Keeping it cool

Dear Jim: I am ready for a new, quieter and more efficient central air conditioner. My old one doesn't always keep the house comfortably cool. It feels clammy sometimes. What should I look for in new models? - Ronnie L.

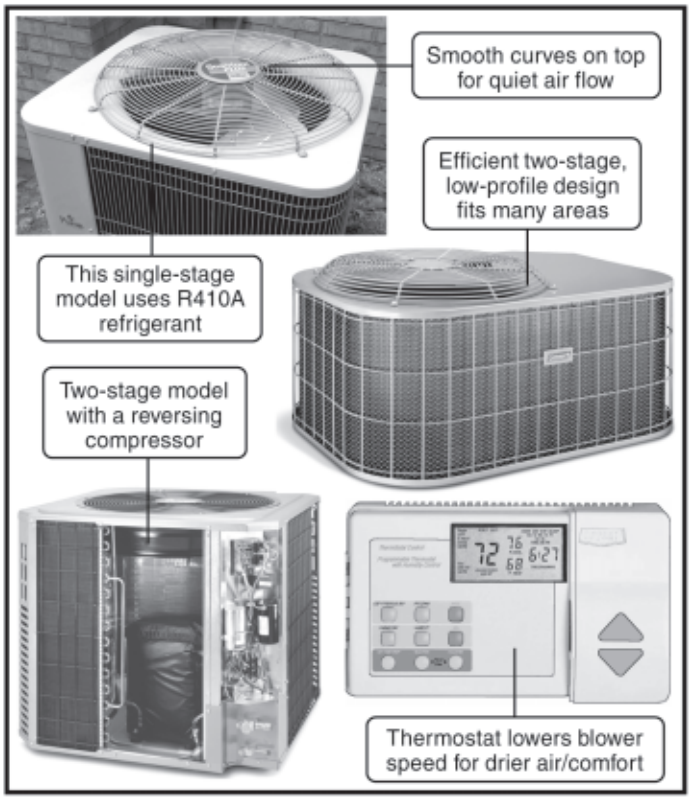
Dear Ronnie: You have picked a good year to replace your central air conditioner because there have been some significant changes and improvements in the most efficient and comfortable models for 2004. Also, operating sound levels have been seriously addressed and some of the new models are much quieter, both indoors and outdoors.

If you have electric resistance heating, before you decide on a new central air conditioner (cool only) model, consider installing a heat pump model instead. All of the central air-conditioning units that I will discuss have corresponding heat pump models for both heating and cooling your house year-round. A heat pump model will cost about $350 to $500 more initially because of some additional controls and valves. They look identical on the exterior.

This year, the cooling efficiencies (SEER - Seasonal Energy Efficiency Ratio) for central air conditioners have skyrocketed to more than 19 and the comfort level is much improved. The SEER relates the amount of cooling (Btu) to the amount of electricity consumed (watts). The highest-efficiency models can cost substantially more initially, so have your cooling contractor do payback analyses on models in several efficiency ranges. When making your selection, consider nonfinancial factors such as the most efficient models use less electricity, so there are fewer emissions of air pollutants and greenhouse gases.

If your existing air conditioner is older than 10 years, installing a new one will cut your cooling electric bills by more than 50 percent. Depending upon your climate and summer air-conditioning load, it can provide an excellent economic payback. A higher-efficiency model will also reduce the peak electricity demand on the hottest summer afternoons. Reducing the peak demand can help control long-term electricity rates.

The highest-efficiency models use a two-stage compressor design to provide the best comfort, particularly in very humid climates and during the milder weather of early and late summer. These are the times when you often sense that clammy feeling. Your old standard air conditioner can adequately cool the indoors during the mild weather, but it does not run long enough to also adequately dehumidify the indoor air.



New efficient air conditioners for best comfort

Using a two-stage compressor, these models vary the cooling output to the instantaneous cooling needs of your home. During mild weather, they operate in the low-stage, super-efficient stage with reduced cooling output. In this longer running low-stage cycle, the indoor air is better dehumidified as it slowly passes over the cooling coils of the blower unit in the basement, utility room or attic.

There are several effective designs of efficient reciprocating piston two-stage compressors that have been used for many years. Some vary the cooling output depending on which way the motor is rotating. Another design uses a two-speed compressor that always turns in the same direction while some other models use two small compressors and run both compressors only when it is very hot outside and your house needs extra cooling.

The newest and one of the best designs is a two-stage scroll compressor which several manufacturers have begun using. A scroll compressor has very few moving parts and operates quietly. Instead of using reciprocating pistons and valves, the two scrolls rock together to produce a continuous compression process. This new two-stage scroll compressor uses an ozone-friendly R410A refrigerant. A scroll compressor produces enough cooling and airflow at the low-output stage to insure adequate cool, dehumidified air reaches all the rooms in your house.

The new models with reciprocating-piston or scroll compressors that use R410A instead of freon R-22 tend to operate quietly. The R410A requires higher operating pressures, so the tubing and materials must be made stronger, which lowers the sound frequency making it less noisy. Many other new soundproofing design features and materials are incorporated into the new models. Old compressors using freon will gradually be phased out of production by law by 2010.

Whether you choose a super-efficient two-stage or a lower-priced one-stage model, consider replacing the indoor coil and blower unit with a variable-speed blower. This will increase the efficiency and comfort level with much less indoor noise year-round even if you use an oil or gas furnace during the winter. Installing one of the new thermostats (compatible with variable-speed blowers) can also control the blower speed to enhance dehumidification and comfort.

Write James Dulley, Rural Montana, 6906 Royalgreen Dr., Cincinnati, OH 45244 for (instantly download - www.dulley.com) Utility Bills Update No. 533 - buyer's guide of the 19 most efficient one- and two-stage central air conditioners listing cooling outputs, SEER's, comfort features, warranties, and a savings chart. Please include $3.00 and a business-size SASE.