

CITY OF SACRAMENTO  
1231 I Street, Sacramento, CA 95814

Permit No: 0609792  
Insp Area: 3  
Thos Bros: 317D1  
Sub-Type: RES  
Housing (Y/N): N  
**PAID**  
CITY OF SACRAMENTO  
JUL 03 2006  
NEW CITY HALL ARCHITECT

Site Address: 2273 8TH AV SAC  
Parcel No: 013-0181-029

CONTRACTOR  
CLARKE & RUSH MECH  
4411 AUBURN BL  
SACRAMENTO CA 95841


OWNER  
WATSON ARTHUR R & FRANCES B  
2273 8TH AV  
SACRAMENTO, CA 95818

Nature of Work: PAPERLESS, SPLITSYSTEMHVACCHANGEOUT-SMOKEDETECTORSAREREQ'DPER200 CBC-COMPLIANCE  
DOCUMENTS ARE DUE  
AT FINAL

**CONSTRUCTION LENDING AGENCY:** I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name \_\_\_\_\_ Lender's Address \_\_\_\_\_

**LICENSED CONTRACTORS DECLARATION:** I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect

License Class C-20 License Number 608005 Date 6/07 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: \_\_\_\_\_

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.


Date \_\_\_\_\_ Applicant/Agent 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.

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

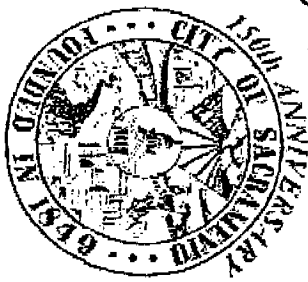
Carrier ZENITH INS CO Policy Number Z066385802 Exp Date 10/01/2006

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

Date 7/3/06 Applicant 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.**

10741201



CITY OF SACRAMENTO  
DEVELOPMENT SERVICES DIVISION  
FAXED PERMIT APPLICATION (certain restrictions apply)

Fax # 916-264-1901

Faxed request must be received in this office by 3:00 p.m. to be processed the following work day.  
Note: Contractors must have a current certificate of Worker's Compensation Insurance.

Note: Work started before a Building Permit is issued will be subject to a fine

DATE: 6/28/06

0609792

3

RESIDENTIAL • APARTMENTS (4+ units per building) • COMMERCIAL (limited)  
IN ORDER TO PROCESS THIS REQUEST, ALL THE FOLLOWING INFORMATION MUST BE PROVIDED:

JOB ADDRESS: 2273 8th Ave  
CONTACT PERSON: MARTHA BERGES

PROPERTY OWNER: ALTHA WATSON  
CONTRACTOR: CLARKE + BUSU

Address: 2273 8th Ave  
Address: 4411 Auburn Blvd

City/State/Zip: SAC, CA 95818  
City/State/Zip: SAC, CA 95841

Phone: (916) 448-6747  
Phone: (916) 609-2665

UNIT # \_\_\_\_\_ CONTRACT PRICE \$ 4118  
FAX: (916) 609-2627

License # 608005

NATURE OF REQUEST: Indicate from the selections below & provide details under description of work.

<ul style="list-style-type: none"> <li>• REEROOF (excluding tile)</li> <li>• TEAR-OUT</li> <li>• RSHIET</li> <li>• HOUSE • GARAGE</li> </ul>	<ul style="list-style-type: none"> <li>• HVAC INSTALLATIONS (residential ONLY)</li> <li>• CHANGE-OUT • NEW</li> <li>• Heat Pump</li> <li>• Package</li> <li>• Split system</li> <li>• Roof mount</li> <li>• Cut-in</li> <li>• Heat pump or elect. unit to gas.</li> <li>• Wall furnace</li> <li>• Other (describe below)</li> </ul>	<ul style="list-style-type: none"> <li>• WATER HEATER (residential ONLY)</li> <li>• GAS • ELECTRIC</li> <li>• Change-out</li> <li>• Electric to Gas</li> <li>• Relocate</li> <li>• New</li> </ul>	<ul style="list-style-type: none"> <li>• MINOR ELECTRIC and/or MINOR PLUMBING (residential ONLY)</li> <li>• Electric Service Change # amps</li> <li>• New electric circuits</li> <li>• Re-wire</li> <li>• Water Service Replacement</li> <li>• Sewer Service Replacement</li> <li>• Gas Line Replacement</li> <li>• Re-plumb</li> <li>• Water</li> <li>• Waste</li> </ul>	<ul style="list-style-type: none"> <li>• PUBLIC UTILITIES SAFETY INSPECTION* (Residential and single apartment units ONLY)</li> <li>• SMUD</li> <li>• PGE</li> </ul>
----------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------

