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FREQUENTLY ASKED QUESTIONS about HERS and CHEERS

Provided by the California Energy Commission Consumer Energy Center

Relevant Standard

The Residential Manual for Compliance with California's 2001 Energy Efficiency Standards contains the energy efficiency requirements and methods to comply with the Title 24 Standard. Click here for the **Residential Manual**.

Chapter 4, Compliance Through Quality Construction, contains information directly related to CHEERS. See these sections:

- Section 4.1, Duct Efficiency
- Section 4.2, Infiltration and Ventilation
- Section 4.3, Diagnostics/Field Verification

Section 4.4, Procedures for HVAC System Design and Installation

What is HERS? What is CHEERS? What is the difference?

HERS is an acronym for Home Energy Rating Systems and is an umbrella organization that brings together lending agencies, utilities, energy providers, and the homebuilding industry to rate the energy performance of residences. CHEERS is an acronym for California Home Energy Efficiency Rating System. The California Energy Commission approved CHEERS as a Provider to operate under HERS regulations to certify independent third party raters for testing, verification, and certification of energy performance.

What is a HERS rater? What is a HERS provider?

HERS raters are individuals who provide diagnostic testing and verification, and sign and date the Certificate of Field Verification and Diagnostic Testing certifying that they have verified that the requirements for compliance credit have been met. Ratings are based on visual inspection and diagnostic testing of the physical characteristics and energy efficiency features of dwelling units, as constructed. Raters are then required to present their results to the builder and the HERS provider. CHEERS trains and certifies CHEERS raters.

The HERS provider is the umbrella organization from which raters are trained and certified to perform ratings. The California Energy Commission regulates HERS providers. The provider ensures that raters are properly performing ratings and operating in an ethical manner. CHEERS is a HERS provider operating in California. Currently, CHEERS is the only California approved Provider.

What does CHEERS offer homebuyers?

CHEERS raters independently test and verify the energy performance features of homes. Energy Efficiency Mortgages (EEMs) use ratings to determine the extra lending power that can be extended to homebuyers. Based upon a CHEERS rating, a homebuyer is capable of borrowing more to finance their new home. A CHEERS rating for an existing home provides information on the energy performance of that home.

How can I find a CHEERS rater?

Visit www.cheers.org.

When is a HERS rater needed? What measures must be certified by a HERS rater?

Many of the compliance credit options require installer diagnostic testing certification, and independent diagnostic testing and/or field verification by a certified home energy rater. HERS diagnostic testing and field verification is required for:

- Duct air sealing
- ACCA Manual D design and installation
- Refrigerant charge and airflow measurement
- Building envelope sealing beyond improvements covered by default assumptions

HERS field verification is required for:

- Thermostatic expansion valves
- Duct surface area reductions
- Duct location improvements beyond those covered by default assumptions

When isn't a HERS rater needed?

The requirements for field verification and/or diagnostic testing only apply when equipment or systems are installed that require verification or testing. If a house has no air distribution ducts, then a HERS rater does not have to test the ducts, since there are not ducts to test. Similarly, if a house does not have a split system air conditioner or heat pump, then a HERS rater does not have to diagnostically test the refrigerant charge and airflow or verify that there is a TXV, because the requirements do not apply. Likewise, if compliance for a house is achieved using an alternative that does not require a TXV, then a HERS rater does not have to come to the site and verify that one has been installed. A HERS rater is not required when measures that require field verification or diagnostic testing are not installed in the building. A common situation is when the Alternative to Package D is used (see Table 3-2 of the 2001 Residential Manual). Another example is a house with no air conditioning and a heating system that does not have ducts, e.g. hydronic heating or radiant panels.

What steps are needed to ensure the installation of HERS measures?

Installer Steps for Features Requiring HERS Verification

Duct sealing, ACCA Manual D design and installation, or envelope sealing require the builder employees or subcontractors to:

- Complete diagnostic testing
- Certify the diagnostic test results and that the work meets the requirements for compliance credit on the CF-6R form

If duct sealing is completed at the rough-in stage of construction using aerosol sealant closures, the builder employees or subcontractors must:

- At rough-in, complete the fan pressurization test and certify the diagnostic results on the CF-6R
- After installation of the interior finishing wall, verify sealing of the ducts using (1) the house pressure test, (2) the pressure pan test or (3) a visual inspection of all duct connections (including duct to air handler connections)
- Certify, on the CF-6R, the diagnostic results and that the work meets the requirements for compliance credit

Duct surface area reductions and duct location improvements that need the services of a HERS Rater will require the builder employees or subcontractors to:

- Record on the CF-6R the duct surface area in each duct location
- Certify on the CF-6R that the duct surface area and locations match those on the plans, and that the work meets the requirements for compliance credit. Installer certifications are required for every house, even if sampling is used.

What steps are needed to gain credit for HERS-verified measures?

- Decide if any of the compliance credits are the right choice for your needs, and instruct the Title 24 consultant to model the appropriate features.
- Provide CHEERS with the CF-1R for any house that needs HERS verification.
- Construct the building to meet CEC installation requirements.
- Have the installing subcontractors conduct diagnostic testing in compliance with any CEC testing specifications and complete Form CF-6R.
- Give CHEERS a completed CF-6R showing that the installation and diagnostic testing requirements were met.
- Contact their HERS Rater to let them know the building is ready for them to verify the installation and/or conduct diagnostic testing.
- Obtain a completed CF-4R from the HERS Rater.
- Provide the CF-4R, signed and dated by the Rater, to the building department as part of the final inspection.

Which forms must be submitted for HERS-rater certified measures?

The CF-6R is signed by the HERS rater, verifying the proper installation of measures. In some instances, the CF-4R is needed by the HERS rater to verify the proper installation of measures.

