

## ACM RESIDENTIAL MANUAL APPENDIX RI-2005

# Appendix RI – Procedures for Verifying the Presence of a Thermostatic Expansion Valve or High Energy Efficiency Ratio Equipment

### RI.1 Purpose and Scope

The purpose of these procedures is to verify that residential space cooling systems and heat pumps have the required components to achieve the energy efficiency claimed in the compliance documents. The procedures only apply when a TXV is specified for split system equipment or an EER higher than the default is claimed. For dwelling units with multiple systems, the procedures shall be applied to each system separately.

The installer shall certify to the builder, building official and HERS rater that he/she has installed all the correct components.

The reference method algorithms adjust (improve) the efficiency of air conditioners and heat pumps when field verification indicates the specified components are installed. Table RI1 summarizes the algorithms that are affected.

Table RI-1 – SUMMARY OF FIELD VERIFICATION

Field Verification Check	Variables and Equation Reference	Description	Standard Design Value	Proposed Design	
				Default Value	Procedure
Presence of a TXV	$F_{TXV}$ (Eq. R4-40 and R4-41)	$F_{TXV}$ takes on a value of 0.96 when the system has a verified TXV or has been diagnostically tested for the correct refrigerant charge. Otherwise, $F_{TXV}$ has a value of 0.90.	Split systems are assumed to have refrigerant charge testing or a TXV, when required by Package D.	No TXV or refrigerant charge testing.	Section RI.2
Presence of a matched High Efficiency Compressor Unit, Evaporator Coil, Refrigerant Metering Device, and (where specified) Air Handling Unit and/or Time Delay Relay.	EER	The EER is the Energy Efficiency Ratio at 95 F outdoors specified according to ARI procedures for the matched combination	Systems are assumed to have the default EER based on SEER, see ACM Equation 4.44.	Default EER	Sections RI.3 and RI.4

### RI.2 TXV Verification Procedure

The procedure shall consist of visual verification that the TXV is installed on the system.

### RI.3 Time Delay Relay Verification Procedure

When a high EER system specification includes a time delay relay, the installation of the time delay relay shall be verified.

The procedure shall be:

- 1) Turn the thermostat down until the compressor and indoor fan are both running.
- 2) Turn the thermostat up so the compressor stops running.
- 3) Verify that the indoor fan continues to run for at least 30 seconds.

**RI.4 Matched Equipment Procedure**

When installation of specific matched equipment is necessary to achieve a high EER, installation of the specific equipment shall be verified.

The procedure shall consist of visual verification of installation of the following equipment and confirmation that the installed equipment matches the equipment required to achieve the high EER rating:

- 1) The specified labeled make and model number of the outdoor unit.
- 2) The specified labeled make and model number of the inside coil.
- 3) The specified labeled make and model of the furnace or air handler when a specific furnace or air handler is necessary to achieve the high EER rating,
- 4) The specified metering device when a specific refrigerant metering device (such as a TXV or an EXV) is necessary to achieve the high efficiency rating.