

TRANSMISSION VERIFICATION REPORT

TIME : 01/26/2006 14:44
 NAME : CITY OF SACRAMENTO
 FAX : 9168085543
 TEL : 9168085656
 SER.# : BR0H4J832840

DATE, TIME 01/26 14:42
 FAX NO./NAME 94513680
 DURATION 00:01:40
 PAGE(S) 03
 RESULT OK
 MODE STANDARD
 ECM

**CITY OF SACRAMENTO
 CASHIER'S WORKSHEET**

COPY 01/26/2006

RECEIPT NUMBER: R0601492

TRANSACTION DATE: 01/26/2006
 TRANSACTION AMOUNT: 185.96
 NOTATION:

**ISSUED
 CITY OF SACRAMENTO
 JAN 26 2006
 DOWNTOWN PERMIT
 CENTER**

**PAID
 CITY OF SACRAMENTO
 JAN 26 2006
 NEW CITY HALL**

APD #: 0601077
 SITE ADDRESS: 6409 SOMIS WY SAC
 PARCEL: 040-0053-011

TYPE: Bldg Minor Permit
 SUB-TYPE: RES
 HOUSING: N
 STATUS: **ISSUED**

Mixed Income Housing
 Fee Program
 ??

TRANSACTION LIST

| Type | Method | Description | Pymt Amount |
|---------|----------|-------------|-------------|
| Payment | Credit C | TEETER | 185.96 |

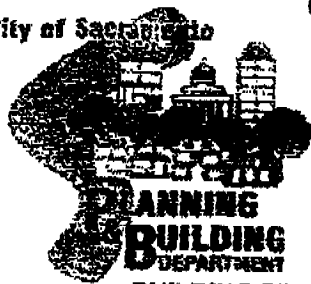
RECEIPT ACCOUNT ITEM LIST

| Class # | Description | Item # | Total Fee | Prev Pymt | Current Pymt |
|---------|--------------------------|--------|-----------|-----------|--------------|
| 200 | Permit--Building-Res | 1100 | 175.00 | .00 | 175.00 |
| 206 | City Business Oper Tax | 1730 | 1.60 | .00 | 1.60 |
| 213 | General Plan Surcharge | 1760 | 2.36 | .00 | 2.36 |
| 259 | Bldg-Technology Surcharg | 1750 | 7.00 | .00 | 7.00 |

City of Sacramento

PAID
CITY OF SACRAMENTO

Building Permit



BUILDING DIVISION
(916) 808-BLDG (2534)

JAN 26 2006 ***** Office Use Only ***** ISSUED *****

NEW CITY HALL

Permit No: _____
Date Issued: _____
Total Amount: _____

CITY OF SACRAMENTO

JAN 26 2006

DOWNTOWN PERMIT
CENTER

***** Please Fill in the Following *****
Site Address: 6409 Somis way
Nature of Work: change out a pidge on the Roof

CONSTRUCTION LENDING AGENCY: I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3997, CMC).

Lender's Name: _____ Lender's Address: _____

LICENSED CONTRACTORS DECLARATION: I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 5 of the Business and Professions Code and my license is in full force and effect.
License Class: C20 License Number: 225095 Date: 11/26/06 Signature: [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractor's License Law for the following reason (Sec. 7011.5, Business and Professions Code, any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractor License Law (Chapter 9 (commencing with Section 7000) of Division 5 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7011.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00).

I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code). The Contractor License Law does not apply to an owner of property who builds or improves thereon, or who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.

I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7014, Business and Professions Code). The Contractor License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor licensed pursuant to the Contractor License Law.

I am exempt under Sec. _____ B & PC for the reason: _____

Date: _____ Owner Signature: _____

IN ISSUING THIS BUILDING PERMIT, the applicant represents, and the city relies on the representation of the applicant, that the applicant verifies all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law, private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of an improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovesubscribed property for inspection purposes.

Date: 1/26/06 Applicant/Agent Signature: [Signature]

WORKER'S COMPENSATION DECLARATION: I hereby affirm under penalty of perjury one of the following declarations:

I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 5700 of the Labor Code, the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier: _____ Policy Number: _____ Expiration Date: _____

(This section need not be completed if the permit is for \$100 or less.) I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I do become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date: 1/26/06 Applicant Signature: [Signature]

WARNING: FAILURE TO SECURE WORKERS' COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3700 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEES.

