

CITY OF SACRAMENTO

New City Hall, 915 I St., 3rd Floor, Sacramento, CA 95814

Permit No: **0506913**

Insp Area: **3**

Thos Bros: **317F1**

Site Address: **2927 35TH ST SAC**

Parcel No: **013-0143-033**

LOFT #6

PAID
CITY OF SACRAMENTO
Sub-Type: **NSFR**
Housing (Y/N): **N**
SEP 27 2006

CONTRACTOR
OWNER BUILDER

OWNER
4TH AVENUE LOFTS AND DEVELOPMENT
1221 18TH ST
SACRAMENTO, CA 95814

ARCHITECT
RON VRILAKAS
1221 18TH ST
SACRAMENTO CA 95814

Nature of Work: LOFT #6 - 1147 SF & 19 SF COVERED PORCH. 198 SF GARAGE.

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 _____ License Number 0 Date _____ Contractor 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: See attached
Date 9/27/06 Owner Signature [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.

Date 9/27/06 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 _____ 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 9/27/06 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.

0506913

TITLE-24 COVER SHEET

October 19, 2007

PROJECT:

4th Avenue Lofts
2927 35th Street
Sacramento, CA 95817

CONTRACTOR:

John F. Otto, Inc.
PO Box 2858
Sacramento, CA 95812

Permit # 0506913

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

Project Title HVAC CHANGEOUT	Date 07/26/07	Building Permit # 0506913
Project Address 2927 35th St Sacramento CA 95817		
Documentation Author Jennifer Lowe	Telephone (916) 609-2665	Plan Check / Date
Compliance Method (Prescriptive)	Climate Zone 12	Field Check / Date
Enforcement Agency Use Only		

Alternative Component Package Method: (check one) C D D (Alternative)
 • Package C and Package D choices require HERS rater field verification and/or diagnostic testing (see CF-1R page 3)
 • For Package D Alternative see Appendix B Table 151-C Footnotes 8-14 in the Residential Compliance Manual (RCM)

GENERAL INFORMATION

Total Conditioned Floor Area (CFA) _____ 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 _____ ft² (from WS-4R)
- Maximum Allowed West Facing Fenestration Area _____ ft² (from WS-4R)
- Number of Stories: 2 Number of Dwelling Units: 10
- Floor Construction Type: _____ Slab/Raised Floor (circle one or both)
- Front Orientation: _____ North / South / East / West : All Orientations (input front orientation in degrees from True North and circle one).

RADIANT BARRIER (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.

CERTIFICATE OF COMPLIANCE: RESIDENTIAL (Page 2 of 5) CF-1R

<i>Project Title</i>	<i>Date</i>
HVAC CHANGEOUT	07/26/07

FENESTRATION PRODUCTS - U-FACTOR AND SHGC

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

Fenestration #/Type/Pos. (Front, Left, Rear, Right, Skylight)	Orien-tation, N, S, E, W ¹	Area (ft ²)	U-factor ²	U-factor Source ³	SHGC ⁴	SHGC Source ⁵	Exterior Shading/Overhangs ^{6,7} ✓ box if WS-3R is included
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>
							<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)
FURNACE	80.2	Attic	R6	SETBACK	Package

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)
a/c	13	Attic	R6	SETBACK	Package

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

<i>Project Title</i> HVAC CHANGEOUT	<i>Date</i> 07/26/07
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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 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: HVAC CHANGEOUT Date: 07/26/07

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 type="checkbox"/>		Y		Thermostatic expansion valve (TXV) Pkg Unit - TXV Exempt
<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 HVAC CHANGEOUT	Date 07/26/07		

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: SAME	Name: Jennifer Lowe
Title/Firm:	Title/Firm: Clarke & Rush Mechanical, Inc.
Address:	Address: 4411 Auburn Blvd.
	Sacramento, CA 95841
Telephone:	Telephone: (916) 609-2665
License #:	License #: (if applicable) 608005
	<i>Jennifer Lowe</i>
	07/26/07
(signature) (date)	(signature) (date)

Enforcement Agency

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

(Page 3 of 12) CF-6R

Site Address 2927 35th St	Permit Number 0506913
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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)
FURNACE	York	1	80.2	Attic	R6		
	D2NP024N03606A						

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)
a/c	same	1	13	Attic	R6		2 TON

