

13 SEER Pitfalls and Avoidance

Effective January 23, 2006, manufacturers of residential air conditioners and heat pumps will be required to manufacture units with a minimum efficiency of 13 SEER (seasonal energy efficiency ratio). In the meantime 10 - 12.99 SEER units will still be available to residential customers.

Many manufacturers already have 13+ SEER units available in R-22 and R-410a units. However, most research dollars are being spent on the newer R-410a systems.

Many of the units which meet or will meet the new efficiency standard will operate with a slightly warmer evaporator coil if the air flow is 400 CFM/ton causing less latent capacity resulting in reduced dehumidification.

Do's and Don'ts of replacement systems:

- Do: Use equipment in which the manufacturer publishes the SEER, latent capacity, and sensible capacity for all of their system combinations.
- Do: Install complete systems which are made up of a condensing unit, evaporator coil, line set, and liquid line filter drier installed near the evaporator. Caution – some manufacturers include a liquid line filter drier factory installed in their condensing unit. If this is the case, do not install another liquid line dryer in series the factory installed dryer.
- Do: Install a liquid line filter-drier unless the manufacturer has one factory installed in the condensing unit.
- Do: Use thermostatic expansion valves (TXV's or TEV's) to obtain a higher SEER if supported by your manufacturer.
- Do: Talk to your legal council about any additions or changes that may be required on your customer proposals and contracts.
- Do: Talk to the technical help at your distributor if you have ANY questions.
- Do: A heat gain on the house which is recognized by ASHRAE, ACCA, or your manufacturer or distributor.

Don't: Use manufacturer's literature statements to sell 13+ SEER units. Some manufacturers publish SEER's on their consumer literature which are the maximum SEER you can get from a particular model, when installing a certain size, when using a thermostatic expansion valve, when the air handler or furnace has an ECM (variable speed) blower motor. Example - a manufacturer may state on their literature "High Efficiency, SEER up to 13.5. But when installed with a piston type metering device, on their old furnace, and you are proposing a 3.5 ton unit, the efficiency with the "AS QUOTED" system may be only 11.75.

State the actual SEER number your customer can expect as stated by ARI for the "SYSTEM" you will be installing. Most manufacturers list actual ARI capacities and SEER's, for various system configurations, in their application guides, not in their literature.

Don't: Replace the condensing unit only. You must replace the evaporator coil for sure, otherwise the customer will not get the efficiency stated by the contractor.

Don't: Leave the old line set if switching from R-22 to R-410a. The oil from an R-22 system is not compatible with 410a. The oil remaining in the old line set will contaminate your new system.

Don't: Over size the system. You cannot go by the size of the old system. Over sizing will cause short cycling and extremely poor control of humidity – your customer will be cold and clammy, their home may become mold incubators, and other biological life forms may take root as well.

You are required to size the system to the heat gain of the house. Old rules of thumb are no longer appropriate. Use ACCA's Manual J, ASHRAE Handbook of Fundamentals, or another approved method. 777 Education offers a class in Heat Loss and Gain using ACCA's Manual J.

ACCA and Elite Software have excellent computer programs which are easy to use, fast, and accurate. See www.acca.org or www.elitesoft.com for more information.

See www.behler-young.com/dealertraining.htm for our most current Michigan training schedule.

New course coming soon: **13 SEER Pitfalls and Avoidance**