Buying central air conditioning for your home

FACT SHEET

APARTMENT & CONDO EFFICIENCY SERVICES

ENERGY STAR PRODUCTS

HOME PERFORMANCE WITH ENERGY STAR

WISCONSIN ENERGY STAR HOMES

For more information call 800.762.7077 or visit focusonenergy.com

Central air conditioning is a popular way to enhance your home. Air conditioning keeps you cool in the summer, controls humidity and can help reduce allergies. This fact sheet provides guidelines that will help you maximize the value and benefits of central air conditioning.

BUYING TIPS

Get the right size

A correctly sized air conditioner matches cooling power to the characteristics of your home. Ask your contractor to do a load calculation that takes proper account of your home's size, window area, insulation levels and other factors. With air conditioning, bigger is not better (see box below).

Buy high SEER

The Seasonal Energy Efficiency Rating, or SEER, compares the cooling power of the equipment to its electricity use. The higher the SEER, the more efficient the unit. Buy a unit that has a SEER of 13 or higher—the ENERGY STAR® standard.

Add a thermostatic expansion valve

A thermostatic expansion valve helps keep the cooling coils at the correct temperature. This helps your air conditioner be less sensitive to irregularities in airflow or amount of refrigerant. These valves are standard in some models.

Look at moisture performance

Your comfort depends as much on controlling humidity as it does on keeping cool. Air conditioners vary in their ability to remove moisture from the air. Ask your dealer about the performance of the units you're considering.

Consider ventilation costs

Air conditioning costs depend partly on the furnace blower that distributes the cool air. If it's inefficient, your electricity costs could be quite high, especially if you use your furnace fan for ventilation.

If your furnace is old, consider replacing it with a model that has an energy efficient ECM[1] blower. You'll get the benefits of quieter and less drafty operation and lower electricity bills. If you run your fan year-round for ventilation, your investment will pay for itself in three years or less.

INSTALLATION TIPS

Your contractor will perform a number of checks on your new system. The following two are essential:

Check airflow. Proper airflow will prevent freezeups, ensure good dehumidification and improve efficiency by up to 10 percent.

Check refrigerant charge. This will protect the compressor from possible damage, ensure efficiency and boost cooling performance. If your unit doesn't have a thermostatic expansion valve make sure your contractor performs a "superheat" test.

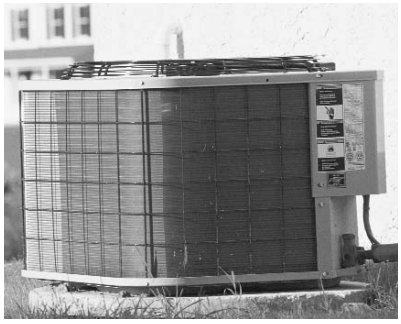
In addition, ensure the compressor is located in a shaded area away from bedrooms or other areas where noise could be a problem.

OPERATING TIPS

Reduce cooling needs

Insulate and air seal. Sealing air leaks and insulating walls and ceilings helps prevent heat and hot air from

BIGGER IS NOT BETTER



The condenser is the part of a central air conditioning system that discharges heat from your house to the outdoors.

A "supersized" central air conditioning system can sound appealing, but in reality it has major drawbacks.

Higher equipment costs. Each additional ton* of air conditioning can cost you $300 or more.

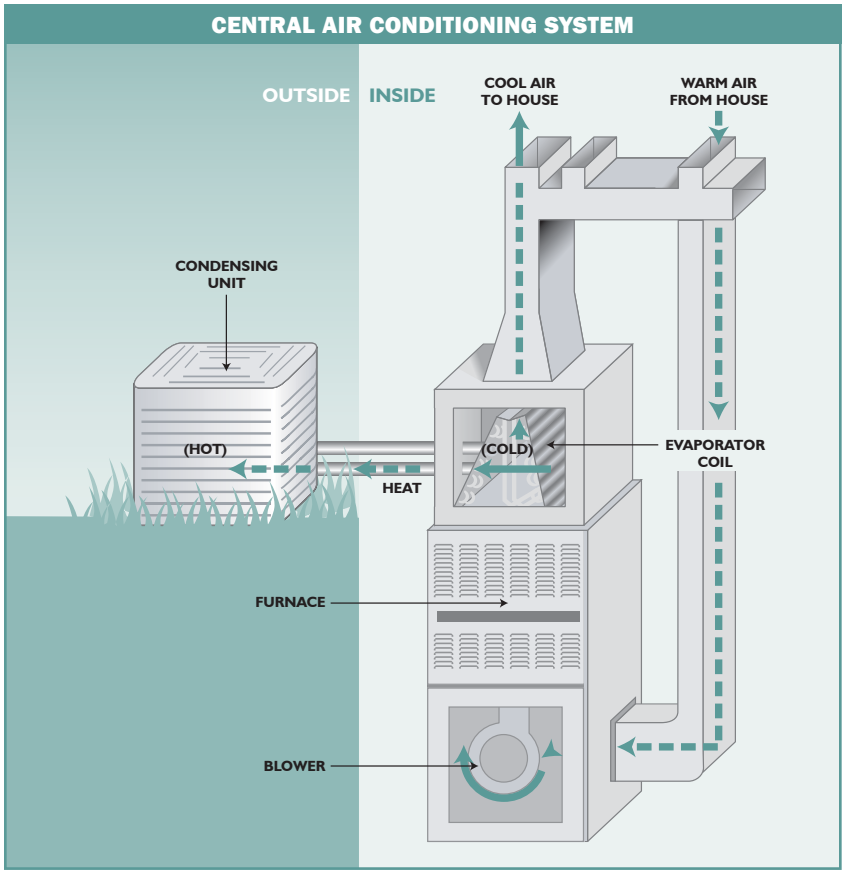
More wear and tear. An oversized unit turns on and off more often than one that's properly sized. Frequent cycling causes needless wear and tear and wastes energy.

