

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0610381

Insp Area: 3

Thos Bros: 298E7

Site Address: 8420 OLIVET CT SAC

Parcel No: 079-0083-028

Sub-Type: RES

Housing (Y/N): N

CONTRACTOR
CLARKE & RUSH MECH
4411 AUBURN BL
SACRAMENTO CA 95841

OWNER
DODD VALERIE
8420 OLIVET CT
SACRAMENTO, CA 95826

ARCHITECT

Nature of Work PAPERLESS SPLIT SYSTEM HVAC CHANGE OUT - SMOKE DETECTORS ARE REQUIRED PER 200 CBC-COMPLIANCE
DOCUMENTS ARE
DUE AT FINAL

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. 3097, Civ. C).

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 3 of the Business and Professions Code and my license is in full force and effect.

X License Class C-20 License Number 608005 Date 07/11/06 Contractor Signature [Signature]

OWNER-BUILDER DECLARATION: I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, 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 Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 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 7031.5 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 Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and 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. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

I am exempt under Sec. B & PC for this 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 verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

PAID
CITY OF SACRAMENTO
JUL 11 2006

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 above mentioned property for inspection purposes.

X Date 7/11/06 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 3700 of the Labor Code, for the performance of work for which the permit is issued.

X 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 ZENITH INS CO Policy Number Z066385802 Exp Date 10/01/2006

(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 should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

X Date 7/11/06 Applicant Signature [Signature]

WARNING: FAILURE TO SECURE WORKER'S 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 3706 OF THE LABOR CODE, INTEREST AND ATTORNEY'S FEE.



ENERGY ANALYSIS and COMFORT SOLUTIONS INC.

PO Box 2233
Orangevale, CA
95662

Phone: 916-698-4185
Fax: 916-988-2387

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

| Contractor Information | | City | | ST | Zip | Office Phone | Office Fax |
|------------------------------------|------------------------|-------------------------------|--------------|------------------------------|------------------------|------------------------------|-----------------|
| Contractor Name | Contractor Address | Sacramento | | CA | 95841 | 916-609-2665 | 916-609-2635 |
| Clarke & Rush Mechanical | 4411 Auburn Blvd | | | | | | |
| Documentation Author | Project Coordinator | Project Coordinator - Phone # | | Extension | License # | Company ID # | |
| Patricia Siedentopf | Patricia Siedentopf | 916-609-2641 | | | 608005 | 50001 | |
| Residential Project Information | | | | | | | |
| Owner's Name/ Project Title | Address | City | ST | Zip | Phone | Map Page | |
| Jerry Dodd | 8420 Olivet Court | Sacramento | CA | 95826 | 916-381-6076 | 298-C7 | |
| Climate Zone | County | Utility | Rebate | T24 Compliance Type | Bid Dept - Permit From | Permit # | |
| 12 | County of Sacramento | SMUD | Yes | Alteration Certificate (SFF) | City of Sacramento | | |
| Project Type | Building Type | # of Dwellings | # of Stories | Conditioned SF | Orientation | Ceiling Height | Floor Type |
| Alteration | Single Family Attached | 1 | 1 | 1800 | S = 180 | 8 | Raised |
| Est Start Job | Est Complete Job | Contractor Job # | | Group Size | Plan # | House # | Group # |
| 7/11/06 | 7/11/06 | 06D1210 | | 7 | 50001 | 1374 | 510 |
| Equipment Information | | | | | | | |
| Install Heat Equip? | Heat System Type | Heat Capacity | KBTU | Efficiency Rating | Efficiency Type | Configuration | Heat Load Calcs |
| Yes | Furnace | 90 | KBTU | 80.00 | AFUE | Split | |
| Install Cool Equip? | Cool System Type | Cool Capacity | KBTU | SEER | EER | Configuration | Cool Load Calcs |
| Yes | A/C | 42 | KBTU | 14.00 | 12.00 | Split | |
| Install Ductwork? | Duct Location | Type of Ducts | R-value | ARI # | Duct Test? | TXV or RCM? | High EER? |
| No | Attic | Existing | 4.2 | | Yes | Yes | No |
| Furnace or Air Handler Information | | | | Condenser Information | | Evaporative Coil Information | |
| MFG | CARRIER | MFG | CARRIER | MFG | ADP | | |
| Model # | 58CTX090-1-14 | Model # | 38TXA042-3 | Model # | HQPT9648-M175 | | |
| Serial # | | Serial # | | Serial # | | | |
| Special Issues | Notes | | | Future Requirements | | | |
| N/A | | | | | | | |