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	Clarke & Rush Mechanical, Inc.
Signature: <i>Jennifer Lowe</i>	Date: 07/26/07

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

INSTALLATION CERTIFICATE

(Page 4 of 12) CF-6R

Site Address
2927 35th St

Permit Number
0506913

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:

		Measured Values	
	Duct Pressurization Test Results (CFM @ 25 Pa)		
1	Enter Tested Leakage Flow in CFM:		
2	Fan Flow: Calculated (Nominal: <input checked="" type="checkbox"/> Cooling <input type="checkbox"/> Heating) or <input checked="" type="checkbox"/> Measured If Fan Flow is Calculated as 400 cfm/ton x number of tons or as 21.7 cfm/(kBtu/hr) x Heating Capacity in Thousands of Btu/hr, enter total calculated or measured fan flow in CFM here:	800	<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.	38	
6	Enter Reduction in Leakage for Altered Duct System [(Line # 4) Minus (Line # 5)] - (Only if Applicable)		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
7	Enter Tested Leakage Flow in CFM to Outside (Only if Applicable)		
8	Entire New Duct System - Pass if Leakage Percentage < 6% for Final. [100 x [(Line # 5) / (Line # 2)]]	4.8	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

TEST OR VERIFICATION STANDARDS: For Altered Duct System and/or HVAC Equipment Change-Out Use one of the following four Test or Verification Standards for compliance:

9	Pass if Leakage Percentage < 15% [100 x [(Line # 5) / (Line # 2)]]		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if Leakage to Outside Percentage < 10% [100 x [(Line # 7) / (Line # 2)]]		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11	Pass if Leakage Reduction Percentage > 60% [100 x [(Line # 6) / (Line # 4)]] and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Pass if One of Lines # 9 through # 12 pass

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	Clarke & Rush Mechanical, Inc.
Signature: <i>Jennifer Lowe</i>	Date: 07/26/07

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

Site Address **2927 35th St**

Permit Number **0506913**

THERMOSTATIC EXPANSION VALVE (TXV)

Pkg Unit - TXV Exempt

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

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

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	n/a	
Outdoor Unit Model		
Cooling Capacity		Btu/hr
Date of Verification		
Date of Refrigerant Gauge Calibration		(must be checked monthly)
Date of Thermocouple Calibration		(must be checked monthly)

Standard Charge Measurement Procedure (outdoor air dry-bulb 55°F and above):

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

Note: The system should be installed and charged in accordance with the manufacturer's specifications before starting this procedure.

Measured Temperatures

Supply (evaporator leaving) air dry-bulb temperature (Tsupply, db)		°F
Return (evaporator entering) air dry-bulb temperature (Treturn, db)		°F
Return (evaporator entering) air wet-bulb temperature (Treturn, wb)		°F
Evaporator saturation temperature (Tevaporator, sat)		°F
Suction line temperature (Tsuction, db)		°F
Condenser (entering) air dry-bulb temperature (Tcondenser, db)		°F

Superheat Charge Method Calculations for Refrigerant Charge

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

Temperature Split Method Calculations for Adequate Airflow

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

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

Site Address **2927 35th St**

Permit Number **0506913**

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) <u>n/a</u> 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) <u>n/a</u> (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	Clarke & Rush Mechanical, Inc.
Signature: <i>Jennifer Lowe</i>	Date: 07/26/07

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

INSTALLATION CERTIFICATE

(Page 8 of 12) CF-6R

Site Address **2927 35th St**

Permit Number **0506913**

FAN WATT DRAW

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

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

ADEQUATE AIRFLOW VERIFICATION

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

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

MAXIMUM COOLING CAPACITY

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

1	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Adequate airflow verified (see adequate airflow credit)		
2	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Refrigerant charge or TXV		
3	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Duct leakage reduction credit verified		
4	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Cooling capacities of installed systems are ≤ to maximum cooling capacity indicated on the Performance's CF-1R and RF-3.		
5	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If the cooling capacities of installed systems are > than maximum cooling capacity in the CF-1R, then the electrical input for the installed systems must be ≤ to electrical input in the CF-1R.	<input type="checkbox"/>	<input type="checkbox"/>
Yes to 1, 2, and 3; and Yes to either 4 or 5 is a pass					Pass	Fail

HIGH EER AIR CONDITIONER

Procedures for verification are available in RACM, Appendix RI.

