



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 most efficient models can use 40 percent less energy than typical equipment from a decade ago. If you’re in the market for a new air conditioner, this publication offers some helpful information. Also, there are 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.

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” system or a high-velocity unit.

Size is important; and bigger is not necessarily better. A system that is too large will cool fast but wastes energy and money 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. Further, 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, vegetation, rain and snow.

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 they 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 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 below. For example, a 12’ by 15’ room is 180 square feet and needs a 6,000 BTU unit. (BTUs are used to measure heat or cooling energy.)

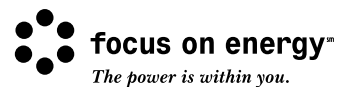
ROOM AIR CONDITIONER SELECTION GUIDE

AREA TO BE COOLED (square feet)	AIR CONDITIONER UNIT SIZE (BTUs)	AREA TO BE COOLED (square feet)	AIR CONDITIONER UNIT SIZE (BTUs)
100–150	5,000	400–450	10,000
150–250	6,000	450–500	12,000
250–300	7,000	500–700	14,000
300–350	8,000	700–1000	18,000
350–400	9,000		

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

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, bathrooms 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.





Dehumidifiers are expensive to operate. An average-sized unit running full time can cost \$25 to \$30 a month at current electric rates. As with AC units, energy efficiency 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 following chart can help.

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

Units vary in electricity use, even with the same capacity rating. When you shop for dehumidifiers, look for the Energy Star® label. More efficient units have lower wattages. (The difference must be more than 50 watts to be significant.)

To maintain your unit's efficiency, vacuum the evaporation coils every 6–12 months and wash or replace the air filter yearly. Make sure hose connections are secure and water is draining 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 40 percent more efficient than a typical fan and can save you from \$13 to \$24 per year if operated continuously.

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.

CHECK THE RATINGS; LOOK FOR ENERGY STAR

Today's air conditioners and dehumidifiers are more energy efficient, but efficiency varies between types and models. You can compare them using efficiency ratings:

APPLIANCE	RATING	EFFICIENT IF RATING GREATER THAN
Central A/C	SEER	11.0
Room A/C	EER	10.0
Dehumidifier	Energy Factor	1.3

Some units are also ENERGY STAR qualified. These are at least 10 percent more efficient than the minimum federal standards. As a bonus, they're also often quieter than other models.

OTHER COOLING TIPS

- 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.
- Shut out the hot summer sun by closing windows and pulling shades or curtains. If you're planning to replace windows look for an ENERGY STAR rating.

LEARN MORE

focusonenergy.com

Contact Focus to learn more about smart energy choices.

energystar.gov

Get more information about air conditioning and cooling your home naturally.

eren.doe.gov/consumerinfo/energy_savers/insulation.html

Information on duct leaks.

yosemite.epa.gov/estar/consumers.nsf/content/cac.htm

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

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