

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 1 of 5)		CF-1R
Project Title	Date 7-19-00	Building Permit # 0610832
Project Address 715 Las Palmas Ave Sacramento	Telephone	Plan Check / Date
Documentation Author Eric Asamoah	Climate Zone 12	Field Check / Date
Compliance Method (Prescriptive) Prescriptive		Enforcement Agency Use Only

Alternative Component Package Method: (check one)     C         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) 1000 ft<sup>2</sup>

Average Ceiling Height: 8 ft

Maximum Allowed West Facing Fenestration Products Per Table 151-B or 151-C --- (5% X CFA) \_\_\_\_\_ ft<sup>2</sup>

Maximum Allowed Total Fenestration Products Per Table 151-B or 151-C --- (20% X CFA) \_\_\_\_\_ ft<sup>2</sup>

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: \_\_\_\_\_ Slab/Raised Floor (circle one or both)

Front Orientation: \_\_\_\_\_ 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 or Metal)	Cavity Insulation R-Value	Continuous Insulation R-Value	Assembly U-factor (for wood, metal frame and mass assemblies) <sup>1</sup>	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.

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Project Title 715 Las Palmas Date 7-19-04

**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, W <sup>1</sup>	Area (ft <sup>2</sup> )	U-factor <sup>2</sup>	U-factor Source <sup>3</sup>	SHGC <sup>4</sup>	SHGC Source <sup>5</sup>	Exterior Shading/Overhangs <sup>6,7</sup> ✓ box if WS-3R is included
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>

- 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)
<u>furnace</u>	<u>85</u>	<u>duct/attic</u>	<u>R10</u>	<u>setback</u>	<u>split</u>

Cooling Equipment Type and Capacity (A/C, heat pump, evap. cooling)	Minimum Efficiency (SEER or EER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Configuration (split or package)
<u>A/C</u>	<u>13</u>	<u>duct/attic</u>	<u>R10</u>	<u>setback</u>	<u>split</u>

Project Title 715 Las Palmas 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)
  - 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 Input <sup>1</sup> (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor <sup>1</sup> or Thermal Efficiency	Standby <sup>1</sup> Loss (%)	Tank External Insulation R-Value

**System serving multiple dwelling units**

Water Heater Type	Distribution Type	Number in System	Rated Input <sup>1</sup> (kW or Btu/hr)	Tank Capacity (gallons)	Energy Factor <sup>1</sup> or Thermal Efficiency	Standby <sup>1</sup> 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  $\geq 3/4$  inches) All hot water pipes from the heating source to the kitchen fixtures that are  $3/4$  inches or greater in diameter shall be thermally insulated as specified by Section 150 (j) 2 A or 150 (j) 2 B.

**CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 4 of 5) CF-1R**

Project Title 715 Las Palmas 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"/>	Metal Framed Walls	CF-1R	
<input type="checkbox"/>	Radiant Barriers	CF-1R	
<input type="checkbox"/>	Exterior Shades	WS-4R	
<input type="checkbox"/>	Cool Roof	N/A; Performance Calculation Required. Attach CRRC Label to Forms.	
<input type="checkbox"/>	Dedicated Hydronic Heating System	Performance Calculation Required; Attach Run to Forms.	
<input type="checkbox"/>	Combined Hydronic System	Performance Calculation Required; Attach Run to Forms.	
<input type="checkbox"/>	Gas Cooling	N/A; Performance Calculation Required.	
<input type="checkbox"/>	Buried Ducts	N/A; Indicate on building plans.	
<input type="checkbox"/>	Kitchen Pipe Insulation	See Section 5.6.2 Distribution Systems in Residential Manual.	
<input type="checkbox"/>	Multiple Water Heaters Per Dwelling Unit	See Table 5-13 or use Performance Calculation and attach Run to Forms.	
<input type="checkbox"/>	Central Water Heating System Serving Multiple Dwellings	Performance Calculation and attach Run to Forms.	
<input type="checkbox"/>	Non-NAECA Large Water Heater	CF-1R	
<input type="checkbox"/>	Indirect Water Heater	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	Instantaneous Gas Water Heater	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	Solar Water Heating System	See Table 5-13 or use Performance Calculation and attach Run to Forms	
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	Duct Sealing	CF-6R part 4 of 12	
<input type="checkbox"/>	Refrigerant Charge	CF-6R part 5 of 12	
<input checked="" type="checkbox"/>	Thermostatic Expansion Valve	CF-6R part 6 of 12	

**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:		Name:	<u>Eric Asamoah</u>
Title/Firm:		Title/Firm:	<u>Asamoah Heat + Air</u>
Address:		Address:	<u>8745 BARNARDIA DR Egg Grove, CA 95624</u>
Telephone:		Telephone:	<u>916 955-2459</u>
License #:			
(signature)	(date)	(signature)	<u>[Signature]</u> <u>7/19/06</u> (date)

**Enforcement Agency**

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

**CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8)**

CF-4R

**715 Las Palmas Ave - Sacramento, CA 95815**  
Project Address

Asamoah Heating 7 A/C / 730911

Contractor Name / License No.