CF6R forms ? _____
 TXV verified? _____
 Duct Test Performed? _____
 High EER Verified? _____
 New or Exist Ducts? _____
 Equip M# & S# OK? _____
 Stat on, Remove Tape? _____

Permit # Verified? _____
 Equip Air Flow - CFM _____
 Test Pressure _____
 CFM Leakage _____
 System % Leakage _____
 Smoke Tested? _____
 Stand By Time _____

Notes: _____

 Signature _____

Jerry Dodd 8420 Olivet Court
 Project Title _____
 Date _____

SEALED DUCTS and TXVs (or Alternative Measures)

A signed CF-1R Form must be provided to the building department for each home for which the following are required.

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

OR

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

OR

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

WATER HEATING SYSTEMS

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

Systems serving single dwelling units

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

System serving multiple dwelling units

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

1 For small gas storage water heaters (rated inputs of less than or equal to 75,000 Btu/hr), electric resistance, and heat pump water heaters, list Energy Factor. For large gas storage water heaters (rated input of greater than 75,000 Btu/hr), list Rated Input, Recovery Efficiency, Thermal Efficiency and Standby Loss. For instantaneous gas water heaters, list Rated Input and Thermal Efficiencies.
 Pipe Insulation (kitchen lines > 3/4 inches) All hot water pipes from the heating source to the kitchen fixtures that are 1/2 inches or greater in diameter shall be thermally insulated as specified by Section 150 (j) 2 A or 150 (j) 2 B.

Jerry Dodd
Project Title

8420 Olivet Court

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

SPECIAL FEATURES REQUIRING HERS RATER VERIFICATION

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

| Feature | Required Forms (if applicable) | Description |
|------------------------------|--------------------------------|-------------|
| Duct Sealing | CF-6R part 4 of 12 | |
| Refrigerant Charge | CF-6R part 5 of 12 | |
| Thermostatic Expansion Valve | CF-6R part 6 of 12 | |

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

Enforcement Agency

| | | | |
|--------------------|--|--------------------|--|
| Name: | | Name: | |
| Title/Firm: | | Title/Firm: | |
| Address: | | Address: | |
| Telephone: | | Telephone: | |
| License #: | | License #: | |
| (signature) (date) | | (signature) (date) | |

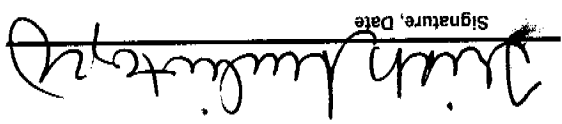
Designer or Owner (per Business and Professions Code) Documentation Author

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

COMPLIANCE STATEMENT

Jerry Dodd
8420 Olivet Court
Date _____
Project Title _____

Clarke & Rush Mechanical
 Installing Subcontractor (Co. Name) 50001
 OR General Contractor (Co. Name) OR Owner 1374

Signature, Date


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

| Equip Typ | CEC Certified Mfr. Name, Model and Serial Number | # of Identical Systems | Efficiency (AFUE, etc.) ¹ | Duct Location (attic, etc.) | Duct or Piping R-value | Cooling Load (Btu/hr) | Cooling Capacity (Btu/hr) |
|-----------|--|------------------------|--------------------------------------|-----------------------------|------------------------|-----------------------|---------------------------|
| Split | CARRIER | 1 | 14.00 SEER | Attic | R 4.2 | 0 | 42000 |
| | 38TXA042-3 | | 12.00 EER | | | | |
| Coil | ADP | | | | | | |
| | HCP19648-M175 | | | | | | |

Cooling Equipment

| Equip Typ | CEC Certified Mfr. Name, Model and Serial Number | # of Identical Systems | Efficiency (AFUE, etc.) ¹ | Duct Location (attic, etc.) | Duct or Piping R-value | Heating Load (Btu/hr) | Heating Capacity (Btu/hr) |
|-----------|--|------------------------|--------------------------------------|-----------------------------|------------------------|-----------------------|---------------------------|
| Split | CARRIER | 1 | 80.00 AFUE | Attic | R 4.2 | 0 | 90000 |
| | 58CTX090-1-14 | | | | | | |