THIS PERMIT SHALL EXPIRE BY LIMITATION OF WORK IS NOT COMMENCED WITHIN 180 DAYS.



FAXBACK PERMIT APPLICATION

(certain restrictions apply)

Faxed request received in this office before 3:00 p.m. will be processed the following work day. Contractors must have a current certificate of Worker's Compensation Insurance. Work started before a Building Permit is issued will be subject to quad fees.

Permits requiring plan review are not eligible for FAXBACK

PLANNING BUILDING DEPARTMENT
BUILDING DIVISION
Fax # (916) 264-1901

PAID
CITY OF SACRAMENTO
JAN 26 2006
Fax Box # 1000
COMMERCIAL (M) 1000

In order to process this request, ALL of the following information MUST be provided:

RESIDENTIAL APARTMENTS (4+ units per building)

| | | |
|-------------------------------|---|---------------|
| Address: 6409 Somis way | Contract Price \$ 4000.00 | Unit # 1/1 |
| Cell Number: 6409 | CONTACT PHONE: 457-2229 | |
| CONTACT PERSON: JOCELYN NADRA | Contractor: Arctic Heating License # 225095 | |
| Property Owner: Phil Miller | Address: 4791 63rd St. | |
| Address: 6409 Somis way | City/State/Zip: SAC CA 95828 | |
| City/State/Zip: SAC CA 95828 | Phone: 457-2229 | FAX: 457-3680 |
| Phone: 386-2766 | | |

NATURE OF WORK: (Provide detailed description of work & indicate type of work in selections below.)

Description of Work: insulation & unit. Package on the Roof.

| | | | |
|---|---|---|---|
| <input type="checkbox"/> REROOF (excluding tile) <input type="checkbox"/> TEAR-OFF <input type="checkbox"/> RESHEET <input type="checkbox"/> HOUSE # SQUARES 1 2 3+ <input type="checkbox"/> SIDING <input type="checkbox"/> Wood <input type="checkbox"/> T-111 <input type="checkbox"/> Horiz <input type="checkbox"/> Vinyl <input type="checkbox"/> Stucco | <input checked="" type="checkbox"/> HVAC INSTALLATIONS <input type="checkbox"/> NEW <input checked="" type="checkbox"/> CHANGE-OUT <input type="checkbox"/> Heat Pump <input checked="" type="checkbox"/> Package <input type="checkbox"/> Split system <input type="checkbox"/> Roof mount <input type="checkbox"/> Cut-in <input type="checkbox"/> Heat pump or elect. unit to gas. <input type="checkbox"/> Wall furnace <input type="checkbox"/> Fire Place Insert <input type="checkbox"/> Other (describe below) Value of duct work: \$ Equipment: \$ Cut-in: \$ | (Residential ONLY) <input type="checkbox"/> WATER HEATER <input type="checkbox"/> GAS <input type="checkbox"/> ELECTRIC <input type="checkbox"/> Change-out <input type="checkbox"/> Electric to Gas <input type="checkbox"/> Relocate <input type="checkbox"/> New <input type="checkbox"/> DRY ROTOR TERMITES DAMAGE REPAIR <input type="checkbox"/> Flooring/Joists <input type="checkbox"/> Roof Structure <input type="checkbox"/> Exterior <input type="checkbox"/> Mudfill/Studs <input type="checkbox"/> * Design Review approval may be required. <input type="checkbox"/> PUBLIC UTILITIES SAFETY INSPECTION * (Residential and single apartment units ONLY) <input type="checkbox"/> SMUD <input type="checkbox"/> PG&E | (Residential ONLY) MINOR ELECTRIC and/or MINOR PLUMBING <input type="checkbox"/> Electric Service Change # amps <input type="checkbox"/> New electric circuits <input type="checkbox"/> Re-wire <input type="checkbox"/> Replacement <input type="checkbox"/> Water Service <input type="checkbox"/> Sewer Service <input type="checkbox"/> Gas Line <input type="checkbox"/> Re-plumb <input type="checkbox"/> Water <input type="checkbox"/> Waste |
|---|---|---|---|

NR, Faiback Permit updated 12/09/01

* Design Review approval may be required.

