

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0610091

Insp Area: 3

Thos Bros: 317E5

Site Address: 2421 39TH AV SAC

Parcel No: 025-0241-026

Sub-Type: RES

Housing (Y/N): N

CONTRACTOR
AEROTECH
5505 EAST BROOK WAY
ELK GROVE 95758

OWNER
FONG KEE FONG/LAI KING FO
2421 39TH AV
SACRAMENTO, CA 95822

ARCHITECT

Nature of Work: C/O SPLIT SYSTEM HEAT PUMP

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.

License Class C20 License Number 610100 Date 07-06-06 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 _____

PAID
CITY OF SACRAMENTO
JUL 06 2006

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.

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 abovementioned property for inspection purposes.

Date 07-06-06 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.

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 NO EMPLOYEES Policy Number Exp 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 should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 07-06-06 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.

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

[Handwritten signature]



0610091

CITY OF SACRAMENTO

www.cityofsacramento.org
 Help Line: 1-916-808-5656 OR 1-866-EZ-PERMIT
 Inspection Request: 1-916-808-7622

PAID
 CITY OF SACRAMENTO
 JUL 06 2006

New City Hall
 915 I Street, 3rd Floor
 Sacramento, CA 95814
 North Permit Center
 2101 Arena Blvd., Suite 200
 Sacramento, CA 95834
 Fax # 916-808-1901

MINOR PERMIT APPLICATION NEW CITY HALL Date: 07-06-06

Faxed/web request must be received in this office by 3:00 P.M. to be processed the following workday. Contractors must have a current certificate of Worker's Compensation Insurance. Note: Work started before a Building Permit is issued will be subject to quad fee.

Permits requiring Plan Review are not eligible for the MINOR PERMIT PROGRAM
 Design Review and Historic Preservation approval may be required if job address is located in those areas (additional forms may be required)

IN ORDER TO PROCESS THIS REQUEST, ALL THE FOLLOWING INFORMATION MUST BE PROVIDED:


Job Address: 2421 - 327th ave Bldg Type: RESIDENTIAL APARTMENTS (4+ units per building) COMMERCIAL (limited)
 CONTACT INFO Name: MAY FANG Phone #: 424-5936 Contract Price: 8500.00
 Property Owner: MAY FANG Contractor: AeroTech Int'l ceiling License #: 610100
 Address: 2421 - 327th ave Address: 5505 - E. Brook Way
 City/State/Zip: SACR. CA. City/State/Zip: ELK GROVE CA 95758
 Phone: 916) 424-5936 Phone: 916) 392-7922 Fax:
 Nature of Work: Provide description of work & indicate type of work in selections below.
 Pre-Registered? YES NO Registration #

Description of Work: Split heat pump c/o Attic-around

<input type="checkbox"/> Reroof (excluding tile) <input type="checkbox"/> Tear-Off <input type="checkbox"/> Resheet <input type="checkbox"/> House <input type="checkbox"/> Garage # Stories: _____ # Squares: _____ Material: _____ <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 (Residential Only) <input checked="" type="checkbox"/> Change-out <input type="checkbox"/> New <input checked="" type="checkbox"/> Heat Pump <input type="checkbox"/> Package <input checked="" 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"/> Other (describe below) Value of duct work: _____ Equipment: \$ _____ Cut-in: \$ _____	<input type="checkbox"/> Water Heater (Residential Only) <input type="checkbox"/> Electric <input type="checkbox"/> Gas <input type="checkbox"/> Change-out <input type="checkbox"/> Electric to Gas <input type="checkbox"/> Relocate <input type="checkbox"/> New <input type="checkbox"/> Dry Rot or Termitite <input type="checkbox"/> Damage Repair <input type="checkbox"/> Flooring/Joists <input type="checkbox"/> Mudsill/Studs <input type="checkbox"/> Roof Structure <input type="checkbox"/> Exterior	<input checked="" type="checkbox"/> Minor Electric and/or Minor Plumbing (Residential Only) <input type="checkbox"/> Electric Service Change # amps _____ <input type="checkbox"/> New electric circuits <input type="checkbox"/> Re-wire <input type="checkbox"/> Water Service Replacement <input type="checkbox"/> Sewer Service Replacement <input type="checkbox"/> Gas Line Replacement <input type="checkbox"/> Re-plumb <input type="checkbox"/> Water <input type="checkbox"/> Waste	<input type="checkbox"/> Public Utilities Safety Inspection <input type="checkbox"/> SMUD <input type="checkbox"/> PG&E * NOTE * Correction Notice items will require an additional building permit.
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Office Use Only: Parcel #: _____ Date Received: _____ Date Issued: _____ Processor's Initials: _____ Permit #: _____

Permit Pack 2

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8) CF-4R		
Project Address 2421 39th Ave	Builder or Installer Name Aerotech	
Builder or Installer Contact Mike Smith	Telephone (916) 392-7922	Plan/Permit (Additions or Alterations) Number 0610091
HERS Rater Steve Vasa-CC2004262	Telephone 916-682-8730	Sample Group Number 1 of 7
Compliance Method (Prescriptive)	Date 7/9/06	Climate Zone 12
Certifying Signature 		Sample House Number 1
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 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 CF-6R (Installation Certificate).
- New ducts are fully ducted (i.e., does not use building cavities as plenums or platform returns in lieu of ducts).
- New ducts with cloth backed, rubber adhesive duct tape is installed, mastic and draw bands 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
 Procedures for field verification and diagnostic testing of air distribution systems are available in RACM, Appendix RC4.3.

