

CITY OF SACRAMENTO

Permit No: 0611774

1231 I Street, Sacramento, CA 95814

Insp Area: 3

Thos Bros: 318B5

Site Address: 5837 BOSCO WY SAC

Sub-Type: N1/2PLEX

Parcel No: 027-0231-013

Housing (Y/N): N

CONTRACTOR

OWNER

ARCHITECT

LONE WOLF CONST INC
PO BOX 661713
SACRAMENTO, CA 95866

Nature of Work: NEW 1/2 PLEX, 1023 SF DWELLING, 278 SF GARAGE, 74 SF PORCH

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 BA License Number 869141 Date 8/8/06 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.)

CITY OF SACRAMENTO
AUG 18 2006
NEIGHBORHOODS PLANNING AND DEVELOPMENT SERVICES

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.

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.

X Date 8/8/06 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 Exempt 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.

X Date 8/8/06 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.

Site Address 5837 Bosco Way Sac Ca 95824 Permit Number 0611774

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).

FENESTRATION/GLAZING:

Item	Manufacturer/Brand Name (GROUP LIKE PRODUCTS)	Product U-factor ¹ (≤ CF-1R value) ²	Product SHGC ¹ (≤ CF-1R value) ²	# of Panes	Total Quantity of Like Product (Optional)	Area Square Feet	Exterior Shading Device or Overhang	Comments/Location/Special Features
1.	Stanley French	0.520	0.50	1		20.0	N/A	North / Right
2.	SeldWen	0.360	0.31	2		16.0	Bug Screen	North / Right
3.	"	0.360	0.31	2		6.0	"	North / Right
4.	"	0.360	0.31	2		20.0	"	North / Right
5.	"	0.360	0.31	2		20.0	"	East / front
6.	"	0.360	0.31	2		20.0	"	East / front
7.	"	0.360	0.31	2		10.5	"	West / Rear
8.	"	0.360	0.31	2		16.0	"	North / Right
9.	"	0.360	0.31	2		16.0	"	North / Right
10.	SeldWen	0.360	0.31	2		20.0	Bug Screen	East / front
11.								
12.								
13.								
14.								
15.								

- ¹ Use values from a fenestration product's NFRC label. For fenestration products without an NFRC label, use the default values from Section 116 of the Energy Efficiency Standards.
- ² Installed U-factor must be less than or equal to values from CF-1R. Installed SHGC must be less than or equal to values from CF-1R, or a shading device (exterior or overhang) is installed as specified on the CF-1R. Alternatively, installed weighted average U-factors for the total fenestration area are less than or equal to values from CF-1R. If using default table SHGC values from §116 identify whether tinted or not.

I, the undersigned, verify that the fenestration/glazing listed above my signature: 1) is the actual fenestration product installed; 2) is equivalent to or has a lower U-factor and lower SHGC than that specified in the certificate of compliance (Form CF-1R) submitted for compliance with the Energy Efficiency Standards for residential buildings; and 3) the product meets or exceeds the appropriate requirements for manufactured devices (from Part 6), where applicable.

Item #s (if applicable)	Signature	Date	Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner OR Window Distributor
1-	<i>Bin Bin</i>	11-15-06	
Item #s (if applicable)	Signature	Date	Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner OR Window Distributor
Item #s (if applicable)	Signature	Date	Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner OR Window Distributor

Copies to: Building Department, HERS Rater (if applicable) Building Owner at Occupancy

0611774

ENGEL INSULATION, INC.

License #745646

460 Roseville Road • Roseville, CA 95678

(916) 786-2064

(916) 786-2088

Fax (916) 786-8147

CONTRACTING & MATERIAL SALES

DATE	JOB NAME
12-01-2006	71ST STREET SUBDIVISION
HOMEOWNER CONTRACTOR	JOB LOCATION
BRIAN BIGELOW	LOTS 1 & 2 DYLAN AVE
ADDRESS	CITY
	6 & 7 BOSCO AVE
CITY	CONTACT PERSON
	18 BOSCO & 19 DYLAN
PHONE	JOB PHONE
944-1981 FAX 944-1982	

WE PROPOSE TO FURNISH & APPLY ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE FOLLOWING:

- R-38 UNFACED FIBERGLASS BATT INSULATION INSTALLED TO ENTIRE CEILING AREA AT LIVING SPACE ONLY
- R-19 UNFACED FIBERGLASS BATT INSULATION INSTALLED TO GARAGE CEILING AREA WHERE LIVING SPACE ABOVE ONLY
- R-13 UNFACED FIBERGLASS BATT INSULATION INSTALLED TO 2X4 EXTERIOR WALL AREA AT LIVING SPACE ONLY
- R-13 UNFACED FIBERGLASS BATT INSULATION INSTALLED TO BOTH SIDES OF PARTY WALL AREA ONLY CAULK AND SEAL AS PER TITLE 24

