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 Information						
Contractor Name	Contractor Address	City	ST	Zip	Office Phone	Office Fax
Ray O. Cook Co.	889 Riverside Ave	Roseville	CA	95678	916-784-6525	916-784-6535
Documentation Author	Project Coordinator	Project Coordinator - Phone #		Extension	License #	Company ID #
Zak Kriegel		916-784-6525			829656	20015

Residential Project Information						
Owner's Name/ Project Title	Address	City	ST	Zip	Phone	Map Page
JJ McClatchy	726 Commons Dr.	Sacramento	CA	95825	429-8061	298-C5

Climate Zone	County	Utility	Rebate	T24 Compliance Type	Bld Dept - Permit From	Permit #
12	County of Sacramento	SMUD	No	Alteration Certificate (SFR)	City of Sacramento	

Project Type	Building Type	# of Dwellings	# of Stories	Conditioned SF	Orientation	Ceiling Height	Floor Type
Alteration	Single Family Detached	1	1	1500	NW = 315	8	Slab
Est Start Job	Est Complete Job	Contractor Job #		Group Size	Plan #	House #	Group #
8/11/06	8/11/06	McClatchy		1	20015	1119	510

Equipment Information

Install Heat Equip?	Heat System Type	Heat Capacity	kBtu	Efficiency Rating	Efficiency Type	Configuration	Heat Load Calcs
Yes	Furnace	80	kBtu	80.00	AFUE	Split	
Install Cool Equip?	Cool System Type	Cool Capacity	kBtu	SEER	EER	Configuration	Cool Load Calcs
Yes	A/C	36	kBtu	13.00	11.00	Split	
Install Ductwork?	Duct Location	Type of Ducts	R-value	ARI #	Duct Test?	TXV or RCM?	High EER?
No	Attic	Existing	4.2		Yes	Yes	No

Furnace or Air Handler Information		Condenser Information		Evaporative Coil Information	
MFG	TRANE	MFG	TRANE	MFG	Same as Condenser Mfg
Model #	TDD060C936	Model #	2TTB3036	Model #	TXC036
Serial #		Serial #		Serial #	

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 _____
Test Pressure _____
CFM Leakage _____
System % Leakage _____
Smoke Tested? _____
Stand By Time _____

Notes: _____

Signature _____

726 Commons Dr.
04180-4

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 1 of 5) CF-1R

JJ McClatchy
Project Title

726 Commons Dr. Sacramento CA 95825
Project Address

Zak Kriegel 916-784-6525
Documentation Author Telephone

Prescriptive 12
Compliance Method (Prescriptive) Climate Zone

Date

Building Permit #

Plan Check / Date

Field Check / Date

Enforcement Agency Use Only

[X] 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) 1600 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) X Single Family ___Multifamily ___Addition X 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: Slab Slab/Raised Floor (circle one or both)
Front Orientation: NW = 315 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, 8-16)

OPAQUE SURFACES INCLUDING OPAQUE DOORS

Component Type (Wall, Roof, Floor, Slab Edge, Doors)	Frame Type (Wood 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.

JJ McClatchy — 728 Commons Dr. — Date

Project Title

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 (ft2)	U-factor2	U-factor Source3	SHGC4	SHGC Source5	Exterior Shading/Overhangs6, 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(f)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)
Furnace	80.00 AFUE	Attic	R 4.2	Programable	Split
80 kBTU					

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)
A/C	13.00 SEER	Attic	R 4.2	Programable	Split
	11.00 EER				
36 kBTU					

JJ McClatchy 728 Commone Dr. Date

Project Title

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 Preapproved 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 Preapproved 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 Input1 (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor1 or Thermal Efficiency	Standby1 Loss (%)	Tank External Insulation R-Value

System serving multiple dwelling units

Water Heater Type/Fuel Type	Distribution Type	Number in System	Rated Input1 (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor1 or Thermal Efficiency	Standby1 Loss (%)	Tank 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 ¾ inches or greater in diameter shall be thermally insulated as specified by Section 150 (j) 2 A or 150 (j) 2 B.

JJ McClatchy — 728 Commons Dr. — Date

Project Title

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

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
☐	☐	☐	Duct Sealing	CF-6R part 4 of 12	
☐	☐	☐	Refrigerant Charge	CF-6R part 5 of 12	
☐	☐	☐	Thermostatic Expansion Valve	CF-6R part 6 of 12	

JJ McClatchy — 726 Commons Dr.

Project Title — Date

COMPLIANCE STATEMENT

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.

Designer or Owner (per Business and Professions Code)	Documentation Author
Name: Zak Kriegel	Name: Zak Kriegel
Title/Firm: Ray O. Cook Co.	Title/Firm: Ray O. Cook Co.
Address: 889 Riverside Ave Roseville CA 95678	Address: 889 Riverside Ave Roseville CA 95678
Telephone: 916-784-6525	Telephone: 916-784-6525
License #: 829856	
X	X
(signature) (date)	(signature) (date)

Enforcement Agency

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

726 Commons Dr. Sacramento CA 95825 0
Site Address Permit Number

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).

