

1021 Alamosa
0610621

ENERGY ANALYSIS and COMFORT SOLUTIONS INC.

PO Box 2233
Orangevale, CA 95662
Phone: 916-698-4185
Fax: 916-988-2387

Rater: _____
Date: _____
Time In: _____
Time Out: _____



Contractor Name		Contractor Address		City	ST	ZIP	Office Phone	Office Fax
KLEEN AIR		1657 SILICA AVENUE		SACRAMENTO	CA	95815	916-922-3995	916-920-8409
Documentation Author		Project Coordinator		Project Coordinator - Phone #		Extension	License #	Company ID #
EARL COX		Pat Chappell		916-922-3995			481974	40005
Residential Project Information								
Owner's Name/ Project Title		Address		City	ST	ZIP	Phone	Map Page
MARCENE SCRIBNER		1021 ALAMOS AVENUE		SACRAMENTO	CA	95815	916-925-9262	277-J5
Climate Zone		County	Utility	Rebate	T24 Compliance Type	Bid Dept - Permit From	Permit #	
12		County of Sacramento	SMUD	Yes	Alteration Certificate (SFR)	City of Sacramento	0610621	
Project Type		Building Type	# of Dwellings	# of Stories	Conditioned SF	Orientation	Ceiling Height	Floor Type
Alteration		Single Family Detached	1	1	800	S = 180	8	Raised
Est Start Job		Est Complete Job	Contractor Job #		Group Size	Plan #	House #	Group #
7/19/06		7/21/06	KLEEN-28857		7	40005	1156	510
Equipment Information								
Install Heat Equip?		Heat System Type	Heat Capacity	KBtu	Efficiency Rating	Efficiency Type	Configuration	Heat Load Calc
Yes		Furnace	60	KBtu	80.00	AFUE	Split	
Install Cool Equip?		Cool System Type	Cool Capacity	KBtu	SEER	EER	Configuration	Cool Load Calc
Yes		A/C	24	KBtu	15.00	13.00	Split	
Install Ductwork?		Duct Location	Type of Ducts	R-value	ARI #	Duct Test?	TXV or RCM?	High EER?
Yes		Attic	New	6		Yes	Yes	No
Furnace or Air Handler Information								
MFG		TRANE	MFG	TRANE	Evaporative Coil Information			
Model #		TUDD060RV3K	Model #	4TTX4024B1000A	Same as Condenser Mfg			
Serial #			Serial #		HD19636D210B260300			
Special Issues		Notes		Future Requirements		Future Requirements		
N/A								

CF6R forms ?

TXV verified?

Duct Test Performed?

High EER Verified?

New or Exist Ducts?

Equip M# & S# OK?

Stat on, Remove Tape?

Permit # Verified?

Equip Air Flow - CFM 800

Test Pressure 25.0

CFM Leakage 29

System % Leakage 3.6%

Smoke Tested? MC

Stand By Time _____

Notes: _____

Signature Earl Cox 7.28.06

CERTIFICATE OF COMPLIANCE: RESIDENTIAL

Date
Building Permit #
Plan Check / Date
Field Check / Date
Enforcement Agency Use Only

MARCENE SCRIBNER
 Project Title
 1021 ALAMOS AVENUE SACRAMENTO CA 95815
 Project Address
EARL COX
 Documentation Author
 Telephone 916-922-3995
 Prescriptive
 Compliance Method (Prescriptive)
 Climate Zone 12

Alternative Component Package Method: (check one)
 C X D D (Alternative)
 Package C and Package D choices require HERS rater field verification and/or diagnostic testing (see CF-1R page 3)
 For Package D Alternative see Appendix B Table 151-C Footnotes 7-14

GENERAL INFORMATION

Total Conditioned Floor Area (CFA) 800 ft² Average Ceiling Height: 8 ft
 Maximum Allowed West Facing Fenestration Products Per Table 151-B or 151-C ---- (5% X CFA) NA ft²
 Maximum Allowed Total Fenestration Products Per Table 151-B or 151-C ---- (20% X CFA) NA ft²
 Building Type: (check one or more) Single Family Multifamily Addition Alteration
 (if adding fenestration fill out WS-4R, Fenestration Maximum Allowed Area Worksheet and see Section 8.3.2
 for Additions and 8.3.3 for Alterations.)
 Number of Stories: 1 Number of Dwelling Units: 1
 Floor Construction Type: Raised Slab/Raised Floor (circle one or both)
 Front Orientation: S = 180 North / South / East / West / All Orientations (input front orientation in degrees from True
 North and circle one).

