



## Cooling basics for your home

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 seasonal energy efficiency ratio (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, but that doesn’t mean bigger is 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 when choosing an air conditioner. A professional should measure your home and use proven methods to calculate the right size of air conditioner 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 for a central A/C system. If this is impractical or too expensive, ask your contractor or vendor about a “ductless” 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.

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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 look for the ENERGY STAR label to save 10 percent over standard models. Also, be sure to 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. A BTU is a unit of energy used to measure heat or cooling energy.

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

Adjust the size of the unit 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.

### 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 label. More efficient units have lower wattages and will save 10 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; 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 ceiling fans 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 and 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 label.
- **Find and seal air leaks.** The biggest ones are usually around gaps in plumbing, chimneys, and wiring bypasses; in dropped ceilings; and in soffits above cabinets. 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 temperature 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 of your home's systems as well as recommendations to increase the comfort, safety, durability, and value of your home.

#### **TAKE ACTION TODAY. SEE RESULTS TOMORROW.**

Lower energy costs. A healthier home. Cleaner air and water. These are the results when Wisconsin residents tap into energy efficiency and renewable energy. To find out how you can reduce energy costs and improve the comfort, safety, and durability of your home, call Focus on Energy at **800.762.7077** or visit **focusonenergy.com**.

#### **STAY CURRENT AND CONNECTED!**

Join our online conversation at **focusonenergy.com/socialnetworks** to connect with people who share your interest in saving energy and money at home and work. Also, visit **focusonenergy.com/incentives** for the latest incentives and requirements as Focus offers are subject to change.

#### **ENERGY STAR**

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

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800.762.7077** or visit **[focusonenergy.com](http://focusonenergy.com)**.



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