Duct Diagnostic Leakage Testing Results

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 checked="" type="checkbox"/> Heating) or <input type="checkbox"/> Measured Enter Total Fan Flow in CFM:	1000 ✓ ✓
3	Pass if Leakage Percentage < 6% [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 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.	46
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% [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)]]	46 <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
	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

System Bosses

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 3 of 8)			CF-4R
Project Address	2421 39th Ave	Builder Name	Aerotech
Builder Contact	Mike Smith	Telephone	(916) 382-7922
HERS Rater	Steve Vasa-CC2004262	Telephone	916-882-8730
Compliance Method (Prescriptive)		Sample Group Number	1 of 7
Certifying Signature		Date	7/9/06
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).

THERMOSTATIC EXPANSION VALVE (TXV)

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

				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Access is provided for inspection. The procedure shall consist of visual verification that the TXV is installed on the system and installation of the specific equipment shall be verified.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Yes is a pass	Pass	Fail

REFRIGERANT CHARGE MEASUREMENT

Verification for Required Refrigerant Charge 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)

N/A
 Standard Charge Measurement (outdoor dry-bulb 55°F and above)
 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 dry-bulb is below 55°F rater shall use the Alternative Charge Measure Procedure

Procedures for Determining Refrigerant Charge using the Standard Method are available in RACM, Appendix RD2.

<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.
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CERTIFICATE OF COMPLIANCE: RESIDENTIAL		(Page 1 of 5)	CF-1R
Project Title Fong	Date 7/8/06	Building Permit # 0610091	
Project Address 2421 39th Ave		Plan Check / Date	
Sacramento, CA 95822		Field Check / Date	
Documentation Author Mike Smith	Telephone (916) 392-7922	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 8-14 in the Residential Compliance Manual (RCM)

GENERAL INFORMATION

Total Conditioned Floor Area (CFA) 1288 ft²

Average Ceiling Height: 8 ft

Check Applicable Boxes

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 in the RCM.)

- Maximum Allowed Total Fenestration Area n/a ft² (from WS-4R)
- Maximum Allowed West Facing Fenestration Area n/a ft² (from WS-4R)
- Number of Stories: 1 Number of Dwelling Units: 1
- Floor Construction Type: _____ Slab/Raised Floor (circle one or both)
- Front Orientation: n/a North / South / East / West : All Orientations (input front orientation in degrees from True North and circle one).

RADIANT BARRIER (check box if 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 ² Yes or No	Location Comments (attic, garage, typical, etc.)
N/A							

- 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.
- 2) This column is for the Inspector to verify installation of roof radiant barrier.

FENESTRATION PRODUCTS – U-FACTOR AND SHGC

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

Fenestration #/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orientation, N, S, E, W 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"/>
							<input type="checkbox"/>

N/A

- 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 from either NFRC Certified Label or from Standards Default Table 116-A.
- 3) Indicate source either from NFRC or Table 116-A,
- 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, Table 116B or WS-3R
- 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)
Heat Pump	8.5	Attic	R6/R4.2	setback	split

Cooling Equipment Type and Capacity (A/C, heat pump, evap. cooling)	Minimum Efficiency (SEER or EER)	Distribution Type and Location (ducts, attic, etc.)	Duct or Piping R-Value	Thermostat Type	Configuration (split or package)
Heat Pump	14.2/12.3	Attic	R6/R4.2	setback	split

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

<i>Project Title</i> Fong	<i>Date</i> 7/8/06
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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 checked="" 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.
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OR

<input type="checkbox"/>	No ducts installed.
<input type="checkbox"/>	New ducts from existing space conditioning equipment, not exceeding 40ft. in length.
<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. 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 (See RM Table 5-4, Alternative Water Heating Systems for recirculation requirements)

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
N/A							

System serving multiple dwelling units (See Residential Manual Section 5.3.3)

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 4 of 5) CF-1R

Project Title: Fong Date: 7/8/06

SPECIAL FEATURES REQUIRING BUILDING OFFICIAL or HERS RATER VERIFICATION

Indicate which special features are parts of this project. The list below only represents special features relevant to the prescriptive method. (Check Applicable boxes)

