

**DOCKETED**

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<b>Project Title:</b>	Residential Compliance Manual and Documents
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**DUCT LEAKAGE DIAGNOSTIC TEST**

CEC-CF2R-MCH-20-H (Revised 10/16)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF INSTALLATION		CF2R-MCH-20-H
Duct Leakage Diagnostic Test		(Page 1 of 2)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City:	Zip Code:

A. System Information	
01	Space Conditioning System Identification or Name
02	Space Conditioning System Location or Area Served
03	Building Type from CF1R
04	Verified Low Leakage Ducts in Conditioned Space (VLLDCS) Credit from CF1R?
05	Verified Low Leakage Air-handling Unit Credit from CF1R?
06	Duct System Compliance Category

<b>MCH-20b - Low Leakage Ducts in Conditioned Space</b>
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B. Duct Leakage Diagnostic Test	
01	System compliance with visual inspection per RA3.1.4.1.3?
02	Duct Leakage Test Conditions
03	Duct Leakage Test Method
04	Target Allowable Duct Leakage Rate (cfm)
05	Actual Duct Leakage Rate from Leakage Test Measurement (cfm)
06	Compliance Statement:

C. Additional Requirements for Compliance	
01	System was tested in its normal operation condition. No temporary taping allowed.
02	Outside air (OA) duct connections to the central forced air duct system shall not be sealed/taped off during duct leakage testing. OA ducts used for Central Fan Integrated (CFI) Indoor Air Quality ventilation systems, or Central Fan Ventilation Cooling Systems, that utilize dampers that open only when OA is required and automatically close when OA is not required, may configure the OA damper to the closed position during duct leakage testing.
03	All supply and return register boots were sealed to the drywall.
04	Building cavities were not used as plenums, or platform returns, in lieu of ducts.
05	If cloth backed tape was used it was covered with Mastic and draw bands.
06	All connection points between the air handler and the supply and return plenums are completely sealed.
<b>The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.</b>	

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Duct Leakage Diagnostic Test		(Page 2 of 2)
Project Name:	Enforcement Agency:	Permit Number:
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**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

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

Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA/HERS Certification Identification (if applicable):
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:

- The information provided on this Certificate of Installation is true and correct.
- I am either: a) a responsible person eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation and attest to the declarations in this statement, or b) I am an authorized representative of the responsible person and attest to the declarations in this statement on the responsible person's behalf.
- The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations and the installation conforms to the requirements given on the Certificate of Compliance, plans, and specifications approved by the enforcement agency.
- I understand that a HERS rater will check the installation to verify compliance and if such checking determines the installation fails to comply, I am required to offer any necessary corrective action at no charge to the building owner.
- I will ensure that a registered copy of this Certificate of Installation 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. I understand that a registered copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed:
Third Party Quality Control Program (TPQCP) Status:	Name of TPQCP (if applicable):	

**CF2R-MCH-20b-H User Instructions****A. System Information**

1. *HVAC System Identification or Name*: This field is filled out automatically. It is referenced from the CF2R-MCH-01, which must be completed prior to this document.
2. *HVAC System Location or Area Served*: This field is filled out automatically. It is referenced from the CF2R-MCH-01, which must be completed prior to this document.
3. *Building Type*: This field is filled out automatically. It is referenced from the Certificate of Compliance (CF1R), which must be completed prior to this document.
4. *Verified Low Leakage Ducts in Conditioned Space (VLLDCS)*: This field is filled out automatically. It is referenced from the Certificate of Compliance (CF1R), which must be completed prior to this document.
5. *Verified Low Leakage Air-handling Unit (VLLAHU) Credit*: This field is filled out automatically. It is referenced from the Certificate of Compliance (CF1R), which must be completed prior to this document.
6. *Duct System Compliance Category*: Choose from New, Replacement, Alteration, Replacement Using Smoke Test, Alteration Using Smoke Test.
  - a. New: Use this choice for newly constructed buildings, additions with all-new systems dedicated to the addition, or new systems installed in existing homes where the equipment is newly installed and the ducts are at least 75% or more newly installed duct material (up to 25% of the finished system may consist of reused parts from the dwelling unit's previously existing duct system, such as registers, grilles, boots, air handler, coil, plenums, duct material).
  - b. Replacement: For existing buildings where the equipment is not newly installed but the ducts are at least 75% or more newly installed duct material (up to 25% of the finished system may consist of reused parts from the dwelling unit's previously existing duct system, such as registers, grilles, boots, air handler, coil, plenums, duct material). Sometimes referred to as a "re-ducted" system.
  - c. Alteration: For existing buildings where any of the following are newly installed or replaced as part of the project and the system does not meet one of the other compliance categories:
    - i. 40 feet of space-conditioning system ducts are installed in unconditioned space or indirectly conditioned space.
    - ii. Air conditioning or heat pump condenser
    - iii. Heating or cooling coil
    - iv. Air handler (e.g., furnace, fan coil, package unit)
  - d. Replacement using Smoke Test: Similar to "Replacement" but the target leakage could not be met due to the equipment not being new. Smoke is used to show that leaks are only coming from the previously existing equipment. All accessible leaks visible by smoke must be sealed.
  - e. Alteration using Smoke Test: Similar to "Alteration" but the target leakage could not be met due to the equipment not being new or due to inaccessible leaks. Smoke is used to show that leaks are only coming from the previously existing equipment or are inaccessible. All accessible leaks visible by smoke must be sealed.

**B. Duct Leakage Diagnostic Test - Low Leakage Ducts in Conditioned Space**

1. *System compliance with visual inspection per RA3.1.4.1.2?*: This field will be automatically filled. A visual inspection confirms the space conditioning system is located entirely in conditioned space in accordance with RA3.1.4.1.3. If any part of the duct system is outside of conditioned space, the system does not pass.
2. *Duct Leakage Test Conditions*: This field will be automatically filled. The entire duct system shall be included in the total leakage test. The air handler, supply and return plenums and all the connectors, transition pieces, duct boots and registers must be installed and tested to total system leakage. All supply registers shall be taped so that the tape goes over the grills and attaches to the surrounding drywall. All return grilles except for one large centrally located return grille or the air handler cabinet access panel shall be taped up.
3. *Duct Leakage Test Method*: This field will be automatically filled. Leakage to outside shall be verified by pressurizing the dwelling and the ducts to 25 Pa (0.1 inches of water) **with respect to outside**. A full description of these procedures can be found in RA3.1.4.3.4.
4. *Target Allowable Duct Leakage Rate (cfm)*: This field will be automatically filled. In order to pass this test duct leakage must be equal to or less than 25 cfm when the dwelling and ducts are pressurized to 25 Pa with respect to outside.

NOTE: The 25 cfm leakage value will be difficult to reach unless the ducts are located in conditioned space.

5. *Actual Duct Leakage Rate from Leakage Test Measurement (cfm)*: Input the duct leakage rate taken from actual test measurements.
6. *Compliance statement*: This field will be automatically filled. The test passes if actual leakage rate is less than or equal to 25 cfm and a MCH-21 has been registered.

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HERS provider