Poor dehumidification. An oversized system won't run long enough to wring moisture out of the air.

A strained electric system. Big systems draw lots of electricity, and a city full of air conditioners can lead to more power plants and transmission lines—and higher electricity costs.

* A ton of A/C = 12,000 btu/hr. This is equal to the cooling capacity of melting one ton of ice per day (a cube 3 feet 3 inches on a side).

[1] ECM = electronically commutated motor



REPAIR TIP

If you're replacing a broken compressor, make sure it matches the indoor coil. Not all compressors and coils work together. If your system is ten years old or older consider replacing both the coil and compressor to get higher efficiency.

entering your home. Insulate and air seal before buying a new air conditioner—you may be able to buy a smaller, less expensive system.

Use trees for shading. Plant deciduous trees on the south side of your home to provide shading from the hot summer sun. If that's not feasible, install window awnings.

Cool at night. Air conditioners are better at removing heat when it is cooler outside. Take advantage of this fact and do your air conditioning at night. You may also be able to take advantage of low, off-peak electricity rates. Contact your local utility for more information.

Use natural cooling methods. Don't forget about ventilation and shading. If it's dry and cool at night, open your windows and let the outdoors do the air conditioning for you. In the morning, before the heat of the day, close the windows and blinds to keep the cool air inside.

Reduce appliance waste heat

Minimize the use of appliances that add heat and humidity to your home when the demand on your air conditioning system is highest. Run the dishwasher at night or early in the morning. Also consider alternative cooking methods on the hottest days, like grilling outside or using the microwave.

You'll also decrease the load on your air conditioning system by buying efficient appliances that naturally produce less waste heat. Look for the ENERGY STAR label to guide you to efficient choices.

Run your system wisely

Set a reasonable thermostat temperature. A temperature of 78°F is usually adequate to maintain comfort, especially if you also use ceiling fans to maintain air circulation. Each degree you add to the thermostat setting cuts your cooling costs by 3 percent to 5 percent.

Get annual maintenance. Hire a qualified service technician to maintain your system. The technician should check indoor and outdoor coils, airflow and electrical connections.

Another important thing is to change the air filter on a regular basis. Dirty filters can reduce energy efficiency by 10 percent or more. You can change the air filter yourself. Fiberglass filters need to be changed monthly, media filters twice a year. Ask your service technician for advice.

FOR MORE INFORMATION

focusonenergy.com
Contact Focus on Energy to learn more about smart energy choices. Download the fact sheet "Cooling Basics for Your Home." The Efficient Heating and Cooling Initiative also provides valuable consumer information and services. Call 800.762.7077 for more information.

aceee.org/consumerguide/topcac.htm
The American Council for an Energy Efficient Economy maintains a list of top-rated energy efficient central air conditioners.

energystar.gov
The federal ENERGY STAR web site provides detailed information about cooling equipment.

comfortinstitute.org
This web site provides free consumer protection reports on buying equipment and choosing a contractor.

home.howstuffworks.com/ac.htm
Learn how air conditioning works at the How Stuff Works web site.

Focus on Energy is a public-private partnership offering energy information and services to energy utility customers throughout Wisconsin. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment, and ensure the future supply of energy for Wisconsin. For information about the Focus on Energy services and programs, call 800.762.7077 or visit focusonenergy.com.

focus on energy℠
The power is within you.