* NOTE: Correction Notice items will require an additional building permit.

| | | |
|---|----------------------------------|--|
| 6409 Somis Wy <i>Project Address</i> | | Artic Heating / 823095 <i>Contractor Name / License No.</i> |
| Contractor Contact | | 0601077 <i>Permit Number</i> |
| Steven Vasa <i>HERS Rater</i> | 916-804-9165 <i>Telephone</i> | 25059 <i>Sample Group Number</i> |
| February 24, 2006 <i>Date</i> | | CC14-1798365641 <i>Certificate Number</i> |
| Firm: Capitol Energy Consultants | | HERS Provider: CalCERTS |
| Street Address: 1709 Adonis Way | | City/State/Zip: Sacramento / CA / 95864 |

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: | 1519 |
| 2 Fan Flow: Calculated (Nominal * Cooling Heating) or Measured Enter Total Fan Flow in CFM: | N/A |
| 3 Pass if Leakage Percentage <= 6% [100 x (Line 1 / Line 2)]: | 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. | 144 |
| 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)]: | <input 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)]: | 9.48% | <input checked="" 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 |

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

| | |
|--|--|
| Project Address 6409 somis way | Builders Name arctic heating and air |
|--|--|

| ✓ ROOF/CEILING PREPARATION | | | |
|-----------------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All draft stops in place to form a continuous ceiling and wall air barrier |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All drops covered with hard covers |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All draft stops and hard covers caulked or foamed to provide an air tight envelope |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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 | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Floor cavities on multiple-story buildings have air tight draft stops to all adjoining attics |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Eave vents prepared for blown insulation - maintain net free-ventilation area |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Knee walls insulated or prepared for blown insulation |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Area under equipment platforms and cat-walks insulated or accessible for blown insulation |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Attic rulers installed |
| Yes | No | NA | |

| ✓ ROOF/CEILING BATTS | | | |
|-----------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | No gaps |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | No voids over ¼ in. deep or more than 10% of the batt surface area |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insulation in contact with the air-barrier |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Recessed light fixtures covered |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Net free-ventilation area maintained at eave vents |
| Yes | No | NA | |

| ✓ ROOF/CEILING LOOSE-FILL | | | |
|----------------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insulation uniformly covers the entire ceiling (or roof) area from the outside of all exterior walls |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Baffles installed at eaves vents or soffit vents - maintain net free-ventilation area of eave vent |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Attic access insulated |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Recessed light fixtures covered |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insulation at proper depth – insulation rulers visible and indicating proper depth and R-value |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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 | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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). |
| Yes | No | NA | |

| CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 7 of 8) CF-4R | |
|--|--|
| Project Address 6409 somis way | Builder Name arctic heating and air |
| Builder Contact joceline nadra Telephone 457-2222 | Plan Number |
| HERS Rater Steve Vasa Telephone 916-804-9165 | Sample Group Number |
| Certifying Signature | Date |
| Firm Capitol Energy Consultants | HERS Provider CalCerts |
| Street Address: 1709 Adonis Way | City/State/Zip: Sacramento, CA 95864 |

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

| | | | |
|---|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All floor joist cavity insulation installed to uniformly fit the cavity side-to-side and end-to-end |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insulation in contact with the subfloor or rim joists insulated |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insulation properly supported to avoid gaps, voids, and compression |
| Yes | No | NA | |
| <input checked="" type="checkbox"/> WALLS | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Wall stud cavity insulation uniformly fills the cavity side-to-side, top-to-bottom, and front-to-back |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | No gaps |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | No voids over 3/4" deep or more than 10% of the batt surface area. |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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 | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Small spaces filled |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Rim-joists insulated |
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Wall stud cavities caulked or foamed to provide an air tight envelope |
| Yes | No | NA | |

| CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 6 of 8) | | CF-4R |
|--|--|---------------------|
| Project Address 6409 somis way | Builder Name arctic heating and air | |
| Builder Contact joceline nadra | Telephone 457-2222 | Plan Number |
| HERS Rater Steve Vasa | Telephone 916-804-9165 | Sample Group Number |
| Certifying Signature | Date | Sample House Number |
| Firm Capitol Energy Consultants | HERS Provider CalCerts | |
| Street Address: 1709 Adonis Way | City/State/Zip: Sacramento, CA 95864 | |