RADIANT BARRIER (required in climate zones 2, 4, 8-15)

OPAQUE SURFACES INCLUDING OPAQUE DOORS

Component Type (Wall, Roof, Floor, Slab Edge, Doors) Frame Type (Wood Insulation or Metal)	Cavity Insulation R-Value	Continuous Insulation R-Value	Assembly U-factor (for wood, metal frame and mass assemblies) 1	Joint Appendix IV Reference	Roof Radiant Barrier Installed Yes or No	Location/Comments (attic, garage, typical, etc.)

1) See Joint Appendix IV in Section IV.2, IV.3 and IV.4, which is the basis for the U-factor criterion. U-factors can not exceed prescriptive value to show equivalence to R-values.

MARGENE SCRIBNER 1021 ALAMOS AVENUE

Project Title

Date

FENESTRATION PRODUCTS - U-FACTOR AND SHGC

FENESTRATION MAXIMUM ALLOWED AREA WORKSHEET WS-4R - must be included for New Construction, Additions and Alterations.

Fenestration #/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orientation, N, S, E, W1	Area (ft ²)	U-factor ²	U-factor Sources ³	SHGC ⁴	SHGC Sources	Exterior Shading/Overhangs ^{6, 7} CK box if WS-3R is included

1) Skylights are now included in West-facing fenestration area if the skylights are tilted to the west or tilted in any direction when the pitch is less than 1:12. See §151(0)3C and in Section 3.2.3 of the Residential Manual

2) Enter values in this column are either NFRC Rated value or from Standards default Table 116A.

3) Indicate source either from NFRC or Table 116A.

4) Enter values in this column from NFRC or from Standards Default Table 116B or adjusted SHGC from WS-3R.

5) Indicate source either from NFRC or Table 116B.

6) Shading Devices are defined in Table 3-3 in the Residential Manual and see WS-3R to calculate Exterior Shading devices.

7) See Section 3.2.4 in the Residential Manual.

HVAC SYSTEMS

Heating Equipment Type and Capacity (furnace, heat pump, boiler, etc.)	Minimum Efficiency (AFUE or HSPF)	Distribution Type and Location (ducts, attic, etc.)	Duct or Piping R-Value	Thermostat Type	Configuration (split or package)
60 KBTU	80.00 AFUE	Attic	R 6	Programmable	Split
Furnace					
Cooling Equipment Type and Capacity (A/C, Heat Pump, Evap Cool)	Minimum Efficiency (SEER or EER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Configuration (split or package)
24 KBTU	15.00 SEER	Attic	R 6	Programmable	Split
A/C					
	13.00 EER				

MARCENE SCRIBNER 1021 ALAMOS AVENUE Project Title

Date

SEALED DUCTS and TXVs (or Alternative Measures)

A signed CF-4R Form must be provided to the building department for each home for which the following are required.

- Sealed Ducts (all climate zones) (installer testing and certification and HERS rater field verification required.)
- TXVs, readily accessible (climate zones 2 and 8-15 only)
- (installer testing and certification and HERS Rater field verification required.)
- Refrigerant Charge (climate zones 2 and 8-15 only) (installer testing and certification and HERS Rater field verification required.)

OR

- Alternative to Sealed Ducts and Refrigerant Charge /TXVs (See Package D Alternative Package Features for Project Climate Zone in the RM Appendix B Table 151-C, Footnotes 7-14.

OR

- For additions and alterations, duct systems that are not documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Residential ACM Manual and duct systems with more than 40 linear feet in unconditioned spaces shall meet the requirements of Section 150(m) and duct insulation requirements of Package D.

