DOCKETED	
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Project Title:	Residential Compliance Manual and Documents
TN #:	232819-21
Document Title:	2016-CF2R-ENV-20d-BuildingEnvelopeAirLeakage- RepeatedSinglePointTest-ManualMeterpdf
Description:	N/A
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BUILDING LEAKAGE DIAGNOSTIC TEST



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

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

A. Bu	ilding Air Leakage – General Information	
01	Test Procedure Used	
02	Building Air Leakage Target from CF1R	
03	Indoor Temperature During Test (°F)	
04	Outdoor Temperature During Test (°F)	
05	Blower Door Location	
06	Building Elevation (ft)	
07	Building Volume (ft ³)	
08	Date of the Diagnostic Test for this Dwelling	. 01.

B. Diagnostic Equipment Information			C	100	10.0		
01	Number of Manomet	ers Used to Measure Home	Pressurization		100		
	02	03	0	4	05		06
			Mano	meter	Manometer	. 9	Manometer
	Manometer	Manometer	Se	rial	Calibration	- 91	Calibration
	Make	Model	Nun	nber	Date		Status
				~7		J.	
					5		
07	Number of Fans Used	to Pressurize Home		0.7	0		
	08	09		5	10		11
			20	o)	5	Note	Fan Configuration (rings) e: fan configuration must be
Fan Make		Fan M	Fan Model Fan Se		n Serial Number the same for all d		e same for all data points
			0	10	- 10-		
					YC.		

ENV20d - Repeated Single Point Air Tightness Test With Manual Meter

C. Env	C. Envelope Leakage Diagnostic Test					
01	01 Time Average Period of Meter					
02	02 Blower Door Software Used for Calculations?					
03	Test Methodology		0.7			
	04	05	06	07	08	
Baseli	ne Building Pressure	Unadjusted Building				
	Reading	Pressure	Nominal Fan Flow	Induced Building Pressure	Nominal CFM50	
. 0						
	4					
09	Average Nominal CF	M50				

D. Alt	itude and Temperature Correction	
01	Altitude Correction Factor	
02	Temperature Correction Factor	
03	Corrected CFM50	

Registration Number: Registration Date/Time: HERS Provider:

STATE OF CALIFORNIA

BUILDING LEAKAGE DIAGNOSTIC TEST



CEC-CE2	R-FNV-20-H (I	Revised 10/16)

CERTIFICATE OF INSTALLATION		CF2R-ENV-20-H	
Building Leakage Diagnostic Test		(Page 2 of 3)	
Project Name:	Enforcement Agency:	Permit Number:	
Dwelling Address:	City	Zip Code	

E. Ac	curacy Adjustment	
01	Standard Deviation of Nominal CFM 50 Values Above	
02	Percent Uncertainty	
03	Accuracy Level	
04	Accuracy Adjustment Factor	
05	Adjusted CFM50 (measured air leakage rate)	
06	Corrected CFM50 (from software)	
07	Percent Uncertainty @ 95% Confidence Level	
07	(from software)	. 01'

F. Con	npliance Statement		0, 0,
01		100	

01	I Open all interior doors and access including those to closets and those between a conditioned hasement and attic
02	Open all interior doors and access including those to closets and those between a conditioned basement and attic. HVAC supply and return register dampers shall be fully open.
UZ	Temporarily sealing of combustion flues and intermittent exhaust fans are not allowed. Some examples are: combustion flues, fresh air
03	intakes, dryer vents, bathroom and kitchen exhaust vents and fire place.
04	Continuously operated ventilation devices like energy recovery ventilators may be sealed.
	Multifamily – Each dwelling unit must be tested individually and shown to meet the leakage requirements. Pressurization of the adjacer
05	dwelling units while conducting this test is not allowed.
The re	sponsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.
	"10" V.C. "110"

STATE OF CALIFORNIA

BUILDING LEAKAGE DIAGNOSTIC TEST



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

CERTIFICATE OF INSTALLATION		CF2R-ENV-20-H
Building Leakage Diagnostic Test		(Page 3 of 3)
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 an	nd 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:

- 1. The information provided on this Certificate of Installation is true and correct.
- 2. 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.
- 4. 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.
- 5. 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	e Signed:
Third Party Quality Control Program (TPQCP) Status:	Name of TPQCP (if applicable):	
or informa, HEB		
OU/A.		