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 | | | | |
|---|-----------------------------|---|--------------------------|--------------------------|
| <input type="checkbox"/> | RE3.2.1 | Portable Watt Meter Measurement | | |
| <input type="checkbox"/> | 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 |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Calculated fan watt/cfm is equal to or lower than the fan watt/cfm draw documented in CF-1R | <input type="checkbox"/> | <input type="checkbox"/> |
| 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

| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Building Envelope Leakage (CFM @ 50 Pa) as measured by Rater: | | |
|--|-------------------------------------|-----------------------------|--|-------------------------------------|-------------------------------------|
| 1. | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Is measured envelope leakage less than or equal to the required level from CF-1R? | | |
| 2. | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Is Mechanical Ventilation shown as required on the CF-1R? | | |
| 2a. | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If Mechanical Ventilation is required on the CF-1R (Yes in line 2), has it been installed? | | |
| 2b. | <input type="checkbox"/> Yes | <input type="checkbox"/> 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. | <input type="checkbox"/> Yes | <input type="checkbox"/> 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. | <input type="checkbox"/> Yes | <input type="checkbox"/> 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. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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. | | | | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail |

| CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 5 of 8) CF-4R | | | |
|--|----------------------------|-----------------|------------------------|
| Project Address | 6409 somis way | Builder Name | arctic heating and air |
| Builder Contact | joceline nadra | Telephone | 457-2222 |
| HERS Rater | Steve Vasa | Telephone | 916-804-9165 |
| Certifying Signature | | Date | |
| Firm | Capitol Energy Consultants | HERS Provider | CalCerts |
| Street Address: | 1709 Adonis Way | City/State/Zip: | Sacramento, CA 95864 |

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 | | | |
|-------------------------------------|------------------------------|-----------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Duct design exists on plans |
| <input type="checkbox"/> | | | RE4.1.1 Diagnostic Fan Flow Using Flow Capture Hood |
| <input type="checkbox"/> | | | RE4.1.2 Diagnostic Fan Flow Using Plenum Pressure Matching |
| <input type="checkbox"/> | | | RE4.1.3 Diagnostic Fan Flow Using Flow Grid Measurement |
| | | | Measured Airflow: _____ |
| | | | Rated Tons: _____ |
| | | | Total CFM cfm/ton |
| | | | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Measured airflow is greater than the criteria in Table RE-2 |
| | | | Yes is a pass |
| | | | <input type="checkbox"/> <input type="checkbox"/> |
| | | | Pass Fail |

MAXIMUM COOLING CAPACITY

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

| | | | | | | | | | | | |
|--|-------------------------------------|------------------------------|-----------------------------|--|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|------|------|
| 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Adequate airflow verified (see adequate airflow credit) | | | | | | | |
| 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Refrigerant charge or TXV | | | | | | | |
| 3 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Duct leakage reduction credit verified | | | | | | | |
| 4 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Cooling capacities of installed systems are ≤ to maximum cooling capacity indicated on the Performance's CF-1R and RF-3. | | | | | | | |
| 5 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> 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 | | | | | <table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Pass</td> <td>Fail</td> </tr> </table> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Pass | Fail |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | |
| Pass | Fail | | | | | | | | | | |

HIGH EER AIR CONDITIONER

Procedures for verification are available in RACM, Appendix RI.

| | | | | | | | | | | | |
|---|-------------------------------------|------------------------------|-----------------------------|--|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|------|------|
| 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | EER values of installed systems match the CF-1R | | | | | | | |
| 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | For split system, indoor coil is matched to outdoor coil | | | | | | | |
| 3 | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> No | Time Delay Relay Verified (If Required) | | | | | | | |
| Yes to 1 and 2; and 3 (If Required) is a pass | | | | | <table border="1"> <tr> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Pass</td> <td>Fail</td> </tr> </table> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Pass | Fail |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | | | | | | | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | | | | | | | | | | |
| Pass | Fail | | | | | | | | | | |

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

| | |
|--|---|
| Project Address 6409 somis way | Builders Name arctic heating and air |
|--|---|

Copies to: BUILDER, HERS PROVIDER AND BUILDING DEPARTMENT

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

| | | | |
|-------------------------------------|------------------------------|-----------------------------|---------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> 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.

| | | | |
|-------------------------------------|------------------------------|-----------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes | <input type="checkbox"/> 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.