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

Installing Subcontractor (Co. Name) OR General Contractor (Co. Name) OR Owner

Clarke & Rush Mechanical, Inc.

Signature: *Jennifer Lowe*

Date: **07/26/07**

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

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8) CF-4R		
Project Address 2927 35th St	Builder or Installer Name Clarke & Rush Mechanical, Inc.	
Builder or Installer Contact Jennifer Lowe	Telephone (916) 609-2665	Plan/Permit (Additions or Alterations) Number 0506913
HERS Rater Steve Vasa - CC2004262	Telephone 916-682-8730	Sample Group Number 6 of 7
Compliance Method (Prescriptive)	Climate Zone 12	
Certifying Signature <i>S. Vasa</i>	Date 07/26/07	Sample House Number 6
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 checked="" type="checkbox"/> Measured Enter Total Fan Flow in CFM:		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
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.		
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% [100 x [_____ (Line # 5) / _____ Line # 2)]]		<input type="checkbox"/> Pass <input type="checkbox"/> Fail

TEST OR VERIFICATION STANDARDS: For Altered Duct System and/or HVAC Equipment Change-Out
Use one of the following four Test or Verification Standards for compliance:

9	Pass if Leakage Percentage < 15% [100 x [_____ (Line # 5) / _____ (Line # 2)]]		<input type="checkbox"/> Pass <input type="checkbox"/> Fai
10	Pass if Leakage to Outside Percentage < 10% [100 x [_____ (Line # 7) / _____ (Line # 2)]]		<input type="checkbox"/> Pass <input type="checkbox"/> Fai
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"/> Fai
	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fai
	Pass if One of Lines # 9 through # 12 pass		<input type="checkbox"/> Pass <input type="checkbox"/> Fai

system passes as a sample

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

Project Address 2927 35th St		Builder Name Clarke & Rush Mechanical, Inc.	
Builder Contact Jennifer Lowe		Telephone (916) 609-2665	Plan Number
HERS Rater Steve Vasa - CC2004262		Telephone 916-682-8730	Sample Group Number 6 of 7
Compliance Method (Prescriptive)		Climate Zone 12	
Certifying Signature		Date 07/26/07	Sample House Number 6
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). **Pkg Unit - TXV Exempt**

THERMOSTATIC EXPANSION VALVE (TXV)

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

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

Standard Charge Measurement (outdoor air dry-bulb 55°F or 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.

Yes No A copy of CF-6R (Installation Certificate) has been provided with refrigerant charge measurement documented.

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

CF-4R

2927 35th St. - Sacramento, CA 95817		CLARKE & RUSH MECHANICAL / 608005	
<i>Project Address</i>		<i>Contractor Name / License No.</i>	
CLARKE & RUSH MECHANICAL	916 609 2665	0506913	
<i>Contractor Contact</i>	<i>Telephone</i>	<i>Permit Number</i>	
Steven Vasa	916-283-5099	72522	
<i>HERS Rater</i>	<i>Telephone</i>	<i>Sample Group Number</i>	
<i>S. Vasa</i>	July 26, 2007	CC14-1798413102	
<i>HERS Rater</i>	<i>Date</i>	<i>Certificate Number</i>	
Capitol Energy Consultants		HERS Provider: CalCERTS, Inc.	
<i>Firm:</i>		<i>HERS Provider:</i>	
1709 Adonis Way		Sacramento / CA / 95864	
<i>Street Address:</i>		<i>City/State/Zip:</i>	

Copies to: Homeowner, HERS Provider and Building Department

This CF-4R has been registered with the CalCERTS® registry in accordance with the Title 24 & Title 20 of the CCR. CalCERTS® is an approved HERS provider by the California Energy Commission.

HERS RATER COMPLIANCE STATEMENT

The house was Tested Approved as part of sample testing, but was not tested.

As the HERS rater providing diagnostic testing and field verification, I certify that the house identified on this form complies with the diagnostic tested compliance requirements as checked on this form. The HERS rater must check and verify that the new distribution system is fully ducted and correct tape is used before a CF-4R may be released on every tested building. The HERS rater must not release the CF-4R until a properly completed and signed CF-6R has been received for the sample and tested buildings.