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CF2R-ENV-20d-H User Instructions

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 be used for BOTH automatic baseline and pressure compensation.
- This number is automatically pulled from the CF1R 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 5,000 feet require an adjustment to the calculations.
- 7. This number is automatically pulled from the CF1R. 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 manometers used to measure the home pressurization. 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 make (brand) of the manometer used to collect the building air leakage data. Examples: Retrotec, Energy Conservatory.
- 3. Enter the model of the manometer used to collect the building air leakage data. Examples: DM-2 Mark II, DG700.
- 4. Enter the serial number of the manometer used to collect the building air leakage data.
- 5. Enter the most recent date that the manometer was calibrated by following manufacturer's calibration specifications.
- 6. 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.
- 7. 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.
- 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.
- 11. Enter the fan configuration shown on the meter. This is sometimes referred to as "range configuration", "CONFIG" or "rings". Examples: Open, A, B, C8.

Section C. Envelope Leakage Test (ENV20d)

- Enter the time average period used on the manometer during the test. Must be at least 10 seconds.
- 2. This version of the ENV-20 can be used with an ASTM E779-10 compliant software, typically provided by the blower door manufacturer. Confirm with the software vendor that it is compliant.
- 3. Select the type of test being performed: Pressurization (air blowing into house) or Depressurization (air blowing out of house).
- 4. Enter five to nine baseline building pressure readings (Resolution of 0.1 Pa).
- 5. Enter five to nine Unadjusted Building Pressure numbers straight from the manometer. All blower door induced pressures for the depressurization tests are to be negative relative to outside.
- 6. Enter five to nine Nominal fan flows from the manometer that corresponds to the Unadjusted Building Pressure values. All blower door induced pressures for the depressurization tests are to be negative relative to outside.
- 7. This field is automatically calculated. The Induced Building Pressure is the difference between the Unadjusted Building Pressure and the Baseline Building pressure.
- 8. This field is automatically calculated. The Nominal Fan Flow at the Induced Building Pressure is adjusted mathematically for a target pressure of -50 Pa.
- 9. This field is automatically calculated. It is the average of the Nominal CFM50 values for the 5-9 repeated single point tests.

(Page 2 of 3)

Section D. Altitude and Temperature Correction

- 1. This field is automatically calculated. The equation used to calculate this value in the field equals:
 - a. If the elevation is less than or equal to 5,000 ft, the Altitude Correction Factor is 1 (no adjustment).
 - b. If the elevation is greater than 5,000 ft, the Altitude Correction equals 1 + (0.000006 * elevation in feet)
- 2. Enter the Temperature Correction Factor from Table RA3.8-2 or RA3.8-3 using the indoor and outdoor temperatures entered in Section A.

Table RA3.8-2 Temperature Correction Factors for Pressurization Testing- Calculated according to ASTM E779-10

