CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8)	CF-4R
Project Address	Builder or Installer Name
Builder or Installer Contact Telephone	Plan/Permit (Additions or Alterations) Number
HERS Rater Telephone	Sample Group Number
Compliance Method (Prescriptive)	Climate Zone
Certifying Signature Date	Sample House Number
Firm	HERS Provider
Street Address:	City/State/Zip:

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

HERS RATER COMPLIANCE STATEMENT

The house was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked ✓ on this form. The HERS rater must check and verify that the new distribution system is fully ducted and correct tape is used before a CF-4R may be released on every tested building. The HERS rater must not release the CF-4R until a properly completed and signed CF-6R has been received for the sample and tested buildings.

- ☐ The installer has provided a copy of CF-6R (Installation Certificate).
- ☐ New ducts are fully ducted (i.e., does not use building cavities as plenums or platform returns in lieu of ducts).
- ☐ New ducts with cloth backed, rubber adhesive duct tape is installed, mastic and draw bands are used in combination with cloth backed, rubber adhesive duct tape to seal leaks at duct connections.).

✓ ☐ MINIMUM REQUIREMENTS FOR DUCT LEAKAGE REDUCTION COMPLIANCE CREDIT

Procedures for field verification and diagnostic testing of air distribution systems are available in RACM, Appendix RC4.3.

Duct Diagnostic Leakage Testing Results

NEW CONSTRUCTION:			
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values	
1	Enter Tested Leakage Flow in CFM:		
2	Fan Flow: Calculated (Nominal: ✓ ☐ Cooling ✓ ☐ Heating) or ✓ ☐ Measured Enter Total Fan Flow in CFM:		✓ ✓
3	Pass if Leakage Percentage < 6% [100 x [_____(Line # 1) / _____(Line # 2)]]		☐ Pass ☐ Fail
ALTERATIONS: Duct System and/or HVAC Equipment Change-Out			
4	Enter Tested Leakage Flow in CFM from CF-6R: **Pre-Test** of Existing Duct System Prior to Duct System Alteration and/or Equipment Change-Out.		
5	Enter Tested Leakage Flow in CFM: **Final Test** of New Duct System or Altered Duct System for Duct System Alteration and/or Equipment Change-Out.		
6	Enter Reduction in Leakage for Altered Duct System [_____(Line # 4) Minus _____(Line # 5)] (Only if Applicable)		
7	Enter Tested Leakage Flow in CFM to Outside (Only if Applicable)		✓ ✓
8	Entire New Duct System - Pass if Leakage Percentage < 6% [100 x [_____(Line # 5) / _____Line # 2)]]		☐ Pass ☐ Fail
TEST OR VERIFICATION STANDARDS: For Altered Duct System and/or HVAC Equipment Change-Out Use one of the following four Test or Verification Standards for compliance:			✓ ✓
9	Pass if Leakage Percentage < 15% [100 x [_____(Line # 5) / _____ (Line # 2)]]		☐ Pass ☐ Fail
10	Pass if Leakage to Outside Percentage < 10% [100 x [_____(Line # 7) / _____ (Line # 2)]]		☐ Pass ☐ Fail
11	Pass if Leakage Reduction Percentage > 60% [100 x [_____(Line # 6) / _____ (Line # 4)]] and Verification by Smoke Test and Visual Inspection		☐ Pass ☐ Fail
	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection		☐ Pass ☐ Fail
	Pass if One of Lines # 9 through # 12 pass		☐ Pass ☐ Fail

Project Address	Builders Name

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

✓ ☐ DIAGNOSTIC SUPPLY DUCT LOCATION, SURFACE AREA AND R-VALUE

Procedures for field verification and diagnostic testing for this group compliance credits are available in RACM, Appendix RC, RE & RH.

✓ ☐ LESS THAN 12 LINEAL FEET OF SUPPLY DUCT OUTSIDE OF CONDITIONED SPACE COMPLIANCE CREDIT

✓	☐Yes	☐No	Less than 12 lineal feet of supply duct outside of conditioned space.		
			Yes to this compliance credit is a pass	✓ ☐ Pass	✓ ☐ Fail

✓ ☐ SUPPLY DUCTS LOCATED IN CONDITIONED SPACE COMPLIANCE CREDIT

✓	☐ Yes	☐ No	Ducts are located within the conditioned volume of building.		
			Yes to this compliance credit is a pass	✓ ☐ Pass	✓ ☐ Fail

Duct System Design verification is required for a compliance credit for the following:

1. **Supply duct surface area reduction**
2. **Buried supply ducts on the ceiling**
3. **Deeply buried supply ducts**

✓ ☐ DUCT SYSTEM DESIGN VERIFICATION

✓	☐ Yes	☐ No	Adequate airflow verified		
✓	☐ Yes	☐ No	The duct system design plan meets the requirements specified in RACM, Appendix RE, Section RE.4.2		
✓	☐ Yes	☐ No	The duct system design plan exists on building plans		
✓	☐ Yes	☐ No	Duct sizes, duct system layout and locations of supply & return registers match the duct system design plan		
			Yes to all is a pass	✓ ☐ Pass	✓ ☐ Fail

✓ ☐ SUPPLY DUCTS SURFACE AREA REDUCTION COMPLIANCE CREDIT

Attic	Crawl Space	Basement	Covered	Deeply Covered	Other	Duct Diameter	R-4.2 Surface Area	R-6.0 Surface Area	R-8.0 Surface Area
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
☐	☐	☐	☐	☐	☐				
						Total Surface Area for Each R-Value =			
✓	☐ Yes	☐ No	Duct Surface Area matches Performance's CF-1R?					✓	✓
							Yes to all is a pass	☐ Pass	☐ Fail

✓ ☐ BURIED DUCTS ON THE CEILING COMPLIANCE CREDIT

✓	☐ Yes	☐ No	Buried Ducts on the Ceiling		
✓	☐ Yes	☐ No	Verified High Insulation Installation Quality	✓	✓
Yes to duct system design, supply duct surface area reduction and this compliance credit is a pass				☐ Pass	☐ Fail

✓ ☐ DEEPLY BURIED DUCTS COMPLIANCE CREDIT

✓	☐ Yes	☐ No	Deeply Buried Ducts		
✓	☐ Yes	☐ No	Verified High Insulation Installation Quality	✓	✓
Yes to duct system design, supply duct surface area reduction and this compliance credit is a pass				☐ Pass	☐ Fail

Project Address	Builder Name
Builder Contact Telephone	Plan Number
HERS Rater Telephone	Sample Group Number
Compliance Method (Prescriptive)	Climate Zone
Certifying Signature Date	Sample House Number
Firm	HERS Provider
Street Address:	City/State/Zip:

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

HERS RATER COMPLIANCE STATEMENT

The house was: ✓☐ Tested ✓☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked on this form.

✓☐ The installer has provided a copy of CF-6R (Installation Certificate).

✓☐ THERMOSTATIC EXPANSION VALVE (TXV)

Procedures for field verification of thermostatic expansion valves are available in RACM, Appendix RI.

				✓	✓
✓	☐ Yes	☐ No	Access is provided for inspection. The procedure shall consist of visual verification that the TXV is installed on the system and installation of the specific equipment shall be verified.	☐	☐
			Yes is a pass	Pass	Fail

✓☐ REFRIGERANT CHARGE MEASUREMENT

Verification for Required Refrigerant Charge for Split System Space Cooling Systems without Thermostatic Expansion Valves

Outdoor Unit Serial #		
Location		
Outdoor Unit Make		
Outdoor Unit Model		
Cooling Capacity		Btu/hr
Date of Verification		
Date of Refrigerant Gauge Calibration		(must be checked monthly)
Date of Thermocouple Calibration		(must be checked monthly)

Standard Charge Measurement (outdoor air dry-bulb 55 °F and above):

Note: The system should be installed and charged in accordance with the manufacturer's specifications and installer verification shall be documented on CF-6R before starting this procedure. If outdoor air dry-bulb is below 55 °F rater shall use the Alternative Charge Measure Procedure

Procedures for Determining Refrigerant Charge using the Standard Method are available in RACM, Appendix RD2.

✓	☐ Yes	☐ No	A copy of CF-6R (Installation Certificate) has been provided with refrigerant charge measurement documented.