- The installer has provided a copy of the CF-6R (Installation Certificate).
- New Distribution system is fully ducted (i.e., does not use building cavities as plenums or platform returns in lieu of ducts).
- New systems where cloth backed, rubber adhesive duct tape is installed, mastic and drawbands are used in combination with cloth backed, rubber adhesive duct tape to seal leaks at duct connections.

MINIMUM REQUIREMENTS FOR DUCT LEAKAGE REDUCTION COMPLIANCE CREDIT:

NEW CONSTRUCTION			
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values	
1	Enter Tested Leakage Flow in CFM:	N/A	
2	Fan Flow: Calculated (Nominal <input type="radio"/> Cooling <input type="radio"/> Heating) or <input type="radio"/> Measured Enter Total Fan Flow in CFM:	Not Tested	
3	Pass if Leakage Percentage < 6% [100 x (Line 1 / Line 2)]:	N/A	N/A
ALTERATIONS: Duct System and/ or HVAC Equipment Change-Out			
4	Enter Tested Leakage Flow in CFM from CF-6R: Pre-Test of Existing Duct System Prior to Duct System Alteration and/or Equipment Change-Out.	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	Entire New Duct System - Pass if Leakage Percentage < 6% [100 x (Line 5 / Line 2)]:	Not Tested	<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)]:	Not Tested	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if Leakage to Outside Percentage <= 10% [100 x (Line 7 / Line 2)]:	Not Tested	<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	Not Tested	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12	Pass if Sealing of all Accessible Leaks and Verification by Smoke Test and Visual Inspection		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
	Pass if One of Lines # 9 through # 12 pass		<input type="checkbox"/> Pass <input type="checkbox"/> Fail

TITLE 24 REPORT

Title 24 Report for:

4th Avenue Lofts
4th Ave & 35th Street
Sacramento, CA

LOFTS #6

Project Designer:

Vrilakas Architects
1221 M Street
Sacramento, CA

Report Prepared By:

Ben Sprinkle
Encon Energy Conservation Company, Inc.
3845 Atherton Road, Suite #5
Rocklin, CA 95765
(916) 435-1140

Job Number:

055056.00

Date:

4/25/2005

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2001 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC (415) 883-5900.

TABLE OF CONTENTS

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Certificate of Compliance: Residential

(Part 1 of 2) **CF-1R**

4th Avenue Lofts
Project Title

4/25/2005
Date

4th Ave & 35th Street Sacramento
Project Address

Encon Energy Conservation Company, Inc. (916) 435-1140
Documentation Author Telephone

Computer Performance

12
Climate Zone

Compliance Method (Package or Computer)

Building Permit #

Plan Check / Date

Field Check / Date

Enforcement Agency Use Only

GENERAL INFORMATION

Total Conditioned Floor Area: **1,280 ft²**

Average Ceiling Height: **8.0 ft**

Total Conditioned Slab Area: **760 ft²**

Building Type:
(check one or more)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Single Family Detached | <input type="checkbox"/> Addition |
| <input type="checkbox"/> Single Family Attached | <input type="checkbox"/> Existing Building |
| <input type="checkbox"/> Multi-Family | <input type="checkbox"/> Existing Plus Addition |

Front Orientation: **All Four Orientations** Floor Construction Type: Slab Floor

Number of Dwelling Units: **1.00**

Number of Stories: **2**

Raised Floor

BUILDING SHELL INSULATION

Component Type	Frame Type	Const. Assembly U-Value	Location/Comments (attic, garage, typical, etc.)
Slab On Grade	n/a	0.756	Covered Slab w/R-0.0 Perimeter Insulation
R-13 Wall (W.13.2x4.16)	Wood	0.088	Exterior Wall
Solid Wood Door	None	0.387	Exterior Door
R-19 Roof (R.19.2x8.16)	Wood	0.051	Exterior Roof

FENESTRATION

Shading Devices

Type	Orientation	Area (SF)	U-Factor	Fenestration SHGC	Exterior Shading	Overhang Yes / No	Side Fins Yes / No
Front		88.0	0.57	0.55	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Rear		117.0	0.57	0.55	Bug Screen	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
						<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

Run Initiation Time: 04/25/05 09:30:25 Run Code: 1114446625

Certificate of Compliance: Residential

(Part 2 of 2) CF-1R

4th Avenue Lofts
Project Title

4/25/2005
Date

HVAC SYSTEMS Note: Input Hydronic or Combined Hydronic data under Water Heating Systems, except Design Heating Load.

