



Cooling basics for your home

FACT SHEET



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When summer temperatures hover around the “sizzle” mark, cooling off is a priority. Air conditioners are a popular choice, but they can burn lots of energy, especially if the equipment is old, the wrong size or improperly installed.

Fortunately, air conditioners have improved a lot in the last few years. Today’s efficient models have a minimum requirement of 13 SEER, but 20+ SEER models are available and can use 50 percent less energy than typical equipment from a decade ago. If you’re in the market for a new air conditioner, this fact sheet offers some helpful information for choosing new equipment as well as providing low-cost, low-energy ways to keep your home cooler so you can run your cooling system less often and make its job easier.

CENTRAL AIR CONDITIONING

Central air conditioning systems cool and dehumidify the whole house, usually by circulating cooled air through air ducts using your furnace blower fan.

Size is important and bigger is not better. A system that is too large will cool fast but wastes energy and may not remove moisture effectively. Building size, insulation levels, air tightness and heat gain need to be considered. A professional should measure your home and use proven methods to calculate the right size based on these factors.

Proper installation is also important. Don’t try to use an old indoor coil with a new outdoor compressor; it won’t work efficiently. Contractors should ensure that there’s adequate air flow across the cooling coil and test for proper refrigerant charge. Also, place the condenser where it is protected from direct sunlight and vegetation and has adequate space for removing waste heat away from the unit.

Consider an annual service agreement to ensure your air conditioner is operating at peak efficiency. ENERGY STAR® qualified central air conditioners save about 14 percent over standard models.

Switching the fan to “auto” will ensure the best dehumidification of your home. While your air conditioner is running, moisture builds up on the coil

above the furnace. In order to complete the dehumidification process, this moisture must drip off during the system’s rest period between cooling cycles. If the fan runs continuously, the moving air will re-evaporate this moisture into your home. Your air conditioner will then be forced to remove that moisture again when it turns back on, wasting energy and costing you money.

For homes without forced air heating, you will need to install ductwork. If this is impractical or too expensive, ask your contractor or vendor about a ductless “split” or “mini-split” system.

ROOM AIR CONDITIONERS

Room air conditioners include window models and built-in models. Nearly all will plug into a standard household electrical outlet. The most common window models sit on the sill of a double-hung window with the sash pulled down snugly on top of the unit. Special narrow units are also available for casement or slider windows. They usually cost more and need a plastic insert to close off the top of the window opening. Before you shop for a window unit, check the window type, measure the opening and look for a nearby electrical outlet.

Built-in models are useful in homes with unusual windows or where you don’t want to block the light or view. A sleeve is installed through an exterior wall, usually during remodeling or construction, and a cooling unit fits into the sleeve.

To save energy, choose a model with a high energy efficiency rating (EER) and get the right capacity air conditioner for the space you want to cool. Figure the area to be cooled by multiplying the room’s length by its width; then look at the chart on the reverse. For example, a 12’ by 15’ room is 180 square feet and needs a 6,000 BTU unit. (BTU is a unit of energy used to measure heat or cooling energy.)

Adjust the size with the following in mind: If the unit is for your kitchen, add 4,000 BTU. If more than two people are regularly in the room, add 600 BTU for each additional person. Increase the unit size by 10 percent if the room is very sunny; reduce by 10 percent if it is heavily shaded.



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ROOM AIR CONDITIONER SELECTION GUIDE			
AREA TO BE COOLED (square feet)	AIR CONDITIONER UNIT SIZE (BTU)	AREA TO BE COOLED (square feet)	AIR CONDITIONER UNIT SIZE (BTU)
100-300	5,000-7,000	450-550	12,000
300-350	8,000	550-700	14,000
350-400	9,000	700-1000	18,000
400-450	10,000	1,000-1,200	21,000

When shopping for a new unit, look for the ENERGY STAR logo. ENERGY STAR qualified room air conditioners save 10 percent over standard models.

HOME DEHUMIDIFIERS

Although they do not cool the air, dehumidifiers remove excess moisture. They can help improve the air quality in basements, rooms built over crawl spaces and unventilated storage areas with moisture problems. In damp rooms the air feels clammy and smells musty, tools rust, furniture warps, dust mites thrive and mold and mildew grow. As with air conditioning units, the energy efficiency of dehumidifiers has improved in recent years and proper sizing is also important. Dehumidifier capacity is measured in the number of pints of water it can remove in 24 hours. Consider both the area and the amount of moisture. The chart below can help. Units vary in electricity use, even with the same capacity rating.

DEHUMIDIFIER SELECTION GUIDE (PINTS REMOVED IN 24 HOURS)				
AREA (square feet)	MODERATELY DAMP	VERY DAMP	WET	EXTREMELY WET
500	10	12	14	16
1,000	14	17	20	23
1,500	18	22	26	30
2,000	22	27	32	37
2,500	26	32	38	44

Excessive moisture levels may indicate problems with the structure, something a consultant can identify

When you shop for dehumidifiers, look for the ENERGY STAR®. More efficient units have lower wattages and will save 10 percent to 20 percent over conventional models.

To maintain your unit's efficiency, vacuum the evaporation coils annually and wash or replace the air filter monthly. Make sure hose connections are secure and water drains properly; and follow the manufacturer's positioning and service instructions.

CHILL OUT UNDER CEILING FANS

Ceiling fans circulate air in the room, creating a nice "wind chill effect" when the breeze touches your skin.

Most also provide overhead lighting. ENERGY STAR qualified ceiling fan/light combination units are about 50 percent more efficient than a typical fan and can save you from \$15 to \$20 per year.

Make sure the fan's blades are at least one foot below the ceiling, seven feet above the floor and two feet from the nearest wall. Since fans only cool people, not the air, you'll save energy and money by turning them off when you leave the room. As a winter bonus, a switch on the motor of many units will change the fan's direction, bringing warm air down from the ceiling into the living space.

OTHER COOLING TIPS

- Shut out the hot summer sun by closing windows and pulling shades or curtains. If you're planning to replace windows, look for the ENERGY STAR.
- Find and seal air leaks. The biggest ones are usually around gaps in plumbing, chimneys and wiring bypasses; in dropped ceilings and in soffit boxes. Plugging leaks will help lower winter heating costs, too.
- Insulate. It's a good investment, especially if your house was built before 1960 and is underinsulated.
- Get a programmable thermostat. It can automatically raise the setting while you're at work, then turn it to cooler before you get home.
- Schedule a Home Performance with ENERGY STAR evaluation. It includes a comprehensive inspection of all your home's systems and recommendations to increase the comfort, safety, durability and value of your home.

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Contact Focus to learn more about smart energy choices.

energystar.gov

Find out more about ENERGY STAR air conditioners, both room units and central air conditioning equipment.

eere.energy.gov/consumerinfo/energy_savers

Information on duct leaks.