Project Address	Builders Name

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Measured Temperatures

Supply (evaporator leaving) air dry-bulb temperature (Tsupply, db)		°F
Return (evaporator entering) air dry-bulb temperature (Treturn, db)		°F
Return (evaporator entering) air wet-bulb temperature (Treturn, wb)		°F
Evaporator saturation temperature (Tevaporator, sat)		°F
Suction line temperature (Tsuction, db)		°F
Condenser (entering) air dry-bulb temperature (Tcondenser, db)		°F

Superheat Charge Method Calculations for Refrigerant Charge

Actual Superheat = Tsuction, db – Tevaporator, sat		°F
Target Superheat (from Table RD-2)		°F
Actual Superheat – Target Superheat (System passes if between -5 and +5°F)		°F

Temperature Split Method Calculations for Adequate Airflow

Split Method Calculation is not necessary if Adequate Airflow credit is taken

Actual Temperature Split = T return, db - Tsupply, db		°F
Target Temperature Split (from Table RD3)		°F
Actual Temperature Split - Target Temperature Split (System passes if between -3°F and +3°F or, upon remeasurement, if between -3°F and -100°F)		°F

Standard Charge Measurement Summary:

System shall pass both refrigerant charge and adequate airflow calculation criteria from the same measurements. If corrective actions were taken, both criteria must be remeasured and recalculated

✓	☐ Yes	☐ No	System Passes

Alternative Charge Measurement (outdoor air dry-bulb below 55 °F)

Note: The system should be installed and charged in accordance with the manufacturer's specifications and installer verification shall be documented on CF-6R before starting this procedure. If outdoor air dry-bulb is 55 °F or above, rater shall use the Standard Charge Measure Procedure:

Procedures for Determining Refrigerant Charge using the Alternative Method are available in RACM, Appendix RD3.

✓	☐ Yes	☐ No	*A copy of CF-6R (Installation Certificate) has been provided with refrigerant charge measurement documented.*

Weigh-In Charging Method for Refrigerant Charge

Actual liquid line length:		ft
Manufacturer's Standard liquid line length:		ft
Difference (Actual – Standard):		ft

Manufacturer's correction (ounces per foot) _____x difference in length =_____ounces
("+ " = add ounces) ("-" = remove ounces)

Alternative Charge Measurement Summary:

System shall pass both refrigerant charge and adequate airflow calculation criteria from the same measurements. If corrective actions were taken, both criteria must be remeasured and recalculated.

✓	☐ Yes	☐ No	*System Passes*

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 5 of 8)	CF-4R
Project Address	Builder Name
Builder Contact Telephone	Plan Number
HERS Rater Telephone	Sample Group Number
Certifying Signature Date	Sample House Number
Firm	HERS Provider
Street Address:	City/State/Zip:

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

HERS RATER COMPLIANCE STATEMENT

The house was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked on this form.

✓ ☐ The installer has provided a copy of CF-6R (Installation Certificate).

✓ ☐ ADEQUATE AIRFLOW VERIFICATION

Procedures for field verification and diagnostic testing of adequate airflow are available in RACM, Appendix RE4.1.

	Method For Airflow Measurement				
✓	☐ Yes	☐ No	Duct design exists on plans		
☐	RE4.1.1		Diagnostic Fan Flow Using Flow Capture Hood		
☐	RE4.1.2		Diagnostic Fan Flow Using Plenum Pressure Matching		
☐	RE4.1.3		Diagnostic Fan Flow Using Flow Grid Measurement		
			Measured Airflow:		Total CFM
			Rated Tons:		cfm/ton
				✓	✓
✓	☐ Yes	☐ No	Measured airflow is greater than the criteria in Table RE-2	☐	☐
			Yes is a pass	Pass	Fail

✓ ☐ MAXIMUM COOLING CAPACITY

Procedures for determining maximum cooling load capacity are available in RACM, Appendix RF3.

1	✓	☐ Yes	☐ No	Adequate airflow verified (see adequate airflow credit)		
2	✓	☐ Yes	☐ No	Refrigerant charge or TXV		
3	✓	☐ Yes	☐ No	Duct leakage reduction credit verified		
4	✓	☐ Yes	☐ No	Cooling capacities of installed systems are ≤ to maximum cooling capacity indicated on the Performance's CF-1R and RF-3.		
5	✓	☐ Yes	☐ No	If the cooling capacities of installed systems are > than maximum cooling capacity in the CF-1R, then the electrical input for the installed systems must be ≤ to electrical input in the CF-1R and RF-4.	✓ ☐	✓ ☐
				Yes to 1, 2, and 3; and Yes to either 4 or 5 is a pass	Pass	Fail

✓ ☐ HIGH EER AIR CONDITIONER

Procedures for verification are available in RACM, Appendix RI.