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution Type and Location (ducts, attic, etc.)	Duct or Piping R-Value	Thermostat Type	Location / Comments
Central Furnace	80% AFUE	Ducts in Attic	4.2	Setback	HVAC System

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Packaged Air Conditioner	12.0 SEER	Ducts in Attic	4.2	Setback	HVAC System

WATER HEATING SYSTEMS

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated ¹ Input Btu/hr	Tank Cap. (gal)	Energy Fact. ¹ or Recovery Efficiency	Standby Loss (%) ¹	External Tank Insul. R-Value
A.O. Smith Sureshot Direct Vent GDVS40	Small Gas	Standard	1	36	40	0.62	n/a	n/a

¹ For small gas storage (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 and Standby Loss. For instantaneous gas water heaters, list Rated Input and Recovery Efficiency.

REMARKS

COMPLIANCE STATEMENT

This certificate of compliance lists the building features and performance 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 recognize that compliance using duct sealing and TXV's requires installer testing and certification and field verification by an approved HERS rater.

Designer or Owner (per Business & Professions Code)

Name: _____
 Title/Firm: Vrilakas Architects
 Address: 1221 M Street
Sacramento, CA
 Telephone: _____
 Lic. #: _____

Documentation Author

Name: Ben Sprinkle
 Title/Firm: Encon Energy Conservation Company, Inc.
 Address: 3845 Atherton Road, Suite #5
Rocklin, CA 95765
 Telephone: (916) 435-1140

(signature) _____ (date) _____ (signature) _____ (date) _____

Enforcement Agency

Name: _____
 Title/Firm: _____
 Address: _____
 Telephone: _____

(signature/stamp) _____ (date) _____

Mandatory Measures Checklist: Residential (Page 1 of 2) MF-1R

NOTE: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

DESCRIPTION <small>Instructions: Check or initial applicable boxes or enter N/A if not applicable.</small>	DESIGNER	ENFORCEMENT
Building Envelope Measures		
<input checked="" type="checkbox"/> *§ 150(a): Minimum R-19 ceiling insulation.		
<input type="checkbox"/> § 150(b): Loose fill insulation manufacturer's labeled R-Value.		
<input checked="" type="checkbox"/> *§ 150(c): Minimum R-13 wall insulation in wood framed walls or equivalent U-value in metal frame walls (does not apply to exterior mass walls).		
<input type="checkbox"/> *§ 150(d): Minimum R-13 raised floor insulation in framed floors or equivalent.		
<input type="checkbox"/> § 150(l): Slab edge insulation - water absorption rate no greater than 0.3%, water vapor transmission rate no greater than 2.0 perm/inch.		
<input checked="" type="checkbox"/> § 118: Insulation specified or installed meets insulation quality standards. Indicate type and form.		
<input checked="" type="checkbox"/> § 118-17: Fenestration Products, Exterior Doors and Infiltration/Exfiltration Controls <ol style="list-style-type: none"> 1. Doors and windows between conditioned and unconditioned spaces designed to limit air leakage. 2. Fenestration products (except field fabricated) have label with certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration certification. 3. Exterior doors and windows weatherstripped; all joints and penetrations caulked and sealed. 		
<input type="checkbox"/> § 150(g): Vapor barriers mandatory in Climate Zones 14 and 16 only.		
<input type="checkbox"/> § 150(f): Special infiltration barrier installed to comply with Section 151 meets Commission quality standards.		
<input type="checkbox"/> § 150(e): Installation of Fireplaces, Decorative Gas Appliances and Gas Logs. <ol style="list-style-type: none"> 1. Masonry and factory-built fireplaces have: <ol style="list-style-type: none"> a. Closeable metal or glass door b. Outside air intake with damper and control c. Flue damper and control 2. No continuous burning gas pilots allowed. 		
Space Conditioning, Water Heating and Plumbing System Measures		
<input checked="" type="checkbox"/> § 110-13: HVAC equipment, water heaters, showerheads and faucets certified by the Commission.		
<input checked="" type="checkbox"/> § 150(h): Heating and/or cooling loads calculated in accordance with ASHRAE, SMACNA or ACCA.		
<input checked="" type="checkbox"/> § 150(i): Setback thermostat on all applicable heating and/or cooling systems.		
<input checked="" type="checkbox"/> § 150(j): Pipe and Tank Insulation <ol style="list-style-type: none"> 1. Storage gas water heaters rated with an Energy Factor less than 0.58 must be externally wrapped with insulation having an installed thermal resistance of R-12 or greater. 2. First 5 feet of pipes closest to water heater tank, non-recirculating systems, insulated (R-4 or greater) 3. Back-up tanks for solar system, unfired storage tanks, or other indirect hot water tanks have R-12 external insulation or R-16 combined internal/external insulation. 4. All buried or exposed piping insulated in recirculating sections of hot water systems. 5. Cooling system piping below 55 degrees F. insulated. 6. Piping insulating between heating source and indirect hot water tank. 		