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

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 2 of 8) CF-4R

Project Address **6409 somis way** Builders Name **arctic heating and air**

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**

| | | | | | |
|---|-----------------------------|---|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Less than 12 lineal feet of supply duct outside of conditioned space. | Yes to this compliance credit is a pass | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> Fail |
|---|-----------------------------|---|---|--|--|

- ✓ **SUPPLY DUCTS LOCATED IN CONDITIONED SPACE COMPLIANCE CREDIT**

| | | | | | |
|---|-----------------------------|--|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Ducts are located within the conditioned volume of building. | Yes to this compliance credit is a pass | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> 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**

| | | | | | |
|---|-----------------------------|---|----------------------|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Adequate airflow verified | | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | The duct system design plan meets the requirements specified in RACM, Appendix RE, Section RE.4.2 | | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | The duct system design plan exists on building plans | | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Duct sizes, duct system layout and locations of supply & return registers match the duct system design plan | Yes to all is a pass | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> 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 |
|---|-----------------------------|--|--------------------------|--------------------------|--------------------------|---------------|----------------------|--|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| Total Surface Area for Each R-Value = | | | | | | | | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Duct Surface Area matches Performance's CF-1R? | | | | | | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> Fail |
| | | | | | | | Yes to all is a pass | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail |

- ✓ **BURIED DUCTS ON THE CEILING COMPLIANCE CREDIT**

| | | | | |
|--|-----------------------------|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Buried Ducts on the Ceiling | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Verified High Insulation Installation Quality | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> Fail |
| Yes to duct system design, supply duct surface area reduction and this compliance credit is a pass | | | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail |

- ✓ **DEEPLY BURIED DUCTS COMPLIANCE CREDIT**

| | | | | |
|--|-----------------------------|---|--|--|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Deeply Buried Ducts | | |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Verified High Insulation Installation Quality | <input checked="" type="checkbox"/> Pass | <input checked="" type="checkbox"/> Fail |
| Yes to duct system design, supply duct surface area reduction and this compliance credit is a pass | | | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail |

INSTALLATION CERTIFICATE

Site Address **6409 somis way**

Permit Number **0601077**

FAN WATT DRAW

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

| | | | | |
|---|-----------------------------|--|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> Method For Fan Watt Draw Measurement | | | | |
| <input type="checkbox"/> | RE3.2.1 | Portable Watt Meter Measurement | | |
| <input type="checkbox"/> | RE3.2.2 | Utility Revenue Meter Measurement | | |
| | | Measured Fan Watt Draw | | Watts |
| | | Measured Fan Flow (enter total cfm from airflow verification) | | cfm |
| | | Enter results of Watts/cfm | | Watts/cfm |
| | | | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Measured fan watt/cfm draw is equal to or lower than the fan watt/cfm draw documented in CF-1R | <input type="checkbox"/> | <input type="checkbox"/> |
| Yes is a pass | | | Pass | Fail |

ADEQUATE AIRFLOW VERIFICATION

Procedures for measuring the airflow are available in RACM, Appendix RE3.1.

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

MAXIMUM COOLING CAPACITY

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

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

| | |
|---|-------|
| Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner | |
| Signature: | Date: |

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

| | | |
|---------------------------------------|---------------------------------|-----------------------------|
| INSTALLATION CERTIFICATE | | (Page 5 of 12) CF-6R |
| Site Address 6409 somis way | Permit Number 0601077 | |

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 type="checkbox"/> | <input type="checkbox"/> |
| 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 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 |

| | |
|---------------------------------------|--------------------------|
| Site Address 6409 somis way | Permit Number 0601077 |
|---------------------------------------|--------------------------|

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:

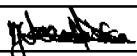
- Remove at least one supply and one return register, and verify that the spaces between the register boot and the interior finishing wall are properly sealed.
- If the house rough-in duct leakage test was conducted without an air handler installed, inspect the connection points between the air handler 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
- New Distribution system is fully ducted (i.e., does not use building cavities as plenums or platforms returns in lieu of ducts).

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 checked="" 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: | ✓ ✓ |
| 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. | |
| 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 [100 x [_____ (Line # 5) / _____ (Line # 2)]] | <input 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 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. 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.

| | |
|--|---------------|
| Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner | |
| Signature:  | Date: 2/24/06 |

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

INSTALLATION CERTIFICATE

(Page 3 of 12) CF-6R

| | |
|---------------------------------------|---------------------------------|
| Site Address 6409 somis way | Permit Number 0601077 |
|---------------------------------------|---------------------------------|

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.) ¹ (≥CF-IR value) | Duct Location (attic, etc.) | Duct or Piping R-value | Heating Load (Btu/hr) | Heating Capacity (Btu/hr) |
|--------------------------------|--|------------------------------|---|-----------------------------------|------------------------------|-----------------------------|---------------------------------|
| pckg | APG13360701A | 1 | 80 | attic | 4.2 | 70 | 70 |
| amana | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Cooling Equipment

| Equip Type (pkg. heat pump) | CEC Certified Mfr. Name and Model Number | # of Identical Systems | Efficiency (SEER or EER) ¹ (≥CF-IR value) | Duct Location (attic, etc.) | Duct R-value | Cooling Load (Btu/hr) | Cooling Capacity (Btu/hr) |
|--------------------------------|--|------------------------------|--|-----------------------------------|-----------------|-----------------------------|---------------------------------|
| pckg | Same | 1 | 13 | attic | 4.2 | 36 | 36 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