1	✓	☐ Yes	☐ No	EER values of installed systems match the CF-1R		
2	✓	☐ Yes	☐ No	For split system, indoor coil is matched to outdoor coil	✓	✓
3	✓	☐ Yes	☐ No	Time Delay Relay Verified (If Required)	☐	☐
				Yes to 1 and 2; and 3 (If Required) is a pass	Pass	Fail

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 6 of 8)	CF-4R
Project Address	Builder Name
Builder Contact Telephone	Plan Number
HERS Rater Telephone	Sample Group Number
Certifying Signature Date	Sample House Number
Firm	HERS Provider
Street Address:	City/State/Zip:

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

HERS RATER COMPLIANCE STATEMENT

The house was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked on this form.

✓ ☐ The installer has provided a copy of CF-6R (Installation Certificate).

✓ ☐ FAN WATT DRAW

Procedures for measuring the air handler watt draw are available in RACM, Appendix RE3.2.

✓ **Method For Fan Watt Draw Measurement**					
☐	RE3.2.1	Portable Watt Meter Measurement			
☐	RE3.2.2	Utility Revenue Meter Measurement			
		Measured Fan watt Draw: (enter watts here)			Watts
		Measured Fan Flow (Enter total cfm from airflow verification)			cfm
		Enter results of Watts/cfm:			Watts/cfm
			✓	✓	
✓ ☐ Yes	☐ No	Calculated fan watt/cfm is equal to or lower than the fan watt/cfm draw documented in CF-1R	☐	☐	
		Yes is a pass	Pass	Fail	

HERS RATER COMPLIANCE STATEMENT

The house was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked on this form.

✓ ☐ The installer has provided a copy of CF-6R (Installation Certificate).

✓ ☐ MINIMUM REQUIREMENTS FOR INFILTRATION REDUCTION COMPLIANCE CREDIT

Procedures for field verification and diagnostic testing of infiltration reduction are available in RACM Section 3.5.

Diagnostic Testing Results

	✓	✓	Building Envelope Leakage (CFM @ 50 Pa) as measured by Rater:		
1.	☐ Yes	☐ No	Is measured envelope leakage less than or equal to the required level from CF-1R?		
2.	☐ Yes	☐ No	Is Mechanical Ventilation shown as required on the CF-1R?		
2a.	☐ Yes	☐ No	If Mechanical Ventilation is required on the CF-1R (Yes in line 2), has it been installed?		
2b.	☐ Yes	☐ No	Check this box yes if mechanical ventilation is required (Yes in line 2) and ventilation fan watts are no greater than shown on CF-1R.		
3.	☐ Yes	☐ No	Check this box yes if measured building infiltration (CFM @ 50 Pa) is greater than the CFM @ 50 values shown for an SLA of 1.5 on CF-1R (If this box is checked no, mechanical ventilation is required.)		
4.	☐ Yes	☐ No	Check this box yes if measured building infiltration (CFM @ 50 Pa) is less than the CFM @ 50 values shown for an SLA of 1.5 on CF-1R, mechanical ventilation is installed and house pressure is greater than minus 5 Pascal with all exhaust fans operating.	✓	✓
Pass if: a) Yes in line 1 and line 3, or b) Yes in line 1 and line2, 2a, and 2b, or c)Yes in line 1 and line 4, Otherwise Fail.				☐ Pass	☐ Fail

Project Address	Builder Name
Builder Contact Telephone	Plan Number
HERS Rater Telephone	Sample Group Number
Certifying Signature Date	Sample House Number
Firm	HERS Provider
Street Address:	City/State/Zip:

Copies to: **BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT**

HERS RATER COMPLIANCE STATEMENT

The house was: ✓ ☐ Tested ✓ ☐ Approved as part of sample testing, but was not tested

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with all applicable requirements of the "High Quality Installation of Insulation" protocols as specified in the Residential ACM, Appendix RH and as checked on this form. Note that to PASS and receive compliance credit, NONE of the BOXES below may be checked "No" and the first three boxes also must be checked. Check "NA" only if the item is not part of the design of the building (i.e., single story buildings do not have rim joists or there may be no recessed can lights installed, etc.).

✓ ☐ **REQUIREMENTS FOR "HIGH QUALITY INSTALLATION OF INSULATION" COMPLIANCE CREDIT**

- ✓ ☐ The building is wood frame construction with wall stud cavities, ceilings, and roof assemblies insulated with mineral fiber or cellulose insulation in low-rise residential buildings.
- ✓ ☐ Description of insulation, (CF-6R, formerly IC-1) signed by the installer stating: insulation manufacturer's name, material identification, installed R-values, and for loose-fill insulation: minimum weight per square foot and minimum inches.
- ✓ ☐ Installation Certificate, (CF-6R) signed by the installer certifying that the installation meets all applicable requirements as specified in the High Quality Insulation Installation Procedures (ACM, Appendix RH).