USE EXTENSIVE FURNACE + OVER SYSTEM - ADD  
A/C CONDENSER CONDENSER + COIL - 2.5 IN CONDENSER A/C

fastpermit.com [rev online 3/16/00]

# ACORD CERTIFICATE OF LIABILITY INSURANCE

CLAR&RU-01 FOLI

**PRODUCER**  
 Acordia of California Insurance Services, Inc.  
 CA DOI LIC #0362276  
 11017 Cobblestone Drive, Suite 100  
 Rancho Cordova, CA 95670

(916) 231-1741

DATE (MM/DD/YYYY)  
6/2/2006

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

**INSURED**  
 Clarke & Rush Mechanical Inc., Dba Berkan & Clark  
 Heating & Air  
 4411 Auburn Blvd.  
 Sacramento, CA 95841

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A: Lexington Insurance Company	
INSURER B: Transcontinental Insurance Company	
INSURER C: Zenith Insurance Company	
INSURER D:	
INSURER E:	

### COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADDL LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR	8762042	6/1/2006	6/1/2007	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000 MED EXP (Any one person) \$ PERSONAL & ADY INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJ. <input type="checkbox"/> LOC				
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	C2077566140	6/1/2006	6/1/2007	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				
	EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$ EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below OTHER	Z066385802	10/1/2005	10/1/2006	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-LER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

Evidence of Insurance

### CERTIFICATE HOLDER

Clarke & Rush Mechanical, Inc.,  
 Dba Berkan & Clark Heating & Air  
 4411 Auburn Blvd.  
 Sacramento, CA 95841.

### CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

*Tom F. Higgins*

© ACORD CORPORATION 1988

ACORD 25 (2001/08)

CERTIFICATE OF FIELD VERIFICATION & DIAGNOSTIC TESTING (Page 1 of 8) CF-4R	
Project Address 2273 8th Avenue	Builder Name
Builder Contact [Redacted]	Telephone [Redacted]
HERS Rater Home [Redacted]	Telephone 768-3200
Compliance Method (Prescriptive)	Sample Group Number 1
Certifying Signature (Electronically signed) [Signature]	Date 11/18/08
Firm Enclawco Corp	Climate Zone 12
Street Address 250 [Redacted]	Sample House Number 1579
	HERS Provider CBPCA
	City/State/Zip Culverton CA 92231

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

- The installer has provided a copy of CR-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 R C4.3.

#### Duct Diagnostic Leakage Testing Results

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 Enter Total Fan Flow in CFM:	1000	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
3	Pass if Leakage Percentage $\leq 6\%$ $[100 \times \frac{\text{Line \# 1}}{\text{Line \# 2}}]$		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
<b>ALTERATIONS: Duct System and/or HVAC Equipment Change-Out</b>			
4	Enter Tested Leakage Flow in CFM from CR-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.	102	
6	Enter Reduction in Leakage for Altered Duct System $[\text{Line \# 4}]$ Minus $[\text{Line \# 5}]$ (Only if Applicable)		
7	Enter Tested Leakage Flow in CFM to Outside (Only if Applicable)		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
8	Enter New Duct System - Pass if Leakage Percentage $\leq 6\%$ $[100 \times \frac{\text{Line \# 5}}{\text{Line \# 2}}]$		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
<b>TEST OR VERIFICATION STANDARDS: For Altered Duct System and/or HVAC Equipment Change-Out</b>			
Use one of the following four Test or Verification Standards for compliance:			
9	Pass if Leakage Percentage $\leq 15\%$ $[100 \times \frac{\text{Line \# 5}}{\text{Line \# 2}}]$	10.2	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10	Pass if Leakage to Outside Percentage $\leq 10\%$ $[100 \times \frac{\text{Line \# 7}}{\text{Line \# 2}}]$		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11	Pass if Leakage Reduction Percentage $\geq 60\%$ $[100 \times \frac{\text{Line \# 6}}{\text{Line \# 4}}]$ 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