Heating Equipment

HVAC SYSTEMS:

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

8420 Olivet Court Sacramento CA 95826 0 Permit Number

INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE

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

INSTALLER COMPLIANCE STATEMENT

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

INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:

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

DUCT LEAKAGE REDUCTION

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

| NEW CONSTRUCTION: | | Measured | Values |
|--|--|----------|---|
| Duct Pressurization Test Results (CFM @ 25 Pa) | | | |
| 1 | Enter Tested Leakage Flow in CFM: | | |
| 2 | Fan Flow: Calculated (Nominal): <input 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: | 1400 | |
| 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 | 86 | |
| 6 | Enter Reduction in Leakage for Altered Duct System (Line # 4) Minus (Line # 5) - (Only if Applicable) | | |
| 7 | Enter Tested Leakage Flow in CFM to Outside (Only if Applicable) | | |
| 8 | Enter New Duct System - Pass if Leakage Percentage < 6% for Final or < 4% at Rough-in (100 x] / (Line # 5) / (Line # 2)] | | <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)] | 86 | <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)] | | <input type="checkbox"/> Pass <input type="checkbox"/> Fail |
| | and Verification by Smoke Test and Visual Inspection | | |
| 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 | | | |

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 retrofitted Air-Distribution System Ducts, Plenums and Fans comply with Mandatory requirements specified in Section 150 (m) of the 2005 Building Energy Efficiency Standards.

Signature: *Clark & Rush Mechanical* Date: _____
 Installing Subcontractor (Co. Name) OR General Contractor (Co. Name): **Clark & Rush Mechanical**
 50001 1374

THERMOSTATIC EXPANSION VALVE (TXV)

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

| | | |
|---|--|-------------------------------|
| Access is provided for inspection. The procedure shall consist of visual verification that the TXV is installed on the system and installation of the specific equipment shall be verified. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Yes is a pass | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> 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) | |
| Return (evaporator entering) air dry-bulb temperature (Treturn, db) | |
| Return (evaporator entering) air wet-bulb temperature (Treturn, wb) | |
| Evaporator saturation temperature (Tevaporator, sat) | |
| Suction line temperature (Tsuction, db) | |
| Condenser (entering) air dry-bulb temperature (Tcondenser, db) | |

Superheat Charge Method Calculations for Refrigerant Charge

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

Temperature Split Method Calculations for Adequate Airflow

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

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

INSTALLATION CERTIFICATE

CF-6R

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Permit Number

8420 Olivet Court Sacramento CA 95826 0

Site Address

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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | System Passes |
|--------------------------|--------------------------|--------------------------|--------------------------|---------------|

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

Signature: *[Handwritten Signature]*
 Date: _____

Clarke & Rush Mechanical
 Installing Subcontractor (Co. Name) OR
 50001
 General Contractor (Co. Name) OR Owner
 1374

8420 Olivet Court

Sacramento CA 95826

Permit Number

Site Address

FAN WATT DRAW

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

| | | | |
|---|-----------------------------------|-----------------------------|--------------------------|
| Method For Fan Watt Draw Measurement | | | |
| RE3.2.1 | Portable Watt Meter Measurement | <input type="checkbox"/> | <input type="checkbox"/> |
| RE3.2.2 | Utility Revenue Meter Measurement | <input type="checkbox"/> | <input type="checkbox"/> |
| Measured Fan watt Draw: | | Enter results of Watts/cfm: | |
| Measured Fan Flow (Enter total cfm from airflow verification) | | Enter results of Watts/cfm: | |
| 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 | | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Pass | Fail |