What is a blower door and what does it test?

A blower door is a diagnostic tool used by HERS raters to evaluate the air infiltrating into a home. A calibrated fan is used to pressurize or depressurize (typically depressurizes) a home under a small pressure, 50 Pascals ? roughly the pressure generated by a 20 mph wind. The air blown through the fan tells the amount of air that is leaking in or out of the home and is recorded in units of cubic feet per minute at 50 Pascals (CFM-50). A typical California home should be between 1500 and 2500 CFM-50. "Tight" homes, generally below 1500 CFM-50, should be carefully evaluated to determine if mechanical ventilation is necessary.

What is ACCA Manual D duct design?

The Air Conditioning Contractors of America (ACCA) provide several design methods for heating, ventilating, air conditioning, and refrigeration systems. One of these methods is called Manual D - Residential Duct Systems and ensures proper air distribution. For more information on Manual D check with **ACCA**.

What is a duct blaster test?

HERS raters can perform testing on the duct system to determine the amount of air that leaks out of the system. These leaks occur at junctions, connections, and seams in the ductwork. The leaks undermine the performance of your heating and/or cooling equipment, increasing utility costs. Title 24 requires that duct sealing be carried out where only 6% of the fan flow is permitted to leak. Typical California homes leak 22% of the rated fan flow.

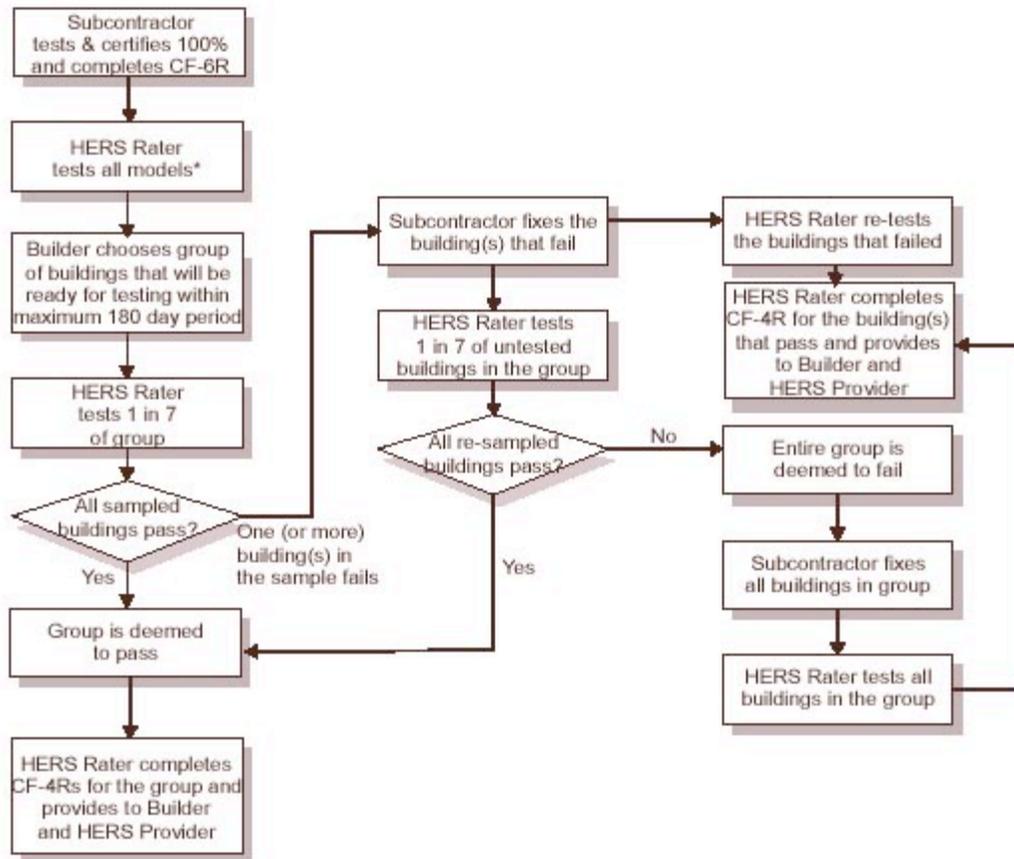
The test is similar to the blower door test, except the test subject is the duct system. The HERS rater will seal off the registers and connect a smaller blower apparatus to the system and pressurize the ductwork. The amount of air that can be blown through the ducts, leads to an answer of how much air is leaking from the system. A reference pressure of 25 Pascals is used to measure the amount of leakage, so you might here leakage reported in cubic feet per minute at 25 Pascals (CFM-25).

What is a Thermostatic Expansion Valve or TXV?

A thermostatic expansion valve, or TXV, is a device used in air-source heat pumps and air conditioners. A TXV regulates the flow of refrigerant between the condenser (outdoor coil) and evaporator (indoor coil) and ensures that the heat pump or air conditioner is operating efficiently. A HERS rater must verify that the thermostatic expansion valve is in place to receive compliance credit with Title 24.

How are subdivisions and tract housing rated? Is every house diagnostically tested?

Every house is not required to be diagnostically tested by a HERS rater when seeking energy credits. Sampling methods can be implemented where roughly 1 in 7 homes is randomly tested at the HERS raters discretion. The California Energy Commission provides the details in the testing practices in subsection 4.4.4, HERS Verification Procedures.



* Builder may choose to have HERS Rater test 100% of buildings, in which case sampling does not apply.

****10-17-05 - The above information has been taken directly from the following site and subsite: <http://www.consumerenergycenter.org/index.html>**

http://www.energyvideos.com/residential/CHEERS_HERS/code/faqs.html