HVAC SYSTEMS:

Heating Equipment

Equip Typ (pkg. heat pump	CEC Certified Mfr. Name, Model and Serial Number	# of Identical Systems	Efficiency (AFUE, etc.)1 >(CF-1R value)	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 4.2	0	80000
	TDD080C936						

Cooling Equipment

Equip Typ (pkg. heat pump	CEC Certified Mfr. Name, Model and Serial Number	# of Identical Systems	Efficiency (AFUE, etc.)1 >(CF-1R value)	Duct Location (attic, etc.)	Duct or Piping R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)
Split	TRANE	1	13.00 SEER	Attic	R 4.2	0	36000
	2TTB3036		11.00 EER				
Coil	Same as Condenser Mfg						
	TXC036						

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.

X _____ 9/21/06
Signature, Date

Ray O. Cook Co. 20015
Installing Subcontractor (Co. Name) 1119
OR General Contractor (Co. Name) OR Owner

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

726 Commons Dr. Sacramento CA 95825 0

Site Address Permit Number

INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE

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

INSTALLER COMPLIANCE STATEMENT

The building was: [X] Tested at Final [ ] Tested at Rough-in

INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:

[X] 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.

[X] 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: Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values		
1 Enter Tested Leakage Flow in CFM:			
2 Fan Flow: Calculated (Nominal: [ ] Cooling [X] Heating) or [ ] 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:	1388		
3 Pass if Leakage Percentage < 6% for Final or < 4% at Rough-in: [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 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.	152		
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% for Final or < 4% at Rough-in [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 [152 (Line # 5) / 1388 (Line # 2)]]	10.9 %	[X] Pass	[ ] Fail
10 Pass if Leakage to Outside Percentage < 10% [100 x [_____ (Line # 7) / _____ (Line # 2)]]		[ ] Pass	[ ] Fail
11 Pass if Leakage Reduction Percentage > 50% [100 x [_____ (Line # 6) / _____ (Line # 4)]] and Verification by Smoke Test and Visual Inspection		[ ] Pass	[ ] Fail
12 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		[X] Pass	[ ] Fail

[X] 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 Date 8/11/09

Ray O. Cook Co. 20015

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) 1119

726 Commons Dr. Sacramento CA 95825 0

Site Address Permit Number

☒ 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 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 55oF 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)		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

726 Commons Dr. Sacramento CA 95825 0

Site Address Permit Number

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

Alternate Charge Measurement Procedure (outdoor air dry-bulb below 55 oF)

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 oF or above, installer shall use the Standard Charge Measure Procedure:

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

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) (- = remove)

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

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

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.

		Yes		No System Passes

X _____ 8/11/06
Signature, Date

Ray O. Cook Co.
Installing Subcontractor (Co. Name) OR 20015
General Contractor (Co. Name) OR Owner 1119

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

726 Commons Dr. Sacramento CA 95825 0

Site Address Permit Number

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 results of Watts/cfm:	
Measured Fan Flow (Enter total cfm from airflow verification)	
Enter results of Watts/cfm:	

☐ Yes	☐ No	Calculated fan watt/cfm is equal to or lower than the fan watt/cfm draw documented in CF-1R	☐ Pass	☐ Fail
		Yes is a pass		

☐ 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: ____ 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.	
		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

Tests Performed

Signature, Date

Ray O. Cook Co.

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name)

20015
1119

COPY TO: Building Department, HERS Rater, Building Owner at Occupancy

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

726 Commons Dr. - Sacramento, CA 95825 *Project Address*	Ray O. Cook Co. / 829856 *Contractor Name / License No.*
Contractor Contact	*Telephone* — *Permit Number* 06-11826
Michael McDermott	916-704-2810 — 37522
HERS Rater	*Telephone* — *Sample Group Number*
Certifying Signature	August 8, 2006 — *Date* — CC14-1798378104 *Certificate Number*
Firm: Energy Analysis and Comfort Solutions, Inc.	HERS Provider: CalCERTS
Street Address: PO Box 2233	City/State/Zip: Orangevale / CA / 95662

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.

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 platform 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:**

NEW CONSTRUCTION			
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values	
1	~~Enter Tested Leakage Flow in CFM:~~	N/A	
2	Fan Flow: Calculated (Nominal ○ Cooling ◉ Heating) or ○ Measured Enter Total Fan Flow in CFM:	1388	
3	~~Pass if Leakage Percentage <= 6% [100 x (Line 1 / Line 2)]:~~	N/A	N/A
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.	152	
6	Enter Reduction in Leakage for Altered Duct System [Line 4 - 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)]:	10.90%	☑ 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
12	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

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 3-4 of 8) **CF-4R**

726 Commons Dr. - Sacramento, CA 95825 *Project Address*	Ray O. Cook Co. / 829856 *Contractor Name / License No.*
Contractor Contact	*Telephone* 06-11826 *Permit Number*
Michael McDermott	916-704-2810 37522
HERS Rater	*Telephone* *Sample Group Number*
Certifying Signature	August 8, 2006 CC14-1798378104 *Date* *Certificate Number*
Firm: Energy Analysis and Comfort Solutions, Inc.	HERS Provider: **CalCERTS**
Street Address: PO Box 2233	City/State/Zip: Orangevale / CA / 95662

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.

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