INSTALLED PER DUPLEX.....\$3,782.00

FOR THE TOTAL SUM OF	SALES TAX INCLUDED	TERMS
AS ABOVE	YES	NET10TH

PERFORMANCE OF WORK TO BE DONE IN ACCORDANCE WITH THE BEST DEVELOPED INDUSTRY TECHNIQUES. THE COMPANY CARRIES WORKMAN'S COMPENSATION AND PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE. THIS BID IS BASED ON THE CURRENT PRICE OF LABOR AND MATERIAL. IF NOT ACCEPTED WITHIN 30 DAYS FROM DATE HEREOF, THE RIGHT IS RESERVED TO SUBMIT A NEW BID. IF THE SERVICES OF AN ATTORNEY BE EMPLOYED FOR THE ENFORCEMENT OF ANY OF THE OBLIGATIONS OF THE PURCHASER, OR THE RIGHT OF THE SELLER, EITHER BY SUIT OR OTHERWISE, PURCHASER AGREES TO PAY REASONABLE ATTORNEY FEES. ALL ORDERS ACCEPTED SUBJECT TO CLEARANCE BY OUR CREDIT DEPARTMENT AND SUBJECT TO SIGNATURE OF AN OFFICER OF THE COMPANY AT OUR DISCRETION.

NOTE: ALL ACCOUNTS 30 DAYS PAST DUE ARE SUBJECT TO A 2% (TWO PER CENT) PER MONTH LATE CHARGE.

ACCEPTED:	DATE	BY	ENGEL INSULATION, INC.
TITLE		TITLE	INSULATION DIVISION
		PRESIDENT	

NOTICE TO OWNER

"UNDER THE MECHANICS' LIEN LAW, ANY CONTRACTOR, SUBCONTRACTOR, LABORER, MATERIALMAN OR OTHER PERSON WHO HELPS TO IMPROVE YOUR PROPERTY AND IS NOT PAID FOR HIS LABOR, SERVICES OR MATERIAL HAS A RIGHT TO ENFORCE HIS CLAIM AGAINST YOUR PROPERTY.

UNDER THE LAW, YOU MAY PROTECT YOURSELF AGAINST SUCH CLAIMS BY FILING, BEFORE COMMENCING SUCH WORK OR IMPROVEMENT, AN ORIGINAL CONTRACT FOR THE WORK OF IMPROVEMENT OR A MODIFICATION THEREOF IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY WHERE THE PROPERTY IS SITUATED AND REQUIRING THAT A CONTRACTOR'S PAYMENT BOND BE RECORDED IN SUCH OFFICE. SAID BOND SHALL BE IN AN AMOUNT NOT LESS THAN FIFTY PERCENT (50%) OF THE CONTRACT PRICE AND SHALL IN ADDITION TO ANY CONDITIONS FOR THE PERFORMANCE OF THE CONTRACT, BE CONDITIONED FOR THE PAYMENT IN FULL OF THE CLAIMS OF ALL PERSONS FURNISHING LABOR, SERVICES, EQUIPMENT OR MATERIALS FOR THE WORK DESCRIBED IN SAID CONTRACT."

"CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTOR'S STATE LICENSE BOARD. ANY QUESTIONS CONCERNING THE RESPONSIBILITIES OF A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR OF THE BOARD WHOSE ADDRESS IS: CONTRACTOR'S STATE LICENSE BOARD, 1200 "N" STREET, SACRAMENTO, CALIFORNIA 95814".

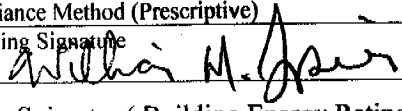
****SEE BACK FOR ADDITIONAL PROVISION****

10

000 01 06 04 210

Hot #7
0611774

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

Project Address 5837 Bosco Way Sacramento		Builder Name Champion Heat and Air
Builder Contact Ken Innocent	Telephone	Plan Number
HERS Rater William "Michael" Spier	Telephone (530) 383-1397	Sample Group Number five
Compliance Method (Prescriptive)		Climate Zone 12
Certifying Signature 	Date 03/27/2007	Sample House Number one
Firm Spierater (Building Energy Rating Service)		HERS Provider CHEERS
Street Address: Post Office Box 341		City/State/Zip: Robbins CA 95676