					Inside ⁻	Tempera	ture (F)			
		50	55	60	65	70	75	80	85	90
Outside Temp (F)	-20	1.062	1.072	1.081	1.090	1.099	1.108	1.117	1.127	1.136
	-15	1.056	1.066	1.075	1.084	1.093	1.102	1.111	1.120	1.129
	-10	1.051	1.060	1.069	1.078	1.087	1.096	1.105	1.114	1.123
	-5	1.045	1.054	1.063	1.072	1.081	1.090	1.099	1.108	1.117
	0	1.039	1.048	1.057	1.066	1.075	1.084	1.093	1.102	1.111
	5	1.033	1.042	1.051	1.060	1.069	1.078	1.087	1.096	1.105
	10	1.028	1.037	1.046	1.055	1.064	1.072	1.081	1.090	1.099
	15	1.023	1.031	1.040	1.049	1.058	1.067	1.076	1.084	1.093
	20	1.017	1.026	1.035	1.044	1.052	1.061	1.070	1.079	1.087
	25	1.012	1.021	1.029	1.038	1.047	1.056	1.064	1.073	1.082
	30	1.007	1.015	1.024	1.033	1.041	1.050	1.059	1.067	1.076
	35	1.002	1.010	1.019	1.028	1.036	1.045	1.054	1.062	1.071
	40	0.997	1.005	1.014	1.023	1.031	1.040	1.048	1.057	1.065
	45	0.992	1.000	1.009	1.017	1.026	1.035	1.043	1.051	1.060
	50	0.987	0.995	1.004	1.012	1.021	1.029	1.038	1.046	1.055
	55	0.982	0.990	0.999	1.008	1.016	1.024	1.033	1.041	1.050
	60	0.997	0.986	0.994	1.003	1.011	1.019	1.028	1.036	1.045
	65	0.973	0.981	0.989	0.998	1.006	1.015	1.023	1.031	1.040
	70	0.968	0.976	0.985	0.993	1.001	1.010	1.018	1.026	1.035
	75	0.963	0.972	0.980	0.988	0.997	1.005	1.013	1.022	1.030
	80	0.959	0.967	0.976	0.984	0.992	1.000	1.009	1.017	1.025
	85	0.955	0.963	0.971	0.979	0.988	0.996	1.004	1.012	1.020
	90	0.950	0.958	0.967	0.975	0.983	0.991	0.999	1.008	1.016
	95	0.946	0.954	0.962	0.970	0.979	0.987	0.995	1.003	1.011
4	100	0.942	0.950	0.958	0.966	0.970	0.982	0.990	0.998	1.007
94	105	0.938	0.946	0.954	0.962	0.970	0.978	0.986	0.994	1.002
	110	0.933	0.942	0.950	0.952	0.966	0.974	0.982	0.990	0.998

Table RA3.8-3 Temperature Correction Factors for Depressurization Testing- Calculated according to ASTM E779-10

		0,1	KJ.			Inside 1	Tempera	ture (F)			
		_	50	55	60	65	70	75	80	85	90
C.		-20	0.865	0.861	0.857	0.853	0.849	0.845	0.841	0.837	0.833
		-15	0.874	0.870	0.866	0.862	0.858	0.854	0.850	0.846	0.842
• (~ ~	-10	0.883	0.879	0.874	0.870	0.866	0.862	0.858	0.854	0.850
		-5	0.892	0.887	0.883	0.879	0.875	0.871	0.867	0.863	0.859
	10-	0	0.900	0.896	0.892	0.887	0.883	0.879	0.875	0.871	0.867
. 0		5	0.909	0.905	0.900	0.896	0.892	0.888	0.883	0.879	0.875
<.0.	100	10	0.918	0.913	0.909	0.905	0.900	0.896	0.892	0.888	0.884
		15	0.927	0.922	0.918	0.913	0.909	0.905	0.900	0.896	0.892
		20	0.935	0.931	0.926	0.922	09.17	0.913	0.909	0.905	0.900
For II.		25	0.944	0.939	0.935	0.930	0.926	0.922	0.917	0.913	0.909
		30	0.952	0.948	0.943	0.939	0.934	0.930	0.926	0.921	0.917
		35	0.961	0.956	0.952	0.947	0.943	0.938	0.934	0.930	0.926
O,		40	0.970	0.965	0.960	0.956	0.951	0.947	0.942	0.938	0.934
	Outside Temp (F)	45	0.978	0.974	0.961	0.964	0.960	0.955	0.951	0.946	0.942
		50	0.987	0.982	0.977	0.973	0.968	0.963	0.959	0.955	0.950
		55	0.995	0.990	0.986	0.981	0.976	0.972	0.967	0.963	0.958
		60	1.004	0.999	0.994	0.998	0.985	0.980	0.976	0.971	0.967
		65	1.012	1.008	1.003	0.998	0.993	0.988	0.984	0.979	0.975
		70	1.021	1.016	1.011	1.006	1.001	0.997	0.992	0.988	0.983
		75	1.029	1.024	1.019	1.015	1.010	1.005	1.000	0.996	0.991
		80	1.038	1.033	1.028	1.023	1.018	1.013	1.009	1.004	0.999
		85	1.046	1.041	1.036	1.031	1.026	1.022	1.017	1.012	1.008
		90	1.055	1.050	1.045	1.040	1.035	1.030	1.025	1.020	1.016
		95	1.063	1.058	1.053	1.048	1.043	1.038	1.033	1.028	1.024
		100	1.072	1.066	1.061	1.056	1.051	1.046	1.041	1.037	1.032
		105	1.080	1.075	1.070	1.064	1.059	1.054	1.050	1.045	1.040
L		110	1.088	1.083	1.078	1.073	1.068	1.063	1.058	1.053	1.048

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3. This field is automatically calculated. The Corrected CFM50 is the Nominal CFM50 from Section C multiplied by the Altitude and Temperature Correction Factors.

