

CERTIFICATE OF INSTALLATION		CF2R-MCH-20-H
Duct Leakage Diagnostic Test		(Page 1 of 3)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City:	Zip Code:

A. System Information

1	HVAC System Identification or Name:	
2	HVAC System Location or Area Served:	
3	Building Type from CF-1R	
4	Verified Low Leakage Ducts in Conditioned Space (VLLDCS) Credit from CF-1R?	
5	Verified Low Leakage Air-handling Unit Credit from CF-1R?	
6	Duct System Construction Type:	

B. Duct Leakage Diagnostic Test - MCH-20c - Low Leakage Air-Handling Unit (LLAHU)

1	Condenser Nominal Cooling Capacity (ton)	
2	Heating Capacity (kBtu/h)	
3	Conditioned Floor Area Served by this HVAC System (ft ²)	
4	Compliance Method	
5	Duct Leakage Test Method?	
6	LeakageFactor ()	
7	Air-Handling Unit Airflow (AHUAirflow) Determination Method	
8	Measured AHUAirflow (cfm)	
9	Calculated Target Allowable Duct Leakage Rate (cfm)	
10	Actual duct leakage rate from leakage test measurement (cfm)	
11	Air-Handling Unit Manufacturer Name	
12	Air-Handling Unit Model Number	
13	Compliance statement:	

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C. ADDITIONAL REQUIREMENTS FOR COMPLIANCE

The responsible persons signature on this document indicates the installation complies with the following requirements:

1.	The Low Leakage Air-handling Unit Model identified on this compliance document is included in the list of certified Low Leakage Air-Handling Units published on the Energy Commission Website at: http://www.energy.ca.gov/title24/2008standards/special_case_appliance/supplemental_listings/Low_Leakage_Air-Handling_Unit_Listing_2012-10-30.pdf (provide updated link).
2.	System was tested in its normal operation condition. No temporary taping allowed.
3.	Outside air (OA) ducts for Central Fan Integrated (CFI) ventilation systems, shall not be sealed/taped off during duct leakage testing. CFI OA ducts that utilize controlled motorized dampers, that open only when OA ventilation is required to meet ASHRAE Standard 62.2, and close when OA ventilation is not required, may be configured to the closed position during duct leakage testing.
4.	All supply and return register boots were sealed to the drywall.
5.	Building cavities were not used as plenums or platform returns in lieu of ducts.
6.	If cloth backed tape was used it was covered with Mastic and draw bands.
7.	All connection points between the air handler and the supply and return plenums are completely sealed.

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT		
1. I certify that this Certificate of Installation documentation is accurate and complete.		
Name:	Signature:	
Company:	Date:	
Address:	CEA or CEPE or HERS Certification # If applicable:	
City/State/Zip:	Phone:	
RESPONSIBLE PERSON'S DECLARATION STATEMENT		
<p>1. I certify under penalty of perjury, under the laws of the State of California, the information provided on this Certificate of Installation is true and correct.</p> <p>2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).</p> <p>3. I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.</p> <p>4. I understand that a HERS rater will check the installation to verify compliance, and that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</p> <p>5. I reviewed a copy of the Certificate of Compliance (CF1R) approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF1R that apply to the installation have been met.</p> <p>6. I will ensure that a completed, signed 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 signed copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Certificates of Installation are registered with a HERS Provider Data Registry for projects that require HERS verification.</p>		
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)		
Responsible Person's Name:		Responsible Person's Signature:
CSLB License:	Date Signed:	Position With Company (Title):
Is this installation monitored by a Third Party Quality Control Program (TPQCP)? <input type="checkbox"/> Yes <input type="checkbox"/> No		Name of TPQCP (if applicable):