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 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 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:	89	
2	Fan Flow: Calculated (Nominal: <input type="checkbox"/> Cooling <input checked="" type="checkbox"/> Heating) or <input checked="" type="checkbox"/> Measured Enter Total Fan Flow in CFM:	1519	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	Pass if Leakage Percentage ≤ 6% [100 x [_____ (Line # 1) / _____ (Line # 2)]]	5.86%	<input checked="" 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.	89	
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.	89	
6	Enter Reduction in Leakage for Altered Duct System [_____ (Line # 4) Minus _____ (Line # 5)] (Only if Applicable)	0	
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% [100 x [_____ (Line # 5) / _____ Line # 2)]]	5.86%	<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)]]	5.86%	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if Leakage to Outside Percentage ≤ 10% [100 x [_____ (Line # 7) / _____ (Line # 2)]]	5.86%	<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	5.86%	<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 3 of 8)		CF-4R
Project Address 5837 Bosco Way Sacramento	Builder Name Champion Heat and Air	
Builder Contact Ken Innocent	Telephone	Plan Number
HERS Rater William "Michael" Spicer	Telephone (530) 383-1397	Sample Group Number five
Compliance Method (Prescriptive)		Climate Zone 12
Certifying Signature <i>William "Michael" Spicer</i>	Date 03/27/2007	Sample House Number one
Firm Spierater (Building Energy Rating Service)		HERS Provider CHEERS
Street Address: Post Office Box 341		City/State/Zip: Robbins CA 95676

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 R1.

<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

Indoor Unit Serial #	
Location	
Outdoor Unit Make	
Outdoor Unit Model	
Cooling Capacity	u/hr
Date of Verification	
Date of Refrigerant Gauge Calibration	(must be checked monthly)
Date of Thermocouple Calibration	(must be checked monthly)

Standard Charge Measurement (outdoor air 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 air 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"/> Yes <input type="checkbox"/> No	A copy of CF-6R (Installation Certificate) has been provided with refrigerant charge measurement documented.
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INSTALLATION CERTIFICATE

Site Address	5837 Bosco Way Sacramento 95824	Permit Number	Contractor
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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)
Split	RUUD UGPN-07NAMER	1	80%	Attic	R-6	70k	70k

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)
Split	RUUD	1	13 SEER	Attic	R-6	30000K	30000K

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	Champion Heat And Air, Inc.
Signature: <i>[Signature]</i>	Date: 3/25/07

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

INSTALLATION CERTIFICATE

(Page 4 of 12) CF-6R

Site Address 5837 Bosco Way Sacramento	Permit Number
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INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE

INSTALLER COMPLIANCE STATEMENT

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

INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:

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

DUCT LEAKAGE REDUCTION

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

NEW CONSTRUCTION:			
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values	
1	Enter Tested Leakage Flow in CFM:	89	
2	Fan Flow: Calculated (Nominal: <input checked="" type="checkbox"/> Cooling <input checked="" 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:	1,519	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	Pass if Leakage Percentage ≤ 6% for Final or ≤ 4% at Rough-in: [100 x [_____ (Line # 1) / _____ (Line # 2)]]	5.86%	<input checked="" 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.	89	
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.	89	
6	Enter Reduction in Leakage for Altered Duct System [_____ (Line # 4) Minus _____ (Line # 5)] - (Only if Applicable)	0	
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 or ≤ 4% at Rough-in [100 x [_____ (Line # 5) / _____ (Line # 2)]]	5.86%	<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)]]	5.86%	<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)]] and Verification by Smoke Test and Visual Inspection	0%	<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	Champion Heat and Air
Signature:	Date: 3/27/07

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

INSTALLATION CERTIFICATE

(Page 5 of 12) CF-6R

Site Address	5837 Bosco Way Sacramento 95824	Permit Number	Contractor
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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	
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 = Treturn, db - Tsupply, db		°F
Target Temperature Split (from Table RD3)		°F
Actual Temperature Split - Target Temperature Split (System passes if between -3°F and +3°F or, upon remeasurement, if between -3°F and -100°F)		°F

INSTALLATION CERTIFICATE		(Page 6 of 12) CF-6R
Site Address	5837 Bosco Way Sacramento 95824	Permit Number Contractor

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

Note: The system should be installed and charged in accordance with the manufacturer's specifications and installer verification shall be documented on CF-6R before starting this procedure. If outdoor air dry-bulb is 55 °F or above, installer shall use the Standard Charge Measure Procedure:

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

Actual liquid line length:		ft
Manufacturer's Standard liquid line length:		ft
Difference (Actual - Standard):		ft
Manufacturer's correction (ounces per foot) _____ x difference in length = _____ ounces (+ = add) (- = remove)		

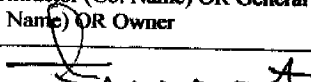
Measured Airflow Method for Adequate Airflow Verification available in RACM, Appendix RD2.6

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

Alternate Charge Measurement Summary:

System shall pass both refrigerant charge and adequate airflow calculation criteria from the same measurements. If corrective actions were taken, both criteria must be remeasured and recalculated.

<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	System Passes
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Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner	Champion Heat And Air, Inc.
Signature: 	Date: 3/25/07

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