Section E. Accuracy Adjustment (If Row C.2 = No)

- 1. This field is automatically calculated. It is the standard deviation of the Nominal CFM50 values from the 5 to 9 repeated single point tests
- 2. This field is automatically calculated. It is the Percent Uncertainty and the equation used to calculate this value in the field equals {[(C.1/square root N or the number of tests)x t-statistic look up from table RA 3.8-1]/D.3 Corrected CFM50} = Percent Uncertainty

Table 3.8-1 Precision Uncertainty: Values of t-statistic

Number of Readings	t-statistic
5	2.78
6	2.57
7	2.45
8	2.37
9	2.31

- 3. This field is automatically calculated. The equation used to calculate this value in the field equals:
 - a. If the Percent Uncertainty in E.2 ≤ 10, then enter "standard" as accuracy level in box E. 3.
 - b. If the Percent Uncertainty in E.2 > 10, then enter "reduced" as accuracy level in box E. 3.
- 4. This field is automatically calculated. The equation used to calculate this value in the field equals:
 - a. If the Accuracy Level E.3 = Standard, then enter 1 as Accuracy Adjustment Factor in box E.4.
 - b. If the Accuracy Level E.3 = Reduced, Accuracy Adjustment Factor equation equals 1+(E.2/100).
- 5. This field is automatically calculated. The equation used to calculate this value in the field equals the D.3 * E.4 = Adjusted CFM50.

Section E. Accuracy Adjustment (If Row C.2 = Yes)

- 6. Enter the Corrected CFM50 from manometer software.
- 7. Enter the Percent Uncertainty from manometer software.

Section F. Compliance Statement

1. This field is automatically calculated. A check is performed to make sure that the meter has been properly calibrated and that the measured infiltration is less than the target infiltration.

Section G. Additional Requirements for Compliance

- 1. This statement must be true (or not applicable) for the test to conform to the protocols.
- 2. This statement must be true (or not applicable) for the test to conform to the protocols.
- 3. This statement must be true (or not applicable) for the test to conform to the protocols.
- 4. This statement must be true (or not applicable) for the test to conform to the protocols.
- 5. This statement must be true (or not applicable) for the test to conform to the protocols.

Test Procedure Used		< <user down="" input,="" list:<="" pull="" th=""></user>
		Single-Point Test with Manual Meter – Display ENV-20a below; Single-Point
ı		Test with Automatic Meter – Display ENV-20b below; Multi-Point Test –
-		Display ENV-20c below; Repeated Single Point with Manual Meter – Display
		ENV-20d below; Repeated Single Point with Automatic Meter – Display
		ENV-20e below
Building Air Leakage Tar	get from CF1R	< <number cf1r="" from="" pulled="">></number>
Indoor Temperature Du	ring Test (°F)	< <user degf="" input,="">></user>
1 Outdoor Temperature D	uring Test (°F)	< <user degf="" input,="">></user>
Blower Door Location		< <user 50="" characters="" input,="" maximum="" text,="">></user>
Building Elevation (ft)		< <user ft="" input,="">></user>
Building Volume (ft ³)		< <pre><<pull cf1r="" from="">></pull></pre>
B Date of the Diagnostic T	est for this Dwelling	< <user (use="" control)="" date="" format="" input:="" validation="">></user>