✓ **FLOOR**

☐ Yes	☐ No	☐ NA	All floor joist cavity insulation installed to uniformly fit the cavity side-to-side and end-to-end
☐ Yes	☐ No	☐ NA	Insulation in contact with the subfloor or rim joists insulated
☐ Yes	☐ No	☐ NA	Insulation properly supported to avoid gaps, voids, and compression
✓ **WALLS**			
☐ Yes	☐ No	☐ NA	Wall stud cavity insulation uniformly fills the cavity side-to-side, top-to-bottom, and front-to-back
☐ Yes	☐ No	☐ NA	No gaps
☐ Yes	☐ No	☐ NA	No voids over ¾" deep or more than 10% of the batt surface area.
☐ Yes	☐ No	☐ NA	Hard to access wall stud cavities such as; corner channels, wall intersections, and behind tub/shower enclosures insulated to proper R-Value
☐ Yes	☐ No	☐ NA	Small spaces filled
☐ Yes	☐ No	☐ NA	Rim-joists insulated
☐ Yes	☐ No	☐ NA	Wall stud cavities caulked or foamed to provide an air tight envelope

Project Address	Builders Name

✓ **ROOF/CEILING PREPARATION**			
☐ Yes	☐ No	☐ NA	All draft stops in place to form a continuous ceiling and wall air barrier
☐ Yes	☐ No	☐ NA	All drops covered with hard covers
☐ Yes	☐ No	☐ NA	All draft stops and hard covers caulked or foamed to provide an air tight envelope
☐ Yes	☐ No	☐ NA	All recessed light fixtures IC and air tight (AT) rated and sealed with a gasket or caulk between the housing and the ceiling
☐ Yes	☐ No	☐ NA	Floor cavities on multiple-story buildings have air tight draft stops to all adjoining attics
☐ Yes	☐ No	☐ NA	Eave vents prepared for blown insulation - maintain net free-ventilation area
☐ Yes	☐ No	☐ NA	Knee walls insulated or prepared for blown insulation
☐ Yes	☐ No	☐ NA	Area under equipment platforms and cat-walks insulated or accessible for blown insulation
☐ Yes	☐ No	☐ NA	Attic rulers installed

✓ **ROOF/CEILING BATTS**			
☐ Yes	☐ No	☐ NA	No gaps
☐ Yes	☐ No	☐ NA	No voids over ¾ in. deep or more than 10% of the batt surface area
☐ Yes	☐ No	☐ NA	Insulation in contact with the air-barrier
☐ Yes	☐ No	☐ NA	Recessed light fixtures covered
☐ Yes	☐ No	☐ NA	Net free-ventilation area maintained at eave vents
✓ **ROOF/CEILING LOOSE-FILL**			
☐ Yes	☐ No	☐ NA	Insulation uniformly covers the entire ceiling (or roof) area from the outside of all exterior walls
☐ Yes	☐ No	☐ NA	Baffles installed at eaves vents or soffit vents - maintain net free-ventilation area of eave vent
☐ Yes	☐ No	☐ NA	Attic access insulated
☐ Yes	☐ No	☐ NA	Recessed light fixtures covered
☐ Yes	☐ No	☐ NA	Insulation at proper depth – insulation rulers visible and indicating proper depth and R-value
☐ Yes	☐ No	☐ NA	Loose-fill mineral fiber insulation meets or exceeds manufacturer's minimum weight and thickness requirement for the target R-value. Target R-value _____ Manufacturer's minimum required weight for the target R-value _____ (pounds-per-square foot). Sample weight _____ (pounds per square foot).
☐ Yes	☐ No	☐ NA	Manufacturer's minimum required thickness at time of installation _____ (inches) Manufacturer's minimum required settled thickness _____ (inches). Number of days since loose-fill insulation was installed _____ (days). At the time of installation, the insulation shall be greater than or equal to the manufacturer's minimum initial insulation thickness. If the HERS rater does not verify the insulation at the time of installation, and if the loose-fill insulation has been in place less than seven days the thickness shall be greater than the manufacturer's minimum required thickness at the time of installation less 1/2 inch to account for settling. If the insulation has been in place for seven days or longer the insulation thickness shall be greater than or equal to the manufacturer's minimum required settled thickness. Minimum thickness measured (inches).