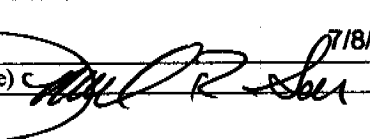
Category	Building Official Verification of Special Features	HERS Rater Verification	HERS Rater Diagnostic Testing	Measure
Ducts				
<input type="checkbox"/>	Y			100% of ducts in crawlspace/basement
<input type="checkbox"/>		Y		Buried ducts
<input type="checkbox"/>		Y		Diagnostic supply duct location, surface area, and R-value
<input type="checkbox"/>	Y			Duct increased R-value
<input checked="" type="checkbox"/>			Y	Duct leakage
<input type="checkbox"/>	Y			Ducts in attic with radiant barriers
<input type="checkbox"/>		Y		Less than 12 ft. of duct outside conditioned space
<input type="checkbox"/>		Y		Non-standard duct location
<input type="checkbox"/>	Y			Supply registers within two ft of floor
<input type="checkbox"/>				
Envelope				
<input type="checkbox"/>	Y			Air retarding wrap
<input type="checkbox"/>	Y			Cool roof
<input type="checkbox"/>	Y			Exterior shades
<input type="checkbox"/>	Y			High thermal mass
<input type="checkbox"/>	Y			Inter-zone ventilation
<input type="checkbox"/>	Y			Metal framed walls
<input type="checkbox"/>	Y			Non-default vent heights
<input type="checkbox"/>		Y		Quality insulation installation
<input type="checkbox"/>	Y			Radiant barrier
<input type="checkbox"/>			Y	Reduced infiltration (blower door). May also require mechanical ventilation.
<input type="checkbox"/>	Y			Solar gain targeting (for sunspaces)
<input type="checkbox"/>	Y			Sunspace with interzone surfaces
<input type="checkbox"/>	Y			Vent area greater than 10%
<input type="checkbox"/>				
HVAC Equipment				
<input type="checkbox"/>			Y	Adequate air flow
<input type="checkbox"/>		Y		Air conditioner size
<input type="checkbox"/>			Y	Air handler fan power
<input type="checkbox"/>		Y		High EER
<input type="checkbox"/>	Y			Hydronic heating systems
<input type="checkbox"/>		Y		Mechanical ventilation
<input type="checkbox"/>			Y	Refrigerant charge
<input checked="" type="checkbox"/>		Y		Thermostatic expansion valve (TXV)
<input type="checkbox"/>	Y			Zonal control
Water Heater				
<input type="checkbox"/>	Y			Combined hydronic
<input type="checkbox"/>	Y			High EF for existing water heaters
<input type="checkbox"/>	Y			Non-NAECA water heater
<input type="checkbox"/>	Y			Non-standard water heaters (wh/unit)
<input type="checkbox"/>	Y			Water heater distribution credits

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 5 of 5) CF-1R	
Project Title Fong	Date 7/8/06

Special Remarks

COMPLIANCE STATEMENT

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

Designer or Owner (per Business and Professions Code)	Documentation Author
Name: _____	Name: Mike Smith
Title/Firm: _____	Title/Firm: Aerotech
Address: _____	Address: 5505 East Brook Way
	Elk Grove, CA 95758
Telephone: _____	Telephone: (916) 392-7922
License #: _____	License #: (if applicable) 610100
(signature) _____	(signature)  ^{7/8/06}
(date) _____	(date) 7-14-06

Enforcement Agency

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

(Page 3 of 12) CF-6R

Site Address 2421 39th Ave	Permit Number 0610091
--------------------------------------	---------------------------------

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-1R value)	Duct Location (attic, etc.)	Duct or Piping R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)
Heat Pump-split	Trane	1	8.5	Attic	R6/R4.2		26800
	2TEH3F30						

Cooling Equipment

Equip Type (pkg. heat pump)	CEC Certified Mfr. Name and Model Number	# of Identical Systems	Efficiency (SEER or EER) ¹ (≥CF-1R value)	Duct Location (attic, etc.)	Duct R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)
Heat Pump-split	Trane	1	14.2/12.3	Attic	R6/R4.2		2.5 Ton
	2TWX4030						

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.

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner	Aerotech
Signature: 	Date: 7/8/06

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

Site Address
2421 39th Ave

Permit Number
0610091

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 FOR NEW DUCTS:

- 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 on new 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 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:	1900	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	Pass if Leakage Percentage < 6% for Final or < 4% at Rough-in without air handle: [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.	46	
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)		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
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 [46 (Line # 5) / 1900 (Line # 2)]]	46	<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

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	Aerotech
Signature: 	Date: 7/8/06

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

INSTALLATION CERTIFICATE		(Page 5 of 12) CF-6R
Site Address 2421 39th Ave	Permit Number 0610091	

THERMOSTATIC EXPANSION VALVE (TXV)
Procedures for field verification of thermostatic expansion valves are available in RACM, Appendix RI.

✓	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Access is provided for inspection. The procedure shall consist of visual verification that the TXV is installed on the system and installation of the specific equipment shall be verified.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			Yes is a pass	Pass	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	N/A
Outdoor Unit Make	N/A
Outdoor Unit Model	N/A
Cooling Capacity	N/A /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 - 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 -10°F)		°F