B. Diagnostic Equipment	Information			-1110		115.
01 Number of Manome	ters Used to Measure Home P	ressurization	< <user input,<="" td=""><td>integer>> For entries ></td><td>1, dupli</td><td>icate lines B. 2-6</td></user>	integer>> For entries >	1, dupli	icate lines B. 2-6
02	03	0	4	05		06
		Mano		Manometer		Manometer
Manometer	Manometer	Sei		Calibration	_	Calibration
Make	Model	Nun	nber	Date		Status
< <user input,="" text,<br="">maximum 50 characters>></user>	< <user input,="" text,<br="">maximum 50 characters>></user>	< <user in<br="">maximum 50</user>		< <user (e<br="" input,="" text="">maximum 50 charact</user>		<calculated "warning="" -="" 12="" 5="" 8,="" a="" a.="" b.="" building="" calibration="" comply="" current="" date="" diagnostic="" display="" else="" expired.="" field:="" if="" in="" is="" leakage="" manometer="" message:="" months="" of="" order="" required="" test="" test"="" the="" then="" this="" to="" valid";="" with="" within="">>></calculated>
07 Number of Fans Use	d to Pressurize Home		ccuser innut	integer>> For entries >	a1 dunli	icate lines B. 8-11
08	09		· · · · · · · · · · · · · · · · · · ·	10	<u>τ, ααρπ</u>	11
0, 0				-	F	an Configuration (rings)
K-						: fan configuration must be
Fan Make	Fan Mod	el	Fan S	erial Number	the	e same for all data points
< <user input,="" maximu<="" td="" text,=""><td>m 50 <<user i<="" input,="" td="" text,=""><td>maximum 50</td><td><<user inpu<="" td=""><td>t, text, maximum 50</td><td><<us< td=""><td>er input, text, maximum 50</td></us<></td></user></td></user></td></user>	m 50 < <user i<="" input,="" td="" text,=""><td>maximum 50</td><td><<user inpu<="" td=""><td>t, text, maximum 50</td><td><<us< td=""><td>er input, text, maximum 50</td></us<></td></user></td></user>	maximum 50	< <user inpu<="" td=""><td>t, text, maximum 50</td><td><<us< td=""><td>er input, text, maximum 50</td></us<></td></user>	t, text, maximum 50	< <us< td=""><td>er input, text, maximum 50</td></us<>	er input, text, maximum 50
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ENV20d – Repeated Single Point Air Tightness Test With Manual Meter

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CF2R-ENV-20-H

01	Time Average Period	l of Meter		< <user entry<="" th=""><th>but must be no less than 10, ir</th><th>n second>></th></user>	but must be no less than 10, ir	n second>>
02	Blower Door Softwa	re used for Calculations?		< <user entry<="" td=""><td>, choices are "yes" or "no">></td><td></td></user>	, choices are "yes" or "no">>	
03	Test Methodology			< <user input<="" td=""><td>, pull down list:</td><td></td></user>	, pull down list:	
03				Pressurizatio	n; Depressurization>>	
	04	05	O	16	07	08
Baseli	ne Building Pressure	Unadjusted Building				
	Reading	Pressure	Nominal	Fan Flow	Induced Building Pressure	Nominal CFM50
	ired data> ution of 0.1 Pa)	<required data=""> (Resolution of 0.1 Pa)</required>	< required da (Resolution o		<calculated (c.5="" -="" c.4)]="" field:="absolute" value="">></calculated>	< <calculated field:="(50/[C.7])^0.65" x[c.6]="">></calculated>
	ired data> ution of 0.1 Pa)	<required data=""> (Resolution of 0.1 Pa)</required>	< required da (Resolution o		<calculated (c.5="" -="" c.4)]="" field:="[absolute" value="">></calculated>	<calculated [c.6]="" field:="(50/[C.7])^0.65" x="">></calculated>
	ired data> ution of 0.1 Pa)	<required data=""> (Resolution of 0.1 Pa)</required>	< required da (Resolution o		<calculated (c.5="" -="" c.4)]="" field:="[absolute" value="">></calculated>	< <calculated [c.6]="" field:="(50/[C.7])^0.65" x="">></calculated>
	ired data> ution of 0.1 Pa)	<required data=""> (Resolution of 0.1 Pa)</required>	< required da (Resolution o		<calculated (c.5="" -="" c.4)]="" field:="[absolute" value="">></calculated>	< <calculated [c.6]="" field:="(50/[C.7])^0.65" x="">></calculated>
	ired data> ution of 0.1 Pa)	<required data=""> (Resolution of 0.1 Pa)</required>	< required da (Resolution o	70. 7 70.	<calculated (c.5="" -="" c.4)]="" field:="[absolute" value="">></calculated>	< <calculated [c.6]="" field:="(50/[C.7])^0.65" x="">></calculated>
	s 6-9 optional data> ution of 0.1 Pa)	< optional data> (Resolution of 0.1 Pa)	< optional da (Resolution o	400	<calculated (c.5="" -="" c.4)]="" field:="[absolute" value="">></calculated>	< <calculated [c.6]="" field:="(50/[C.7])^0.65" x="">></calculated>
09	Average Nominal CF	M50:	9, "	The second second	value = $(C.8_1+C.8_2+C.8_3+C.8_4)$ quals the number of tests)>>	1 + C.8 ₅ +C.8 ₆ + C.8 ₇ + C.8 ₈ +

