

# City of Riverside

## Building & Safety Division

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[www.riversideca.gov](http://www.riversideca.gov)



### ❖ CONTRACTOR INFORMATION - RESIDENTIAL HVAC REPLACEMENTS ❖

Effective October 1, 2005 the California Energy Commission requires sealing of conditioned air ducts and a refrigerant charge measurement or the installation of a thermal expansion valve (TXV). Duct leakage testing verification by a third-party HERS rater, independent from the installing company, is required for replacing HVAC equipment or certain components.

Duct leakage testing is required when any of the following occurs:

- Complete HVAC replacement
- Heat Exchanger replacement
- Coil replacement
- Condenser replacement
- Air Handler replacement
- Any time more than 40 lineal feet of duct is added or replaced in unconditioned space

#### DUCT SEALING REQUIREMENTS

1. For installations that involve the replacements listed above, the measured duct leakage must conform to one of the following requirements:
  - Option # 1: must be less than 15% of fan flow; **or**
  - Option # 2: must be less than 10% of fan flow if to the outside; **or**
  - Option # 3: must be reduced by more than 60% relative to the leakage prior to the installation or replacement of equipment and all accessible leaks must be fixed using a smoke test: **or**
  - Option # 4: if Option # 1, or # 2, or # 3 has been tried, all accessible leaks must be sealed by the contractor using a smoke test. Sampling is prohibited when option # 4 is used.
2. For installed ducts that form an entirely new duct system, the measured leakage must be less than 6% of fan flow.
3. Refrigerant Charge (RC) or TXV is always required for a complete HVAC change out of a split system or when the coil or condenser in a split system is replaced. Packaged systems do not require RC or TXV.
4. For a complete replacement, the installer must fill out and distribute pages 3, 4, and 5 of the CF-6R form. The HERS rater fills-out pages 1 and 3 of the CF-4R form.
5. When the coil or condenser is replaced the installer must fill out and distribute pages 4 and 5 of the CF-6R form. The HERS rater fills-out pages 1 and 3 of the CF-4R form.
6. When the heat exchanger, air handler or more than 40 ft of duct is changed or added the installer must fill-out and distribute page 4 of the CF-6R form. The HERS rater fills out page 1 of the CF-4R form.
7. The installer must always test their own work and distribute the CF-6R pages to building owner, building department, and the HERS rater. The HERS rater is required to distribute the CF-4R pages to owner and the building department and enter the information into the HERS providers web site. The building department cannot final the permit until the appropriate form pages listed above have been received from the installer and the HERS rater.

The HVAC system must be tested in its normal operating condition. Fresh air intakes, economizers, or any other path to the outside must not be temporarily taped or temporarily altered to pass the test.

#### ALTERNATIVE TO DUCT TESTING

*The alternative to duct testing is to have a new HVAC system installed that meets the efficiency requirements below.*

*Option #1: 14 SEER and 12 EER air conditioner with RC or TXV and add R-4 duct wrap insulation to all the ducts.*

*Option #2: .92 AFUE furnace or a 9.0 HSPF heat pump and a combined 14 SEER and 12 EER air conditioner with RC or TXV.*

*Option #3: .82 AFUE furnace or a 8.5 HSPF heat pump and a combined 14 SEER and 12 EER air conditioner with RC or TXV and add R-4 duct wrap insulation to all the ducts.*

*HERS verification is required for the refrigerant charge or TXV and that the EER standard is met. If 100% of the ducts are replaced, then the alternative method cannot be used and the ducts must be HERS tested.*

Additional compliance approaches are available. For more information please contact the California Energy Commission's Efficiency Hotline at (800) 772-3300 or visit their web site at [www.energy.ca.gov/title24/changeout](http://www.energy.ca.gov/title24/changeout).