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

A. Building Air Leakage – General Information		
1	Test Procedure Used:	
2	Building Air Leakage Target from CF-1R	
3	Indoor temperature during test (degreeF)	
4	Outdoor temperature during test (degreeF)	
5	Blower door location	
6	Building Elevation (ft)	
7	Building Volume (ft3)	
8	Date of the diagnostic test for this dwelling	

B. Diagnostic Equipment Information		
1	Number of Fans Used to Pressurize Home	
2	Fan #1	
3	Manometer Make	
4	Manometer Model	
5	Manometer Serial Number	
6	Manometer Calibration Date	
7	Manometer Calibration Status	
8	Fan Make	
9	Fan Model	
10	Fan Serial Number	

C. Envelope Leakage Diagnostic Test - ENV20d – Repeated Single Point Air Tightness Test With Manual Meter										
1	Time average period of meter									
2	Pre-test baseline building pressure									
3	Blower Door Software used for calculations?									
4	Data Points =>	#1	#2	#3	#4	#5	#6	#7	#8	#9
5	(Min 5, max 9 data pts)									
6	Fan configuration*									
	*fan configuration must be the same for all data points									
7	Unadjusted building pressure									
8	Nominal fan flow									
9	Induced building pressure									
10	Nominal CFM50									
	<<Eq 1 = (50/ row C. 9)^0.65 x row C. 9>>									
11	Average nominal CFM50	<<calculated, average of nominal CFM50 values, above>>								

D. Altitude and Temperature Correction		
<<if row C. 3 = "no", use this section>>		
1	Altitude correction factor	<<calculated value, if row A. 6 ≤ 5000 Ft = 1; row A. 6 > 5000 =, 1 + .000006 * row A. 6

2	Temperature correction factor	
3	Corrected CFM50	

E. Accuracy Adjustment		
<<if row C. 3 = “no”, use this section>>		
1	Standard deviation of nominal CFM 50 values above	
2	Percent uncertainty	
3	Accuracy level	
4	Extending factor	
5	Adjusted CFM50 (measured air leakage rate)	
<<if row C. 3 = “yes”, use next two lines>>		
6	Corrected CFM50 (from software)	
7	Percent uncertainty @ 95% confidence level (from software)	

F. Compliance Statement
<< if manometer Calibration Date in B. 6 is within 12 months of the date of the diagnostic test A. 8 and if Adjusted CFM50 Leakage in E. 5 or E. 7 is less than or equal to the Building Air Leakage Rate Target in A. 2 then display text: "Building Passes Envelope Leakage Test"; if manometer Calibration Date in B. 6 is more than 12 months from the date of the diagnostic test A. 8 or if Adjusted CFM50 Leakage in E. 5 or E. 7 is more than the Building Air Leakage Rate Target in A. 2 then display text: "Building Fails Envelope Leakage Test">>

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

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

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.
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).
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.
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.
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.
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.

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)? ☐Yes ☐No		Name of TPQCP (if applicable):

Instructions for ENV20d

Section A. Building Air Leakage – General Information

1. Select the appropriate test procedure. This selection will determine which version of this document will be used (a, b, c, d, or e) and therefore which data must be collected. Note that single-point tests can only be used under certain conditions. Note that newer manometers have automatic functions for compensating for baseline (automatic baseline) and compensating for house pressures other than the target (@50 Pa). It is preferable to use these, when available, however if these automatic functions are to be used, they must BOTH be used.
2. This number is automatically pulled from the performance approach Certificate of Compliance and is the target maximum that was entered by the documentation author. If this number cannot be achieved, the performance compliance calculations can be redone with a higher number or without the requirement for building air leakage.
3. Enter the indoor temperature measured at the time that the building air leakage test was performed.
4. Enter the outdoor temperature measured at the time that the building air leakage test was performed.
5. Provide a brief description of the location where the blower door was installed for the test. Examples: "front entry door on west side of house", "door between house and garage", "large window in family room".
6. Enter the building elevation use the value for the closest city found in Joint Appendix JA2.2. Only elevations higher than 5000 feet require an adjustment to the calculations.
7. This number is automatically pulled from the performance approach Certificate of Compliance. It is used to calculate air changes.
8. Enter the date that the building leakage test data was collected.

Section B. Diagnostic Equipment Information

1. Enter the number of blower door fan systems required to run simultaneously to pressurize the home for the building air leakage test. If more than one system is used, the fan flow numbers need to be manually added together, unless blower door software is used that will accommodate multiple fan systems running simultaneously.
2. Enter the appropriate information for each fan system used in the following rows.
3. Enter the make (brand) of the manometer used to collect the building air leakage data. Examples: Retrotec, Energy Conservatory.
4. Enter the model of the manometer used to collect the building air leakage data. Examples: DM-2 Mark II, DG700.
5. Enter the serial number of the manometer used to collect the building air leakage data.
6. Enter the most recent date that the manometer was calibrated by following manufacturer's calibration specifications.
7. This field is automatically filled. If the calibration date was more than 12 months prior to the test date entered in Row A.8, above, an error will appear.
8. Enter the make (brand) of the fan used to collect the building air leakage data. Examples: Retrotec, Energy Conservatory.
9. Enter the model of the fan used to collect the building air leakage data. Examples: US1000, Q46, BD3, BD4.
10. Enter the serial number of the fan used to collect the building air leakage data.

Section C. Envelope Leakage Test (specific to the ENV20d)

1. Enter the time average period used on the manometer during the test. Must be at least 10 seconds.
2. Enter the pre-test baseline building pressure reading.
3. If ASTM E779-10 compliant software is being used for the calculations, enter the name and version here. Otherwise, choose "none".
4. These are the numbered columns for the data points required for the test. There is a minimum of five and a maximum of nine data points required for this test.
5. This shows which data points are required or optional for this test. There is a minimum of five and a maximum of nine data points required for this test.
6. Enter the fan configuration (rings) that was used during the data acquisition. Examples: Ring A, Ring A1, Ring B2
7. Enter the measured unadjusted building pressure straight from the manometer. Note that the protocols require depressurization of the envelope. All blower door induced pressures are to be negative relative to outside.
8. Enter the fan flow from the manometer that corresponds to the measured unadjusted building pressure from Row C.8.
9. This field is automatically calculated. It is the induced building pressure, which is the difference between the unadjusted building pressure and the pre-test baseline building pressure. It should be close to 50 Pa, but no less than 15 Pa.
10. This field is automatically calculated. It is the fan flow that would have occurred if the induced building pressure was exactly 50 Pa.
11. This field is automatically calculated. It is the average of the Nominal CFM50 values.

Section D. Altitude and Temperature Correction

1. This field is automatically calculated. It is based on the elevation entered in Row A.6
2. Enter the temperature correction factor from Table RA3.8-2 or RA3.8-3 using the indoor and outdoor temperatures entered in Rows A.3 and A.4.
3. This field is automatically calculated. It is the product of Row D.1, D.2, and C.16.

Section E. Accuracy Adjustment

1. This field is automatically calculated. It is the standard deviation of the nominal CFM50 values from Row C.10
2. This field is automatically calculated.
3. If the accuracy level from Row C.8 shows "Reduced" the measured CFM50 is adjusted by a calculated safety factor to assure compliance.
4. This field is automatically calculated.
5. This field is automatically calculated. It is the product of the Corrected CFM50 from Row D.3 and the Extending factor of Row E.1. This is the number that must be less than or equal to the target building air leakage from the CF-1R, shown in Row A.2.