D. Alt	itude and Temperature Correction	
< <if ro<="" th=""><th>w C. 2 = "no", use this section>></th><th></th></if>	w C. 2 = "no", use this section>>	
	Altitude Correction Factor	< <calculated if<="" th="" value,=""></calculated>
01		row A. 6 ≤ 5000 Ft = 1;
	(1, 110, C	row A. 6 > 5000 =, 1 + .000006 * row A. 6>>
02	Temperature Correction Factor	< <fr><from and="" ra3.8-2="" ra3.8-3="" tables="">></from></fr>
02	Corrected CFM50	<calculated *="" 1="" 9*altitude="" c.="" correction="" d.="" row="" td="" temperature<="" value,=""></calculated>
03	14. " A 1K.	correction D. 2>>

E. Ac	curacy Adjustment	
< <if ro<="" th=""><th>ow C. 2 = "no", use this section>></th><th></th></if>	ow C. 2 = "no", use this section>>	
01	Standard Deviation of Nominal CFM 50 Values Above	< <calculated, c.8<sub="" equals="" of="" root="" square="" the="" {[(c.9-="">1)^2+(C.9- C.8₂)^2+(C.9- C.8₃)^2+(C.9- C.8₄)^2+(C.9- C.8₅)^2+(C.9- C.8₆)^2+(C.9- C.8₇)^2+(C.9- C.8₈)^2+(C.9- C.8₉)^2]/N-1 (N equals the number of tests)>></calculated,>
02	Percent Uncertainty	< <calculated, (n="" *="" 3.8-1}=""]="" cfm50="" corrected="" dev="" equals="" look="" number="" of="" ra="" sqrt(n)="" std="" table="" tests)="" the="" up="" {[="">></calculated,>
03	Accuracy Level	< <calculated, "standard";="" %="" if="" uncertainty="" ≤10,=""> 10, "Reduced">></calculated,>
04	Accuracy Adjustment Factor	< <calculated, "reduced",="" "standard"="1;" (%="" 1+="" 100)="" 3="" e.="" if="" is="" it="" row="" uncertainty="">></calculated,>
05	Adjusted CFM50 (measured air leakage rate)	< <calculated, *="" 3="" 4="" d.="" e.="" row="">></calculated,>
< <if rc<="" td=""><td>ow C. 2 = "yes", use next two lines>></td><td></td></if>	ow C. 2 = "yes", use next two lines>>	
06	Corrected CFM50 (from software)	< <user by="" calculated="" entry="" of="" software="" value="">></user>
07	Percent Uncertainty @ 95% Confidence Level (from software)	< <user by="" calculated="" entry="" of="" software="" value="">></user>

CERTIFICATE OF II	ΝΟΙΤΔΙΙ ΔΤΙΩΝ	- DATA FIFI D DEFIN	JITIONS AND CALCULATIONS

CF2R-ENV-20-H

Building Leakage Diagnostic Test - ENV-20d

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F. Compliance Statement

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

02	Open all interior doors and access including those to closets and those between a conditioned basement and attic.
02	HVAC supply and return register dampers shall be fully open.
	Temporarily sealing of combustion flues and intermittent exhaust fans are not allowed. Some examples are: combustion flues, fresh air
03	intakes, dryer vents, bathroom and kitchen exhaust vents and fire place.
04	Continuously operated ventilation devices like energy recovery ventilators may be sealed.
05	Multifamily – Each dwelling unit must be tested individually and shown to meet the leakage requirements. Pressurization of the adjace dwelling units while conducting this test is not allowed.
The r	esponsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.
	in and data dered