WATER HEATING SYSTEMS

- Check box if system meets criteria of a "Standard" system. Standard system is one gas-fired water heater per dwelling unit. If the water heater is a storage type, 50 gallons is the maximum capacity and recirculation system is not allowed.
- Check box when using Presapproved Alternative Water Heating table, Table 5-4 in Chapter 5 in the Residential Manual. No water heating calculations are required, and the system complies automatically.
- Check box if system does not meet criteria of "Standard" system, and does not comply with the Presapproved Alternative Water Heating table. In this case, the Performance Method must be used and must be included in the submittal.
- Check box to verify that a time control is required for a recirculating system pump for a system serving multiple units

Systems serving single dwelling units

Water Heater Type/Fuel Type	Distribution Type	Number In System	Rated Input (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor or Thermal Efficiency	Standby Loss (%)	External Insulation R-Value

System serving multiple dwelling units

Water Heater Type/Fuel Type	Distribution Type	Number In System	Rated Input (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor or Thermal Efficiency	Standby Loss (%)	External Insulation R-Value

1 For small gas storage water heaters (rated inputs of less than or equal to 75,000 Btu/hr), electric resistance, and heat pump water heaters, list Energy Factor. For large gas storage water heaters (rated input of greater than 75,000 Btu/hr), list Rated Input, Recovery Efficiency, Thermal Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input and Thermal Efficiencies.

Pipe Insulation (kitchen lines > 3/4 inches) All hot water pipes from the heating source to the kitchen fixtures that are 1/2 inches or greater in diameter shall be thermally insulated as specified by Section 150 (I) 2 A or 150 (I) 2 B.

MARGENE SCRIBNER 1021 ALAMOS AVENUE

Project Title

Date

SPECIAL FEATURES NOT REQUIRING HERS VERIFICATION (add extra sheets if necessary)

Indicate which special features are part of this project. The list below represents special features relevant to the Prescriptive and Performance Method.

Feature	Required Forms (if applicable)	Description
<input type="checkbox"/>	CF-1R	Metal Framed Walls
<input type="checkbox"/>	CF-1R	Radiant Barriers
<input type="checkbox"/>	WS-4R	Exterior Shades
<input type="checkbox"/>	N/A; Performance Calculation	
<input type="checkbox"/>	Required. Attach CRRC Label to Forms.	Cool Roof
<input type="checkbox"/>	Performance Calculation	Dedicated Hydronic Heating System
<input type="checkbox"/>	Required: Attach Run to Forms.	Combined Hydronic System
<input type="checkbox"/>	N/A; Performance Calculation	Gas Cooling
<input type="checkbox"/>	Required.	Buried Ducts
<input type="checkbox"/>	N/A; Indicate on building plans.	Kitchen Pipe Insulation
<input type="checkbox"/>	See Section 5.6.2 Distribution Systems in Residential Manual.	Multiple Water Heaters Per Dwelling Unit
<input type="checkbox"/>	Performance Calculation and Attach Run to Forms.	Central Water Heating System
<input type="checkbox"/>	Performance Calculation and Attach Run to Forms.	Serving Multiple Dwellings
<input type="checkbox"/>	CF-1R	Non-NAECA Large Water Heater
<input type="checkbox"/>	See Table 5-13 or use Performance Calculation and Attach Run to Forms.	Indirect Water Heater
<input type="checkbox"/>	See Table 5-13 or use Performance Calculation and Attach Run to Forms.	Instantaneous Gas Water Heater
<input type="checkbox"/>	See Table 5-13 or use Performance Calculation and Attach Run to Forms.	Solar Water Heating System
<input type="checkbox"/>	Performance Calculation and Attach Run to Forms.	Wood Stove Boiler

SPECIAL FEATURES REQUIRING HERS RATER VERIFICATION

(add extra sheets if necessary) Indicate to the HERS Rater which credits are part of this project and need verification.

Feature	Required Forms (if applicable)	Description
<input type="checkbox"/>	CF-6R part 4 of 12	Duct Sealing
<input type="checkbox"/>	CF-6R part 5 of 12	Refrigerant Charge
<input type="checkbox"/>	CF-6R part 6 of 12	Thermostatic Expansion Valve

Name:		Comments:	
Title:			
Agency:			
Telephone:			
(signature / stamp)		(date)	

Enforcement Agency

Name:		EARL COX	
Title/Firm:		KLEEN AIR	
Address:		1657 SILICA AVENUE SACRAMENTO CA 95815	
Telephone:		916-922-3995	
License #:		481974	
(signature) (date)		(signature) (date)	

Designer or Owner (per Business and Professions Code) Documentation Author

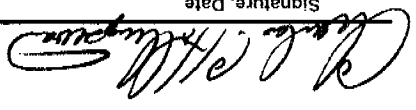
This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations, and the administrative regulations to implement them. This certificate has been signed by the individual with overall design responsibility. The undersigned recognizes that compliance using duct design, duct sealing, verification of refrigerant charge and TXVs, insulation installation quality, and building envelope sealing require installer testing and certification and field verification by an approved HERS rater.