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-IR) 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: <i>[Signature]</i> | Date: 2/24/06 |

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

| | |
|--|--------------------------|
| CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 5 of 5) CF-1R | |
| Project Title change out | Date 1/26/2006 |

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: joceline nadra | Name: SAME |
| Title Firm: arctic heating and air | Title Firm: |
| Address: 4791 63rd st | Address: |
| sac ca 95820 | |
| Telephone: 457-2222 | Telephone: |
| | |
| License #: 95825 | |
| | |
| (signature) <i>[Signature]</i> 1/26/06 (date) | (signature) (date) |

Enforcement Agency

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

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

| | |
|----------------------|-------------|
| <i>Project Title</i> | <i>Date</i> |
| change out | 1/26/2006 |

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.

| <input checked="" type="checkbox"/> | 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.

| <input checked="" type="checkbox"/> | 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 type="checkbox"/> | Thermostatic Expansion Valve | CF-6R part 6 of 12 | |

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 3 of 5) CF-1R

| | |
|------------------------------------|--------------------------|
| <i>Project Title</i> change out | <i>Date</i> 1/26/2006 |
|------------------------------------|--------------------------|

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.

| | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Sealed Ducts (all climate zones) (Installer testing and certification and HERS rater field verification required.) |
| <input type="checkbox"/> | TXVs, readily accessible (climate zones 2 and 8-15 only) (Installer testing and certification and HERS Rater field verification required.) |
| <input type="checkbox"/> | Refrigerant Charge (climate zones 2 and 8-15 only) (Installer testing and certification and HERS Rater field verification required.) |
| OR | |
| <input type="checkbox"/> | 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 | |
| <input type="checkbox"/> | 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

| | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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 ¹ (kW or Btu/hr) | Tank Capacity (gallons) | Energy Factor ¹ or Thermal Efficiency | Standby ¹ Loss (%) | Tank External Insulation R-Value |
|-----------------------------|-------------------|------------------|---|-------------------------|--|-------------------------------|----------------------------------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

System serving multiple dwelling units

| Water Heater Type | Distribution Type | Number in System | Rated Input ¹ (kW or Btu/hr) | Tank Capacity (gallons) | Energy Factor ¹ or Thermal Efficiency | Standby ¹ 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 2 of 5) CF-1R

| | |
|------------------------------------|--------------------------|
| <i>Project Title</i> change out | <i>Date</i> 1/26/2006 |
|------------------------------------|--------------------------|

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) | Orien-tation, N, S, E, W ¹ | Area (ft ²) | U-factor ² | U-factor Source ³ | SHGC ⁴ | SHGC Source ⁵ | Exterior Shading/Overhangs ^{6,7} ✓ 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) |
|--|-----------------------------------|---|------------------------|-----------------|----------------------------------|
| gas pack | 70 | attic | 4.2 | digital | pack |
| | | | | | |
| | | | | | |
| | | | | | |

| 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) |
|---|----------------------------------|-----------------------------|--------------|-----------------|----------------------------------|
| gas pack | 13 | attic | 4.2 | digital | pack |
| | | | | | |
| | | | | | |
| | | | | | |

| CERTIFICATE OF COMPLIANCE: RESIDENTIAL | | (Page 1 of 5) | CF-1R |
|---|------------------------------|-------------------------------------|-------|
| Project Title change out | Date 1/26/2006 | Building Permit # 0601077 | |
| Project Address 6409 somis way | | Plan Check / Date | |
| sac ca 95828 | | Field Check / Date | |
| Documentation Author joceline nadra | Telephone 457-2222 | Enforcement Agency Use Only | |
| Compliance Method (Prescriptive) | Climate Zone 12 | | |

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) 1200 ft²

Average Ceiling Height: 8 ft

Maximum Allowed West Facing Fenestration Products Per Table 151-B or 151-C --- (5% X CFA) _____ ft²

Maximum Allowed Total Fenestration Products Per Table 151-B or 151-C --- (20% X CFA) _____ 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: _____ 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) 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.