field is filled out automatically. It is referenced from the LMCI-MCH-01, which must be completed prior to this document.
5. Number of Return Ducts: Select the number of return ducts from the options given in the pull down list, either one or two return ducts. Those are the only options for this compliance approach. Other configurations will require that airflow and fan watt draw be verified by diagnostic testing.

Section B. One Return Duct

1. Minimum Return Duct Nominal Diameter: This field is automatically calculated based on A03. Refer to Table 160.3-A.
2. Installed Return Duct Nominal Diameter: Enter the installed return duct nominal diameter (inches).
3. Minimum Total Return Filter Grille Nominal Area: This field is automatically calculated based on A03. Refer to Table 160.3-A.
4. Installed Total Return Filter Grille Nominal Area: Enter the installed return filter grille nominal area (inch²). The nominal grille area is equal to the length (inches) multiplied by the width (inches) of the return grille.
5. Compliance Statement: This field is automatically populated based on the inputs to rows B02 and B04. Compliance requires that the installed duct nominal diameter meet or exceed the required duct nominal diameter AND the installed filter grille nominal area meet or exceed the required filter grille nominal area.

Section C. Two Return Ducts

1. Minimum Return Duct1 Nominal Diameter: This field is automatically calculated based on A03. Refer to Table 160.3-B.
2. Installed Return Duct1 Nominal Diameter: Enter the nominal diameter (inches) for the first return duct run.
3. Minimum Return Duct2 Nominal Diameter: This field is automatically calculated based on A03. Refer to Table 160.3-B.
4. Installed Return Duct2 Nominal Diameter: Enter the nominal diameter (inches) for the second return duct run.
5. Minimum Total Return Filter Grille Nominal Area: This field is automatically calculated based on A03. Refer to Table 160.3-B.
6. Installed Total Return Filter Grille Nominal Area: Enter the total return filter grille nominal area by summing up the two grille areas. The nominal area of each grille is equal to the length (inches) multiplied by the width (inches) of the return grille.
7. Compliance Statement: This field is automatically populated based on the inputs to C02, C04 and C06. Compliance requires that the installed duct nominal diameters meet or exceed the required duct nominal

CERTIFICATE OF VERIFICATION – USER INSTRUCTIONS	LMCV-MCH-28-H
Return Duct Design and Air Filter Device Sizing According to Tables 160.3-A or B	(Page 2 of 2)

diameters AND the total installed filter grille nominal area meet or exceed the total required filter grille nominal area.

Section D Additional Requirements for Compliance

1. This field must be a true statement (or not applicable) for the system to comply.
2. This field must be a true statement (or not applicable) for the system to comply.
3. This field must be a true statement (or not applicable) for the system to comply.
4. This field must be a true statement (or not applicable) for the system to comply.
5. This field must be a true statement (or not applicable) for the system to comply

Section E. Hole for the Placement of a Static Pressure Probe (HSPP), and Permanently Installed Static Pressure Probe (PSPP) in the Supply Plenum

1. A hole for a static pressure probe (HSPP) or a permanent static pressure probe (PSPP) is required when system airflow verification is required, whether the airflow test method used requires one or not. Select the appropriate choice from the following options using a dropdown box, the Static Pressure Measurement Method:
 - a. If an Hole Static Pressure Probe is installed then select “HSPP Installed”
 - b. If a Permanent Static Pressure Probe is installed then select “PSPP Installed”
 - c. If the system is configured such that an HSPP nor PSPP can be installed, an alternate location that provides access for making supply plenum pressure measurement may be used. Select “An alternative location has been provided and clearly labeled.”
 - d. If the system is such that an HSPP or PSPP is not applicable, select “HSPP/PSPP are not applicable to this system”.

Section F. Determination of HERS Verification Compliance

1. This field is filled out automatically. Compliance requires that all individual criteria pass.

Section G. Additional Return Ducts (Not Used for Compliance)

This table list is auto filled from LMCI

1. Reference information from LMCI.
2. Reference information from LMCI

Section H. Determination of HERS Verification Compliance

1. This field is filled out automatically based on all verification protocol requirements in this document showing compliance.

Documentation Declaration Statements

1. The person who prepared the LMCV will sign and complete the fields for their name, company (if applicable), address, phone number, certification information (if applicable), date and signature.
2. The person who is assuming responsibility for the project being built to comply with Title 24, Part 6, will complete the fields (if applicable) for their company, responsible builder or installer name, CSLB license number, sample group number, dwelling test status in sample group, HERS Rater company name, HERS Rater name, HERS Rater signature, HERS Rater certification number and date signed.