COMPLIANCE STATEMENT

MARGENE SCRIBNER
1021 ALAMOS AVENUE
Date

COPY TO: Building Department
 HERS Rater (if applicable)
 Building Owner at Occupancy

Installing Subcontractor (Co. Name) KLEEN AIR
 40005
 OR General Contractor (Co. Name) OR Owner
 1156

Signature, Date

 7-28-06

1. > symbol reads greater than or equal to what is indicated on the CF-1R value.
 Include both SEER and EER if compliance credit for high EER air conditioner is claimed.
 I, the undersigned, verify that equipment listed above is: 1) is the actual equipment installed, 2) equivalent to or more efficient than that specified in the certificate of compliance (Form CF-1R) submitted for compliance with the Energy Efficiency Standards for residential buildings, and 3) equipment that meets or exceeds the appropriate requirements for manufactured devices (from the Appliance Efficiency Regulations or Part 6), where applicable.

Equip Typ	CEC Certified Mfr. Name, Model and Serial Number	# of Identical Systems	Efficiency (AFUE, etc.) ¹	Duct Location (attic, etc.)	Duct or Piping R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)
Split	TRANE	1	15.00 SEER	Attic	R 6	0	24000
	4TTX4024B1000A		13.00 EER				
Coil	Same as Condenser Mtg						
	HD19636D210B260300						

Cooling Equipment

Equip Typ	CEC Certified Mfr. Name, Model and Serial Number	# of Identical Systems	Efficiency (AFUE, etc.) ¹	Duct Location (attic, etc.)	Duct or Piping R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)
Split	TRANE	1	80.00 AFUE	Attic	R 6	0	60000
	TUD060R9V3K						

Heating Equipment

HVAC SYSTEMS:

An installation certificate is required to be posted at the building site or made available for all appropriate inspections. (The information provided on this form is required) After completion of final inspection, a copy must be provided to the building department (upon request) and the building owner at occupancy, per Section 10-103(a).

1021 ALAMOS AVENUE
 SACRAMENTO CA 95815
 Permit Number 0610021
 (Page 3 of 12)
 CF-6R

INSTALLATION CERTIFICATE

INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE

INSTALLATION CERTIFICATE
 1021 ALAMOS AVENUE
 SACRAMENTO CA 95815
 Permit Number 0101021
 CF-6R (Page 4 of 12)

Copies to: Builder, HERS Rater, Building Owner at Occupancy and Building Department

INSTALLER COMPLIANCE STATEMENT

The building was: Tested at Final Tested at Rough-in

INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:

- Remove at least one supply and one return register, and verify that the spaces between the register boot and the interior finishing wall are properly sealed.
- If the house rough-in duct leakage test was conducted without an air handler installed, inspect the connection points between the air handler and the supply and return plenums to verify that the connection points are properly sealed.
- Inspect all joints to ensure that no cloth backed rubber adhesive duct tape is used

DUCT LEAKAGE REDUCTION

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

NEW CONSTRUCTION:		Measured	Values
Duct Pressurization Test Results (CFM @ 25 Pa)			
1	Enter Tested Leakage Flow in CFM:		
2	Fan Flow: Calculated (Nominal): <input checked="" type="checkbox"/> Cooling <input type="checkbox"/> Heating or <input type="checkbox"/> Measured		
	If Fan Flow is Calculated as 400 cfm/ton x number of tons or as 21.7 cfm/(kbtu/hr) x Heating Capacity in Thousands of Btu/hr, enter total calculated or measured fan flow in CFM here:	800	
3	Pass if Leakage Percentage < 6% for Final or < 4% at Rough-in: (Line # 1) / (100 x [Line # 2])		
ALTERATIONS: Duct System and/or HVAC Equipment Change-Out			
4	Enter Tested Leakage Flow in CFM from Pre-Test of Existing Duct System Prior to Duct System Alteration and/or Equipment Change-Out		
5	Enter Tested Leakage Flow in CFM from Final Test of New Duct System or Altered Duct System for Duct System Alteration and/or Equipment Change-Out	29	
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	Enter New Duct System - Pass if Leakage Percentage < 6% for Final or < 4% at Rough-in (100 x [Line # 5] / [Line # 2])		
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] / 800 (Line # 2)]	3.6%	
10	Pass if Leakage to Outside Percentage < 10% [100 x [Line # 7] / (Line # 2)]		
11	Pass if Leakage Reduction Percentage > 60% [100 x [Line # 6] / (Line # 4)]		
12	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection and Verification by Smoke Test and Visual Inspection		
Pass if One of Lines # 9 through # 12 pass			

