

Cool comfort

Looking to install a central cooling system? Start smart by selecting the right contractor. Next, choose an efficient, reliable system. Then plan ahead to keep cooling costs down.

What's the best way to ensure that the central air conditioning system you choose is installed properly, and will provide the most efficient and reliable cooling for your home?

The pointers below can help you find the right hardware and the right technician to install your system, whether you're replacing an older air conditioner or installing one for the first time. The information comes from our own experts and from heating and cooling contractors we surveyed.

And while there's no one money-saving strategy that will work for everyone all the time, there are a number of simple steps you can take, as we show in Keeping costs down. In some cases, you may be able to cut back on air-conditioner use considerably without seriously inconveniencing your family.

LEARN THE LINGO

Design. In a "split system," the typical design, refrigerant circulates between an indoor coil and a matching outdoor condenser with compressor. The refrigerant cools the air, dehumidifying it in the process; a blower circulates air through ducts throughout the house. A variation is the "heat pump," a type of system that functions as heater and cooler. When used as an air conditioner, a heat pump discharges heat from the house either into the air or deep into the ground. In the winter, a heat pump extracts heat from the ground or the air to warm the house.

Efficiency. This describes how much cooling the unit delivers for each watt of electricity. Efficiency is expressed as the Seasonal Energy Efficiency Rating, or SEER. At present, a SEER of 10 denotes a low-efficiency unit; medium efficiency is 11 to 14; high efficiency is above 14. New federal regulations scheduled to take effect in 2006 will set the minimum SEER at 12.

Size. A synonym for the air conditioner's cooling capacity, size is measured in British thermal units per hour (Btu/hr.) or in "tons." One ton of cooling equals 12,000 Btu/hr.

GET THE RIGHT CONTRACTOR

Finding a trustworthy contractor to install and service an air-conditioning system matters the most. Here's how to choose:

Ask around. Seek referrals from neighbors, family, or business associates. It's wise to get price quotes from at least three contractors.

Check the background. Contractors who bid on your installation should show you proof of bonding and insurance, plus any required contractor's licenses. Check with your local Better Business Bureau and consumer affairs office for complaint records. It's a plus if technicians are certified by North American Technician Excellence (NATE), a trade organization, and have several years' experience.

Get specifics. Contractors who bid on your job should calculate required cooling capacity by using a recognized method like the Air Conditioning Contractors of America's Residential Load Calculation Manual, also called Manual J. An additional reference for assessing ductwork needs is Manual D. The calculations produce a detailed room-by-room analysis of cooling needs. Ask for a printout of all calculations and assumptions, including ductwork design. Be leery of a contractor who bases estimates merely on house size or vague rules of thumb.

Expect maintenance. A service plan that combines regular inspections with discounts on repairs and a labor warranty is worth negotiating into the overall price. Prices for such service vary widely.

At a minimum, regular inspections should include these steps:

- Check for and repair refrigerant leaks.
- Detect and correct duct leaks.
- Inspect and tighten the electrical connections, checking for damage.
- Clean the coils, drain pan, and drainage system.

- Vacuum the blower compartment.

CHOOSE THE RIGHT UNIT

If you're replacing an old central-air system, you can expect to pay around \$3,000 for the equipment. If you need ductwork installed because you're starting completely from scratch or are upgrading a forced-air heating system, expect to pay \$6,000 or more. Improving the system's air-filtration capabilities is also easiest to do as part of a general upgrade.

Brand plays some role in the selection. But keep in mind that improper installation can make even the best system run poorly or need frequent repair. The most essential criterion, however, is efficiency, assuming the unit has the proper cooling capacity. According to the contractors we surveyed, units with a SEER of 11 to 14 tend to hold up best. The contractors believe that high-efficiency systems--a SEER of more than 14--tend to be more complex, with more that can go wrong. Low-efficiency, low-cost builder's models, perhaps due to design shortcuts, also require more repairs, the contractors say.

Here are other factors that may affect reliability, according to the contractors:

- Matching new equipment with old. If you replace only the condenser, you have a "field-matched" system that can be less efficient than advertised and that may require more repairs because of undetected incompatibilities between the two.
- The type of compressor. A reciprocating compressor is more trouble-prone than a scroll-type one, they say. While pricier, scroll-type compressors do tend to be higher in efficiency and quieter than reciprocating compressors. Most manufacturers offer both types of compressor.
- Damper-zoned cooling. A large or multistory house is often divided into several heating and cooling zones to improve temperature control. However, this type of system is complex and has many more moving parts and controls and so may require more repairs.