ADEQUATE AIRFLOW VERIFICATION

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

| | | | |
|---|--|--------------------------|--------------------------|
| Method For Airflow Measurement | | | |
| Duct design exists on plans | | <input type="checkbox"/> | <input type="checkbox"/> |
| RE4.1.1 | Diagnostic Fan Flow Using Flow Capture Hood | <input type="checkbox"/> | <input type="checkbox"/> |
| RE4.1.2 | Diagnostic Fan Flow Using Plenum Pressure Matching | <input type="checkbox"/> | <input type="checkbox"/> |
| RE4.1.3 | Diagnostic Fan Flow Using Flow Grid Measurement | <input type="checkbox"/> | <input type="checkbox"/> |
| Measured Airflow: | | cfm/ton | |
| 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 | Adequate airflow verified (see adequate airflow credit) | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | Refrigerant charge or TXV | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Duct leakage reduction credit verified | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | Cooling capacities of installed systems are ≤ to maximum cooling capacity indicated on the Performance's CF-1R and RF-3. | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | If the cooling capacities of installed systems are > than maximum cooling capacity in the CF-1R, then the electrical input for the installed systems must be ≤ to electrical input in the CF-1R. | <input type="checkbox"/> | <input type="checkbox"/> |
| Yes to 1, 2, and 3; and Yes to either 4 or 5 is a pass | | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Pass | Fail |

HIGH EER AIR CONDITIONER

Procedures for verification are available in RACM, Appendix RI.

| | | | |
|---|--|--------------------------|--------------------------|
| 1 | EER values of installed systems match the CF-1R | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | For split system, indoor coil is matched to outdoor coil | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | Time Delay Relay Verified (if Required) | <input type="checkbox"/> | <input type="checkbox"/> |
| Yes to 1 and 2; and 3 (if Required) is a pass | | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Pass | Fail |

Clarke & Rush Mechanical

Installing Subcontractor (Co. Name) OR

50001
1374

General Contractor (Co. Name)

Signature, Date

Performed

| NEW CONSTRUCTION | | |
|---|--|-----------------|
| 1 | Duct Pressurization Test Results (CFM @ 25 Pa) | Measured Values |
| 2 | Fan Flow: Calculated (Normal Cooling or Heating) or Measured | Not Tested |
| 3 | Pass if Leakage Percentage $\leq 6\%$ (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. | Not Tested |
| 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. | Not Tested |
| 6 | Enter Reduction in Leakage for Altered Duct System (Line 4 - Line 5) - (Only if Applicable) | Not Tested |
| 7 | Enter Tested Leakage Flow in CFM to Outside (Only if Applicable) | Not Tested |
| 8 | Enter New Duct System - Pass if Leakage Percentage $\leq 6\%$ (Line 5 / Line 2): | Not Tested |
| 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 $\leq 15\%$ (Line 5 / Line 2): | Not Tested |
| 10 | Pass if Leakage to Outside Percentage $\leq 10\%$ (Line 7 / Line 2): | Not Tested |
| 11 | Pass if Leakage Reduction Percentage $\geq 60\%$ (Line 6 / Line 4) | Not Tested |
| 12 | Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection | Pass |
| | Pass if One of Lines #9 through #12 pass | Pass |

MINIMUM REQUIREMENTS FOR DUCT LEAKAGE REDUCTION COMPLIANCE CREDIT:

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 CR-4R may be released on every tested building. The HERS rater must not release the CR-4R until a properly completed and signed CF-6R has been received for the sample and tested buildings.

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

New Distribution system is fully ducted (i.e., does not use building cavities as plenums or plenum returns in lieu of ducts).

New systems where clath 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.

HERS RATER COMPLIANCE STATEMENT

CalCERTS® is an approved HERS provider by the California Energy Commission.

This CR-4R has been registered with the CalCERTS® registry in accordance with the Title 24 & Title 20 of the CCR.

Copies to: Homeowner, HERS Provider and Building Department

Firm: Energy Analysis and Comfort Solutions, Inc.
 Street Address: PO Box 2233
 City/State/Zip: Orangevale / CA / 95662

HERS Provider: CalCERTS

Contractor Contact: Michael McDermott
 Telephone: 916-704-2810
 Permit Number: 06-10381

Project Address: 8420 Olivet Court - Sacramento, CA 95826
 Contractor Name / License No.: Clarke & Rush Mechanical / 608005

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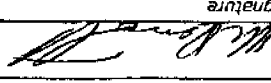
CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 3-4 of 8) CF-4R

8420 Olivet Court - Sacramento, CA 95826
 Project Address
 Clarke & Rush Mechanical / 608005
 Contractor Name / License No.

Contractor Contact
 Telephone 916-704-2810
 Permit Number 06-10381

Contractor Contact
 Telephone 916-704-2810
 Permit Number 36007

HERS Rater
 Michael McDermott

HERS Rater Signature


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 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