I, the undersigned, verify that the above diagnostic test results were performed in conformance with the requirements for compliance credit. I, the undersigned, also certify that the newly installed or retrofit Air-Distribution System Ducts, Plenums and Fans comply with Mandatory requirements specified in Section 150 (m) of the 2005 Building Energy Efficiency Standards.

Signature: *David Williams* Date: 7-18-05
 Installing Subcontractor (Co. Name) OR KLEEN AIR
 General Contractor (Co. Name) 40005
 1156

THERMOSTATIC EXPANSION VALVE (TXV)

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

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.	<input checked="" type="checkbox"/> Yes				
	<input type="checkbox"/> No				
Yes is a pass	<input checked="" type="checkbox"/>				
Fall	<input type="checkbox"/>				

REFRIGERANT CHARGE MEASUREMENT

Verification for Required Refrigerant Charge and Adequate Airflow 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 Procedure (outdoor air dry-bulb 55°F and above):

Procedures for Determining Refrigerant Charge using the Standard Method are available in RACM, Appendix RD2. Note: The system should be installed and charged in accordance with the manufacturer's specifications before starting this procedure.

Measured Temperatures

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

Superheat Charge Method Calculations for Refrigerant Charge

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

Temperature Split Method Calculations for Adequate Airflow

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

Actual Temperature Split = Treturn, db Tsupply, db	
Target Temperature Split (from Table RD3)	
Actual Temperature Split Target Temperature Split (System passes if between -3°F and +3°F or, upon remeasurement, if between -3°F and -10°F)	

INSTALLATION CERTIFICATE

1021 ALAMOS AVENUE
 SACRAMENTO CA 95815
 Permit Number 0101021

COPY TO: Building Department
 HERS Rater (if applicable)
 Building Owner at Occupancy

Signature, Date [Signature] 7-28-06
 Installing Subcontractor (Co. Name) OR
 General Contractor (Co. Name) OR Owner
KLEEN AIR
 40005
 1156

Alternate 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.

System Passes	No	Yes
---------------	----	-----

Measured Airflow Method for Adequate Airflow Verification available in RACM, Appendix RD2.6

Measured Airflow is	CFM (Measured airflow must be greater than the calculated airflow)
Calculated Airflow: Cooling Capacity (Btu/hr)	X 0.033 (cfm/Btu-hr) = CFM

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

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) (- = remove)	

Alternate Charge Measurement Procedure (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, installer shall use the Standard Charge Measure Procedure.

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.

System Passes	No	Yes
---------------	----	-----

1021 ALAMOS AVENUE SACRAMENTO CA 95815 0 0610621 Permit Number

Site Address

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		
Method For Fan Watt Draw Measurement		RE3.2.2	Utility Revenue Meter Measurement		
Measured Fan Watt Draw:		Enter results of Watts/ctm:			
Measured Fan Flow (Enter total cfm from airflow verification)		Enter results of Watts/ctm:			
Calculated fan watt/ctm is equal to or lower than the fan watt/ctm draw documented in CF-1R		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Yes is a pass				Pass <input type="checkbox"/>	Fail <input type="checkbox"/>

ADEQUATE AIRFLOW VERIFICATION

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

Method For Airflow Measurement		RE4.1.1	Diagnostic Fan Flow Using Flow Capture Hood		
Method For Airflow Measurement		RE4.1.2	Diagnostic Fan Flow Using Penum Pressure Matching		
Method For Airflow Measurement		RE4.1.3	Diagnostic Fan Flow Using Flow Grid Measurement		
Measured Airflow:		ctm/ton			
Measured airflow is greater than the criteria in Table RE-2		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Yes is a pass				Pass <input type="checkbox"/>	Fail <input type="checkbox"/>