Mandatory Measures Checklist: Residential (Page 2 of 2) MF-1R

NOTE: Lowrise residential buildings subject to the Standards must contain these measures regardless of the compliance approach used. Items marked with an asterisk (*) may be superseded by more stringent compliance requirements listed on the Certificate of Compliance. When this checklist is incorporated into the permit documents, the features noted shall be considered by all parties as minimum component performance specifications for the mandatory measures whether they are shown elsewhere in the documents or on this checklist only.

DESCRIPTION <small>Instructions: Check or Initial applicable boxes or enter N/A if not applicable.</small>	DESIGNER	ENFORCEMENT
Space Conditioning, Water Heating and Plumbing System Measures: (continued)		
<input checked="" type="checkbox"/> *§ 150(m): Ducts and Fans 1. All ducts and plenums installed, sealed and insulated to meet the requirements of the 1998 CMC Sections 601, 603, 604 and Standard 6-3; ducts insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape, aerosol sealant, or other duct-closure system that meets the applicable requirements of UL181, UL181A, or UL181B. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used. Building cavities shall not be used for conveying conditioned air. Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and drawbands. 2. Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts. 3. Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such a tape is used in combination with mastic and drawbands. 4. Exhaust fan systems have back draft or automatic dampers. 5. Gravity ventilation systems serving conditioned space have either automatic or readily accessible, manually operated dampers. 6. Protection of Insulation. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind but not limited to the following: Insulation exposed to weather shall be suitable for outdoor service e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.		
<input type="checkbox"/> § 114: Pool and Spa Heating Systems and Equipment 1. Certified with 78% thermal efficiency, on-off switch, weatherproof operating instructions, no electric resistance heating, and no pilot. 2. System is installed with at least 36" of pipe between filter and heater for future solar, cover for outdoor pools or spas. a. At least 36" of pipe between filter and heater for future solar heating. b. Cover for outdoor pools or outdoor spas. 3. Pool system has directional inlets and a circulation pump time switch.		
<input checked="" type="checkbox"/> § 115: Gas fired central furnaces, pool heaters, spa heaters or household cooking appliances have no continuously burning pilot light. (Exception: Non-electrical cooking appliances with pilot < 150 Btu/hr)		
<input type="checkbox"/> § 118 (f): Cool Roof material meet specified criteria		
Lighting Measures		
<input checked="" type="checkbox"/> § 150(k)1: Luminaires for general lighting in kitchens shall have lamps with an efficacy 40 lumens/watt or greater for general lighting in kitchens. This general lighting shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen.		
<input checked="" type="checkbox"/> § 150(k)2: Rooms with a shower or bathtub must have either at least one luminaire with lamps with an efficacy of 40 lumens/watt or greater switched at the entrance to the room or one of the alternative to this requirement allowed in Section 150(k)2.; and recessed ceiling fixtures are IC (insulation cover) approved.		

Computer Method Summary

(Part 1 of 3) C-2R

4th Avenue Lofts

4/25/2005

Project Title
4th Ave & 35th Street Sacramento

Project Address

Encon Energy Conservation Company, Inc.

(916) 435-1140

Documentation Author

Telephone

Computer Performance

12

Compliance Method (Package or Computer)

Climate Zone

Date

Building Permit #

Plan Check/Date

Field Check/Date

Source Energy Use (kBtu/sf-yr)	Standard Design	Facing North Margin	Facing East Margin	Facing South Margin	Facing West Margin
Space Heating	19.42	22.76 -3.34	23.04 -3.61	23.33 -3.90	22.99 -3.56
Space Cooling	10.10	4.83 5.27	8.53 1.57	4.36 5.73	7.69 2.41
Domestic Hot Water	17.64	14.66 2.98	14.66 2.98	14.66 2.98	14.66 2.98
Totals	47.16	42.25 4.91	46.23 0.94	42.35 4.82	45.33 1.83
Percent better than Standard:		10.4%	2.0%	10.2%	3.9%

BUILDING COMPLIES

This C-2R describes the front facing North occurrence of a four cardinal orientation analysis. Features are identical in all orientations.