06-10832

Contractor Contact

Telephone

Permit Number

Patricia Cummings

916-768-7951

34906

HERS Rater

Telephone

Sample Group Number

*Patricia Cummings*  
Certifying Signature

July 19, 2006

CC14-1798375488

Date

Certificate Number

Firm:

IDT-Independent Duct Testing

HERS Provider: CalCERTS

Street Address: PO Box 3614

City/State/Zip: Citrus Heights / CA / 95611

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		
	Measured Values	
Duct Pressurization Test Results (CFM @ 25 Pa)	N/A	
1 Enter Tested Leakage Flow in CFM:		
2 Fan Flow: Calculated (Nominal) <input checked="" type="radio"/> Cooling <input type="radio"/> Heating or <input type="radio"/> Measured Enter Total Fan Flow in CFM:	1000	
3 Pass if Leakage Percentage $\leq 6\% [ 100 \times ( \text{Line 1} / \text{Line 2} ) ]$ :	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.	0	
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.	58	
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 $\leq 6\% [ 100 \times ( \text{Line 5} / \text{Line 2} ) ]$ :	5.80%	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> 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 $\leq 15\% [ 100 \times ( \text{Line 5} / \text{Line 2} ) ]$ :		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10 Pass if Leakage to Outside Percentage $\leq 10\% [ 100 \times ( \text{Line 7} / \text{Line 2} ) ]$ :		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11 Pass if Leakage Reduction Percentage $\geq 60\% [ 100 \times ( \text{Line 6} / \text{Line 4} ) ]$ and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12 Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
Pass if One of Lines #9 through #12 pass		

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

**CF-4R**

**715 Las Palmas Ave - Sacramento, CA 95815**

Project Address

Asamoah Heating 7 A/C / 730911

Contractor Name / License No.

06-10832

Contractor Contact

Telephone

Permit Number

Patricia Cummings

916-768-7951

34906

HERS Rater

Telephone

Sample Group Number

*Patricia Cummings*  
Certifying Signature

July 19, 2006

Date

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Certificate Number

Firm:

IDT-Independent Duct Testing

HERS Provider: **CalCERTS**

Street Address:

PO Box 3614

City/State/Zip: Citrus Heights / CA / 95611

**Copies to: Homeowner, HERS Provider and Building Department**

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**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

<b>INSTALLATION CERTIFICATE</b>		<b>(Page 3 of 12) CF-6R</b>
Site Address x 715 Las Palmas Ave	Permit Number x 02-10832	

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 Type (pkg. heat pump)	CEC Certified Mfr. Name and Model Number	# of Identical Systems	Efficiency (AFUE, etc.) <sup>1</sup> (≥CF-IR value)	Duct Location (attic, etc.)	Duct or Piping R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)
x split	Bryant	1	80	attic	R6		
	310SAU036045AWA						

*Cooling Equipment*

Equip Type (pkg. heat pump)	CEC Certified Mfr. Name and Model Number	# of Identical Systems	Efficiency (SEER or EER) <sup>1</sup> (≥CF-IR value)	Duct Location (attic, etc.)	Duct R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)
x split	Bryant	1	13	attic	R6		
	503CNX030006ACA9						

1. ≥ symbol reads *greater than or equal to what is indicated on the CF-IR 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.

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner	
Signature: x	Date: 7-19-00

Copies to: BUILDING DEPARTMENT, HERS RATER (IF APPLICABLE) BUILDING OWNER AT OCCUPANCY



**INSTALLATION CERTIFICATE**

(Page 4 of 12) CF-6R

Site Address

x 715 Las Palmas

Permit Number

x Cle-10832

**INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE**

**INSTALLER COMPLIANCE STATEMENT**

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

**INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:**

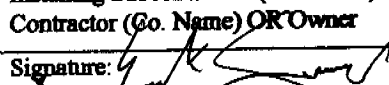
- Remove at least one supply and one return register, and verify that the spaces between the register boot and the interior finishing wall are properly sealed.
- If the house rough-in duct leakage test was conducted without an air handler installed, inspect the connection points between the air handler 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:		
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values
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:	1000 ✓ ✓
3	Pass if Leakage Percentage ≤ 6% for Final or ≤ 4% at Rough-in: [100 x (Line # 1) / (Line # 2)]	<input type="checkbox"/> Pass <input type="checkbox"/> 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.	58
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)]	5.8 <input checked="" type="checkbox"/> Pass <input type="checkbox"/> 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)]	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if Leakage to Outside Percentage ≤ 10% [100 x (Line # 7) / (Line # 2)]	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11	Pass if Leakage Reduction Percentage ≥ 60% [100 x (Line # 6) / (Line # 4)] and Verification by Smoke Test and Visual Inspection	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
Pass if One of Lines # 9 through # 12 pass		<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

I, the undersigned, verify that the above diagnostic test results were performed in conformance with the requirements for compliance credit 1, 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.

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner	
Signature: 	Date: 7-19-06

Copies to: BUILDING DEPARTMENT, HERS RATER (IF APPLICABLE) BUILDING OWNER AT OCCUPANCY

**INSTALLATION CERTIFICATE**

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Site Address

x 715 Las Palmas

Permit Number

x 06-10833

**THERMOSTATIC EXPANSION VALVE (TXV)**

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

<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> 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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
				Yes is a pass	Pass

**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)		°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

**INSTALLATION CERTIFICATE**

(Page 6 of 12) CF-6R

Site Address x 715 Las Palmas	Permit Number x UO-10852
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**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.

<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	System Passes
-------------------------------------	------------------------------	-----------------------------	---------------

**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:

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.

<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	System Passes
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Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner	
Signature: <i>[Signature]</i>	Date: 7-19-06

Copies to: BUILDING DEPARTMENT, HERS RATER (IF APPLICABLE) BUILDING OWNER AT OCCUPANCY