If we all reduce our central air conditioner use by just 10% in the summer, we can save 10 million pounds of coal.

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- mge.com/home
- Home Energy Line 608-252-7117
- 1-800-245-1125

Questions about billing? Call:

- 608-252-7222
- 800-245-1125

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taking responsibility

As an individual, your efficient use of energy brings benefits such as lower bills, improved comfort levels in your home and a reduced personal impact on the environment.

Acting together, our individual choices add up—for the benefit of our community, our environment and our energy future. That's the power of working together.

As your community energy company, we are committed to sharing our experience and energy expertise. You can always contact us for:

- Answers to your energy questions.
- Energy efficiency information and advice.
- Help in evaluating energy-saving options.
- Assistance in finding energy-efficient products.

listening. learning.

MGE takes responsibility to provide information and education to serve our customers and stakeholders. We educate customers today to help inform their decision-making. We educate tomorrow's stakeholders so they can help plan our energy future.
We estimate Power Control will be used once every 10 years. For more information or to sign up for Power Control, call MGE at 252-7117 or email askexperts@mge.com.

How to stay cool
There are many options to consider when selecting home cooling equipment. This booklet aims to give you a higher level of comfort with the decisions you make. We take a look at the three cooling options—whole-house fans, central air and room units—and share energy-saving advice for each. For more information, please visit mge.com or call us at 252-7117.

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ENERGY STAR-labeled products use less energy, reduce your energy costs and help to protect the environment. We’re an ENERGY STAR partner. Learn more about qualifying products at energystar.gov or call the MGE Home Energy Line at 252-7117.

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Table of contents
Cooling options ........................................................  2
Whole-house fans.....................................................  2
Room air conditioners ..............................................  3
Central air conditioners ............................................  6
Special cooling systems .........................................  10
Power control for central air conditioners ...............  11
Look for this symbol when you shop.......................  12
Resources and incentives .......................................  12
Cooling options

Look at all the options before deciding how to keep your home cool during the summer. The wrong choice may cause disappointment and put an unnecessary drain on your energy budget. Choose from three types of cooling equipment:

- Whole-house fans flush hot air out of the house and draw cooler air in through open windows.
- Central air conditioners cool and dehumidify the entire house.
- Room air conditioners cool and dehumidify one or two rooms.

Whole-house fans

Whole-house fans pull cool air in through open windows and doors and expel warm air through attic vents. They cool the entire home but don’t dehumidify. If you’re allergic to pollen, whole-house fans aren’t a good choice unless you place filters in the open windows.

Whole-house fans are far less expensive to operate than central air conditioners.

A mid-efficiency air conditioner costs about $150 to operate over a typical Madison summer while a whole-house fan costs only $25 per summer.

Purchasing and installing fans

Whole-house fans are sold by most home building centers and some department stores. Electrical and carpentry skills are required to install the fan. Ask the dealer for details.

Ductless mini-split system

A ductless system has the condensing unit outdoors, much like a central air conditioner. The condensing unit is connected to up to four wall units, each with its own evaporator coil and fan. These wall units are connected to the outdoor condensing unit by a small hose running through the wall, so no ducts are needed.

The wall units look like wall-mounted room air conditioners, only thinner. This type of air conditioner allows you to cool rooms individually. Ductless systems can be expensive.

Power Control for central air conditioners

Air-conditioning creates high demand for electricity on the hottest days of the year. To help meet this demand, MGE developed the Power Control program to provide emergency reserves. MGE pays participants $8 per hour when their air conditioners are shut off. There is no cost to customers who choose to participate in the Power Control program.

If you join Power Control, an electronic switch is installed on or near the outdoor part of your central air conditioner. If reserve power is needed, MGE sends a radio signal to shut off the compressor. When the need has passed, the air conditioner is turned back on again. During the time the air conditioner is off, all other lights and appliances function normally.
Practical features include:
• Variable speeds for comfort and noise control.
• Timer or thermostat for automatically starting and stopping the fan.
• Insulated airtight cover to stop winter heat loss.
• Automatic shutoff to turn off fan in case of fire.
• Certification by Home Ventilating Institute (HVI) and Underwriters Laboratory listing.

Room air conditioners
A correctly sized room air conditioner can cool and dehumidify one or two rooms. Portable fans placed in doorways of air-conditioned rooms may pull cool air into other rooms.

Sizing
The cooling capacity of room air conditioners is expressed in British thermal units per hour (Btu/h). Use the chart on the next page to find the size needed.

Air conditioners should be properly sized. Units that are too small have trouble cooling on hot days. Units that are too large cool quickly but dehumidify poorly, making the room feel cool and clammy.

Make sure the air conditioner fits the window.
Efficiency
Look for the ENERGY STAR® and yellow EnergyGuide labels. The higher the energy efficiency rating (EER), the more efficient the air conditioner. MGE recommends purchasing an ENERGY STAR model.

Size selection guide
To calculate the size of the room air conditioner:
1. Determine the area to be cooled by multiplying each room’s length by its width. Add room areas. This is the area to be cooled.
2. Determine the type of ceiling in the area to be cooled. If the ceiling has occupied space above it, choose Band “A” on the chart. If the ceiling is insulated and is directly under an attic, choose Band “B.”
3. Move within the band to adjust for exposure: left for a northerly or well-shaded exposure or right for a westerly exposure.