A. System Information

1. *HVAC System Identification or Name*: Same data given on MCH-01; provides an identification name or tag name that uniquely identifies the duct system. If there is a mechanical plan for the system, the tag name may be given on the plans.
2. *HVAC System Location or Area Served*: Same data given on MCH-01; provides a brief description of the area served by the duct system (e.g. upstairs; downstairs).
3. *Building Type*: Same data given on CF-1R; Single Family or Multi Family.
4. *Verified Low Leakage Ducts in Conditioned Space (VLLDCS)*: Same data given on CF-1R; Details whether or not VLLDCS is required per CF-1R.
5. *Verified Low Leakage Air-handling Unit (VLLAHU) Credit*: Same data given on CF-1R; Details whether or not VLLAHU is required per CF-1R.
6. *Duct System Construction Type*: Choose from Completely New, Complete Replacement, or Alteration.
 - a. Completely New System: For new buildings with a new HVAC system.
 - b. Complete Replacement System: For existing buildings where a completely new duct system is installed (cut in) or 75 percent or more new duct material, and up to 25 percent may consist of reused parts from the dwelling unit's existing duct system (e.g., registers, grilles, boots, air handler, coil, plenums, duct material).
 - c. Alteration: For existing buildings where 40 feet of new or replacement space-conditioning system ducts are installed in unconditioned space or indirectly conditioned space.

B. Duct Leakage Diagnostic Test - MCH-20c - Low Leakage Air-Handling Unit (LLAHU)

1. *Condenser Nominal Cooling Capacity (ton)*: Same data given on MCH-01.
2. *Heating Capacity (kBtu/h)*: Same data given on MCH-01; This will be auto-filled from the MCH-01 data.
3. *Zone Conditioned Floor Area (ft²)*: User will input CFA for zone which should be consistent with the value from the CF-1R. User will have the option to leave this field blank because the zone CFA is only required for the default airflow calculation.
4. *Compliance Method*: User must select from the following options:
 - a. Test Rough-in AHU: Installers may determine duct leakage in new construction by using diagnostic measurements at rough-in building construction stage prior to installation of interior finishing (See Section RA3.1.4.3.2 of the 2013 Reference Appendices).
 - b. Test Rough-in No AHU: Same as "Test Rough-in" except air handling unit is not yet installed (See Section RA3.1.4.3.2 of the 2013 Reference Appendices).
 - c. Test Final: Test conducted at final inspection (rough-in no longer an option. See Section RA3.1.4.3.1 of the 2013 Reference Appendices).
5. *Duct Leakage Test Method?*: User will select from the following options: Leakage to the Outside, or Total Leakage.
6. *LeakageFactor ()*: value will be automatically populated from in CF-1R.
7. *Air-Handling Unit Airflow (AHUAirflow) Determination Method*: User will select from the following options:
 - a. Default Airflow Method: The Default Airflow Method may only be used for homes where the duct system is being tested before the conditioning and heating system is installed and the equipment specification is not known (See Section RA3.1.4.2.1 of the 2013 Reference Appendices).
 - b. Cooling System Method: For systems with cooling, this selection must be made, and the nominal air handler airflow shall be 400 CFM per nominal ton of condensing unit cooling capacity as specified by the manufacturer or the heating only value, whichever is greater (See Section RA3.1.4.2.2 of the 2013 Reference Appendices).
 - c. Heating System Method: For heating only systems the nominal air handler airflow shall be 21.7 CFM per kBtu/hr of rated heating output capacity.
 - d. Measured Airflow Method: The system airflow can be used as the air handler airflow for the purpose of establishing duct leakage percentage (See Section RA3.1.4.2.3 of the 2013 Reference Appendices).
8. *Measured AHUAirflow (cfm)*: If "Measured Airflow Method" is selected in row 7, user must input measured airflow.
9. *Calculated Target Allowable Duct Leakage Rate (cfm)*: This value will be automatically populated depending on values in B6, B7, and B8.

10. *Actual Duct Leakage Rate from Leakage Test Measurement (cfm)*: User will input this value from actual measurements from leakage test.
11. *Air-Handling Unit Manufacturer Name*: This will be automatically populated from information entered in the MCH-01.
12. *Air-Handling Unit Model Number*: This will be automatically populated from information entered in the MCH-01.
13. *Compliance Statement*: If Actual Duct Leakage Rate from leakage test (B10) is less than or equal to Calculated Target Allowable Duct Leakage Rate (B9), "System passes leakage test" will automatically populate. If not, "System fails leakage test will automatically populate.