MAXIMUM COOLING CAPACITY

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

1	Adequate airflow verified (see adequate airflow credit)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2	Refrigerant charge or TXV	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3	Duct leakage reduction credit verified	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4	Cooling capacities of installed systems are ≤ to maximum cooling capacity indicated on the Performance's CF-1R and RF-3.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
5	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.	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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	EER values of installed systems match the CF-1R	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2	For split system, indoor coil is matched to outdoor coil	Yes <input type="checkbox"/>	No <input type="checkbox"/>
3	Time Delay Relay Verified (if Required)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yes to 1 and 2; and 3 (if Required) is a pass			
Pass		Fail	

KLEEN AIR

Tests Performed _____ Signature, Date _____
 Installing Subcontractor (Co. Name) OR 40005
 General Contractor (Co. Name) 1156

NEW CONSTRUCTION		
1	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values
2	Fan Flow: Calculated (Nominal) Cooling <input type="checkbox"/> Heating <input type="checkbox"/> or <input type="checkbox"/> Measured	Not Tested
3	Enter Total Fan Flow in CFM	N/A
4	Enter Tested Leakage Flow in CFM	N/A
5	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.	Not Tested
6	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.	Not Tested
7	Enter Reduction in Leakage for Altered Duct System [Line 4 - Line 5] - (Only if Applicable)	Not Tested
8	Enter Tested Leakage Flow in CFM to Outside (Only if Applicable)	Not Tested
9	Enter New Duct System - Pass if Leakage Percentage <= 6% [100 x (Line 5 / Line 2)]:	Not Tested
ALTERATIONS: Duct System and/or HVAC Equipment Change-Out		
9	Pass if Leakage Percentage <= 15% [100 x (Line 5 / Line 2)]:	Not Tested
10	Pass if Leakage to Outside Percentage <= 10% [100 x (Line 7 / Line 2)]:	Not Tested
11	Pass if Leakage Reduction Percentage >= 50% [100 x (Line 6 / Line 4)]:	Not Tested
12	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection	Pass <input checked="" type="checkbox"/> Fail <input type="checkbox"/>
Pass if One of Lines #9 through #12 pass		

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:

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 the CF-6R (Installation Certificate).
 New Distribution system is fully ducted (i.e., does not use building cavities as plenums or plenum returns in lieu of ducts).
 New systems where cloth backed, rubber adhesive duct tape is installed, mastic and drawbands 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:

Copies to: Homeowner, HERS Provider and Building Department
 This CF-4R has been registered with the CalCERTS® registry in accordance with the Title 24 & Title 20 of the CCR.
 CalCERTS® is an approved HERS provider by the California Energy Commission.

HERS RATER COMPLIANCE STATEMENT

The house was Tested Approved as part of sample testing, but was not tested.

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8)
 CF-4R

1021 ALAMOS AVENUE - SACRAMENTO, CA 95815
 Project Address
 KLEEN AIR / 481974
 Contractor Name / License No.

Contractor Contact
 Max McKinney
 Telephone 916-698-4185
 Permit Number 06-10621

HERS Rater
 Energy Analysis and Comfort Solutions
 Inc.
 PO Box 2233
 Street Address

Firm:
 HERS Provider: CalCERTS
 City/State/Zip: Orangevale / CA / 95662

Contracting Signature
 August 4, 2006
 Date
 CC14-1798377530
 Certificate Number

Telephone
 Sample Group Number 36944
 Telephone 916-698-4185

CalCERTS - Certificate
 MARGENE SCRIBNER

1021 ALAMOS AVENUE - SACRAMENTO, CA 95815
 Project Address
 KLEEN AIR / 481974
 Contractor Name / License No.

Contractor Contact
 Telephone 06-10621
 Permit Number

HERS Rater
 Max McKinney
 Telephone 916-698-4185
 Sample Group Number 36944

HERS Rater Signature
 Energy Analysis and Comfort Solutions, Inc.
 Firm: PO Box 2233
 Street Address:

Copies to: Homeowner, HERS Provider and Building Department
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 CALCERTS® is an approved HERS provider by the California Energy Commission.
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 the CF-6R (Installation Certificate).
THERMOSTATIC EXPANSION VALVE (TXV):
 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.

HVAC System TXV Pass Fail