Ducts
- Leaky ducts should be sealed with foil tape or water-based duct sealant. Despite its name, duct tape doesn’t seal well. Ducts that run through attics, garages, etc., should be both sealed and insulated.
- Undersized ductwork can lead to excessive noise and restricted airflow.

Energy-saving tips
- Check the furnace filter monthly, change when dirty.
- Check the drain hose to make sure water drains freely. Flush out hose is clogged.
- Close lower return registers for better cooling if you have return registers near the ceiling.
- Hose off the outdoor condensing unit in the spring to remove dirt and leaves.*
- Set the thermostat at 78 degrees. Every degree cooler increases the operating cost.
- Give the unit time to cool the home. Setting the temperature extra low won’t cool the house faster—it just costs more. Air conditioners remove humidity first before the room temperature drops, so be patient.
Other considerations
• Air flow and refrigerant charge need to be adjusted by the installer for each installation. If not, efficiency and comfort can be affected.
• Plan for the noise the unit will make (ask for a sound rating). Try to keep the unit away from bedroom windows.
• Replace electric appliances with natural gas models as an alternative to upgrading the electric service to handle an air conditioner.
• Look for models with a TXV (thermal expansion valve).
• Ask about installing additional return registers near the ceilings to get better air flow. (The hot air near the ceiling is pulled back to the air conditioner instead of the cool air near the floor. Registers with dampers allow closing floor return registers in the summer.)
• Ask the installer about an access panel in the ductwork over the furnace for cleaning the evaporator coil. Also ask whether a cover over the outside condensing unit is needed during the winter.

Choosing a contractor
• Be careful of shopping by price alone. Compare quality and features, and the warranty coverage for both parts and labor.
• When getting bids, ask friends, neighbors, co-workers, etc., for recommendations.

4. Move to the bottom of the chart to determine the Btu/h required.
5. Adjust for use patterns. Mostly night use reduces Btu/h required by about 30%. To calculate, multiply Btu/h from the chart by 0.7.

Energy-saving tips
• Seal around the unit so cool air cannot escape.
• Give the unit time to cool the room. Setting the temperature lower won’t cool the room faster—it just costs more.

Room vs. central air-conditioning
Want the whole house cooled? Look at central air-conditioning or a whole-house fan.

• Keep window coverings closed during the day to keep out the sun’s heat.
• Clean the filter during high-use periods. Clean the outdoor cooling fins annually.
• Use a timer to turn on the air conditioner just before you get home. Some room air conditioners have built-in timers.
• Remove window air conditioners in the fall to reduce cold drafts.
• Put an insulated and weather-stripped interior cover on through-the-wall air conditioners in the fall.
Central air conditioners

Almost any home can have a central air conditioner installed. Most central air conditioners make use of existing furnace ductwork. If you don’t have a forced-air furnace, see “Special cooling systems” on page 10.

Get the right size

The contractor should size the air conditioner correctly. A unit that is too small may not cool the home on very hot days. A unit that is too large costs more to purchase and cools rapidly without dehumidifying. It also runs less efficiently.

The cooling capacity of central air conditioners is measured by the ton: 1 ton = 12,000 Btu/h. If contractors recommend different sizes, ask them to explain their sizing recommendations. Buying too big an air conditioner is a more common problem than undersizing.

Accurate sizing also depends on you. Tell the contractor about rooms that are too hot or too cold, if you plan to build an addition or if you’ve upgraded your windows or insulation.

Compare efficiency

The higher the seasonal energy efficiency rating (SEER), the more efficient the unit. As of 2015, the minimum SEER is 13. ENERGY STAR central air conditioners have a SEER of at least 14.

The SEER changes with different condensing unit and indoor evaporator coil combinations. Ask contractors to verify the SEER of the combination they recommend. Manufacturers offer matched combinations to avoid problems that result from mismatches. It’s usually a good idea to replace the indoor coil at the same time the outdoor condensing unit is replaced.

Dehumidification

For better comfort during humid weather:

- Don’t run the furnace fan continuously.
- Use exhaust fans to remove moisture from showering and cooking.
- Multi-stage air conditioners are available. When paired with a variable-speed furnace fan, they operate more quietly and dehumidify better.
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*The evaporator coil cools and dehumidifies the house air that is blown through it by the furnace fan. The heat removed from the home is released outdoors by the condensing unit.*
Other considerations
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Special cooling systems
For houses without forced-air heat, air-conditioning is possible. Attic ductwork or ductless mini-split systems can be added.

Attic-mount system
This system has the condensing unit outdoors. The condensing unit sends the liquid refrigerant to an evaporator coil and blower located in the attic. The cool air is distributed through small vents in the ceiling. The special ductwork and blower in the attic add to the expense of these systems. Attic ducts should be sealed and well-insulated.

*Note: Shut off the power at the fuse or breaker box for maintenance or cleaning.
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Table of contents
Cooling options ......................................................... 2
Whole-house fans ..................................................... 2
Room air conditioners ............................................. 3
Central air conditioners .......................................... 6
Special cooling systems ......................................... 10
Power control for central air conditioners ............... 11
Look for this symbol when you shop ..................... 12
Resources and incentives ....................................... 12
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