Residential Compliance Forms

April 2005

0609792

Final

9-25-08 DS S

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

Project Address <b>2273 5th Avenue</b>		Builder Name
Builder Contact	Telephone	Plan Number
HERS Rater <b>Home Energy</b>	Telephone <b>909-788-3220</b>	Sample Group Number <b>1</b>
Compliance Method (Prescriptive)		Climate Zone <b>12</b>
Certifying Signature <i>E. J. [Signature]</i> <b>(Electronically signed)</b>	Date <b>08/16/08</b>	Sample House Number <b>1579</b>
Firm <b>Enclava Energy</b>		HERS Provider <b>CEPCA</b>
Street Address: <b>250 Campbell</b>		City/State/Zip: <b>Del Mar CA 92021</b>

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 CP-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"/> 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"/>
				Yes is a pass	Pass

**REFRIGERANT CHARGE MEASUREMENT**

Verification for Required Refrigerant Charge for Split System Space Cooling Systems without Thermostatic Expansion Valves

Indoor Unit Serial #	<b>3000000000</b>	
Location	<b>Attic</b>	
Outdoor Unit Make	<b>Carrier</b>	
Outdoor Unit Model	<b>3000000000</b>	
Cooling Capacity	<b>30000</b>	Btu/hr
Date of Verification	<b>07/03/08</b>	
Date of Refrigerant Gauge Calibration	<b>08/16/08</b>	(must be checked monthly)
Date of Thermocouple Calibration	<b>08/16/08</b>	(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 CP-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"/> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	A copy of CP-6R (Installation Certificate) has been provided with refrigerant charge measurement documented.
---------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------

**INSTALLATION CERTIFICATE**

Site Address 2273 8th Ave	Permit Number 000792
------------------------------	-------------------------

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.) <sup>1</sup> (≥CF-1R value)	Duct Location (attic, etc.)	Duct or Piping R-value	Heating Load (Btu/hr)	Heating Capacity (Btu/hr)
Split AC + Gas		1		Attic	11	84000	80

*Cooling Equipment*

Equip Type (pkg. heat pump)	CEC Certified Mfr. Name and Model Number	# of Identical Systems	Efficiency (SEER or EER) <sup>1</sup> (≥CF-1R value)	Duct Location (attic, etc.)	Duct R-value	Cooling Load (Btu/hr)	Cooling Capacity (Btu/hr)
Split AC + Gas		1		Attic	11	22000	20000

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	Clark & Associates
Signature:	Date: 05/18/08

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

Site Address 2273 8th Ave	Permit Number 0000752
------------------------------	--------------------------

**INSTALLER COMPLIANCE STATEMENT FOR DUCT LEAKAGE**

**INSTALLER COMPLIANCE STATEMENT**

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

**INSTALLER VISUAL INSPECTION AT FINAL CONSTRUCTION STAGE:**

- Remove at least one supply and one return register, and verify that the spaces between the register boot and the interior finishing wall are properly sealed.
- If the house rough-in duct leakage test was conducted without an air handler installed, inspect the connection points between the air handler and the supply and return plenums to verify that the connection points are properly sealed.
- Inspect all joints to ensure that no cloth backed rubber adhesive duct tape is used
- New Distribution system is fully ducted (i.e., does not use building cavities as plenums or platforms returns in lieu of ducts).

**DUCT LEAKAGE REDUCTION**

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

NEW CONSTRUCTION:			
	Duct Pressurization Test Results (CFM @ 25 Pa)	Measured Values	
1	Enter Tested Leakage Flow in CFM:		
2	Fan Flow: Calculated (Nominal: <input checked="" type="checkbox"/> Cooling <input type="checkbox"/> Heating) or <input 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 output, enter total calculated or measured fan flow in CFM here:	1000	<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) ]]		<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.	102	
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 [ <u>102</u> (Line # 5) / <u>1000</u> (Line # 2) ]]	10.2	<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
<b>Pass if One of Lines # 9 through # 12 pass</b>			<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	
Signature:	Date: 09/18/05

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

**INSTALLATION CERTIFICATE**

Site Address 2273 8th Ave	Permit Number 0000702
------------------------------	--------------------------

**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"/> 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 = 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