

KUNI Radio Series “Unplugged”  
Show #34: Sizing AC

From the Center for Energy & Environmental Education at the University of Northern Iowa, this is Pat Higby with a series of programs on Iowa Public Radio KUNI to help you save energy.

About **one sixth** of all the electricity generated in the US is used to air condition buildings! The production of that electricity is expensive in dollars, air pollution, and greenhouse gas emissions. But with the increased temperatures associated with global warming, we must cool our homes, schools, and workplaces. If you need to replace your cooling system, here are some things to consider.

First, have you insulated your home, replaced windows, or sealed air leaks to conserve heat during the winter? If you have, then when you replace your air conditioner you may need a **smaller** unit. Putting in a system that is over-sized is like filling bathtubs with a fire-hose! The AC unit is on for a short time, shuts off, then turns on again when the air temperature rises. This frequent cycling causes air temperatures to fluctuate uncomfortably and wears out the compressor. It also **reduces** moisture removal, which is critical on hot humid days. Since larger units also cost more, it is very important that you install the best size for your home’s needs.

Air conditioners are sized according to the amount of heat they can remove. Years ago in Cedar Falls ice was harvested in the winter and used for cooling during the summer. One **“ton”** of cooling capacity was the amount of heat to melt one ton of ice every 24 hours. A more modern measure is the number of British Thermal Units or BTUs per hour.

A reputable air conditioner contractor has several tools to calculate the best size **central** air conditioner for your home. The general guideline for **room** air conditioners is 20 BTUs for each square foot of living space being cooled. If the room is heavily shaded, you can reduce the capacity by 10 percent, but if it is very sunny, you should **increase** it by 10 percent. If more than two people regularly occupy the room, add 600 BTUs for each additional person. If you are cooling a kitchen, add another **4,000** BTUs.

The amount of money saved by installing a new unit will vary with the age of the old system. Today’s room air conditioners are **47 percent** more efficient than those built in the 1970s. Replacing one of these with an Energy Star unit can cut cooling energy costs in half. Please check your local utility before shopping, because many have rebates for more efficient units.

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