Total Conditioned Floor Area: 1,280 ft²
 Building Type: Single Fam Detached Floor Construction Type: Raised Floor Slab Floor
 Building Front Orientation: All Four Orientations Total Fenestration Area: 16.0%
 Number of Dwelling Units: 1.00 Total Conditioned Volume: 10,240 ft³
 Number of Stories: 2 Total Conditioned Slab Area: 760 ft²

BUILDING ZONE INFORMATION

Zone Name	Floor Area	Volume	# of Units	Zone Type	Thermostat Type	Vent Hgt.	Vent Area
HVAC System	1,280	10,240	1.00	Sleeping	SleepingStat	8	n/a

OPAQUE SURFACES

Type	Area	U-Val.	Act. Azm.	Tilt	Solar Gains Y/N	Form 3 Reference	Location / Comments
Wall	123	0.088	0	90	X	R-13 Wall (W 13.2x4.16)	1st Floor
Door	21	0.387	0	90	X	Solid Wood Door	1st Floor
Wall	342	0.088	90	90	X	R-13 Wall (W 13.2x4.16)	1st Floor
Wall	103	0.088	180	90	X	R-13 Wall (W 13.2x4.16)	1st Floor
Wall	342	0.088	270	90	X	R-13 Wall (W 13.2x4.16)	1st Floor
Wall	128	0.088	0	90	X	R-13 Wall (W 13.2x4.16)	2nd Floor
Wall	342	0.088	90	90	X	R-13 Wall (W 13.2x4.16)	2nd Floor
Wall	140	0.088	180	90	X	R-13 Wall (W 13.2x4.16)	2nd Floor
Wall	342	0.088	270	90	X	R-13 Wall (W 13.2x4.16)	2nd Floor
Roof	760	0.051	0	0	X	R-19 Roof (R 19.2x8.16)	2nd Floor

Run Initiation Time: 04/25/05 09:30:25

Run Code: 1114446625

3.1 By EnergySoft

User Number: 3037A

055056.00

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4th Avenue Lofts

4/25/2005

Project Title

Date

THERMAL MASS FOR HIGH MASS DESIGN

Type	Area (sf)	Thick. (in.)	Heat Cap.	Cond.	Form 3 Reference	Inside R-Val.	Location Comments

PERIMETER LOSSES

Type	Length	F2 Factor	Insulation R-Val.	Depth	Location / Comments
Slab Perimeter	120	0.76	0.0	0	1st Floor

HVAC SYSTEMS

Heating Equipment Type (furnace, heat pump, etc.)	Minimum Efficiency (AFUE/HSPF)	Distribution and Location (ducts/attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Central Furnace	80% AFUE	Ducts in Attic	4.2	Setback	HVAC System

Hydronic Piping System Name	Pipe Length	Pipe Diameter	Insul. Thick.

Cooling Equipment Type (air conditioner, heat pump, evap. cooling)	Minimum Efficiency (SEER)	Duct Location (attic, etc.)	Duct R-Value	Thermostat Type	Location / Comments
Packaged Air Conditioner	12.0 SEER	Ducts in Attic	4.2	Setback	HVAC System

WATER HEATING SYSTEMS

Water Heater System Name	Water Heater Type	Distribution Type	# in Syst.	Rated ¹ Input (Btu/hr)	Tank Cap. (gal)	Energy Fact. ¹ or Recovery Efficiency	Standby ¹ Loss (%)	Tank Insul. R-Value Ext.
A.O. Smith Sureshot Direct Vent GDVS40	Small Gas	Standard	1	36	40	0.62	n/a	n/a

¹ For small gas storage (rated input <= 75000 Btu/hr), electric resistance and heat pump water heaters, list energy factor.
 For large gas storage water heaters (rated input > 75000 Btu/hr), list Rated Input, Recovery Efficiency and Standby Loss.
 For instantaneous gas water heaters, list Rated Input, and Recovery Efficiency.

REMARKS

