



Thermostats: advantages of updating

HSB, a Munich Re company, is a technology-driven company built on a foundation of specialty insurance, engineering, and technology, all working together to drive innovation in a modern world.

Thermostats

Historically, thermostats have provided the controls to maintaining a constant temperature in the home. This type of control ignored the benefits of proper space conditioning, when occupants' use did not require heating or cooling.

The efficiency of the thermostats can be improved with daily setbacks, but this requires too much attention to be sustainable.

Radiator valves with room temperature set-points are typically available for heating systems, and some are "do it yourself" (DIY) applications. Cooling system zoning is a little more complicated, and will usually involve some contractor support.

Programmable thermostats

Improvements in thermostat technology can provide these reduced operating costs, while maintaining the same level of comfort, without constant operation by the homeowners.

You can save as much as 10% a year on heating by programming your thermostat back 7°-10°F for eight hours a day from its normal setting. Increasing the temperature by similar amounts can maintain these savings levels during the cooling season.

Program the thermostat to consider when you normally go to sleep and wake up, allowing for the time it will take to heat or cool the home to bring the house temperature to be suitable for your waking hours.

If there are multiple set-points and the home is totally empty during periods of more than four hours during the day, some programmable thermostats may accommodate these similar to sleeping hours, resulting in additional savings.

Upgrade to a smart thermostat(s)

Switching from a programmable thermostat to an energy-efficient smart thermostat can provide additional savings. Many of these thermostats have additional “learning features” driven by occupancy sensors, which can automatically compensate for working hours of various members of the household, minimizing daytime space conditioning when the house is uninhabited. These sensors can also learn the patterns of the occupants, to start space conditioning before the household members typically arrive home.

Many smart thermostat models can utilize wireless signal controls through your Wi-Fi network from smartphones at no additional charge. For example, if the family is away for a weekend, the home can be maintained at more economical set-points, while you are away. When the smart thermostat is signaled by a smartphone, to return to “normal” schedules during the trip home, your normal set-points can be reset by the time you arrive.

Limitations for heat pumps, electric heating, steam heating, and radiant floor heating

Specific smart thermostats should be compliant with the heat pump Original Equipment Manufacturers (OEM) to ensure the system doesn’t alternate between heating and cooling inappropriately.

Electric heating systems are normally controlled by line voltage; 120-volt or 220-volt systems, which are not compatible with most programmable thermostats. Line voltage programmable thermostats must be selected with some guidance from the OEMs.

Steam heating systems and radiant floor systems typically have slow response time (up to several hours), and OEM guidance can provide proper equipment selection advice to allow for these applications.

Energy savings

Using ENERGY STAR smart thermostats is the simplest method to ensure your location is using high-efficiency temperature controls. Smart thermostats are estimated by industry experts to extend the basis of programmable thermostats from energy savings of 10% to more than 20%. If everyone used an ENERGY STAR certified smart thermostat, our annual savings would grow to 56 trillion BTUs of energy and \$740 million per year, while offsetting 13 billion pounds of greenhouse gas emissions each year.

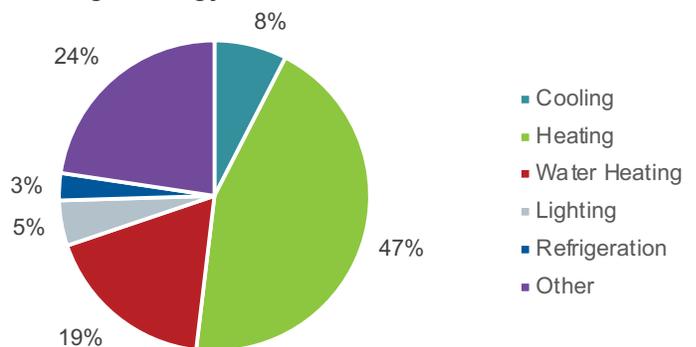
The U.S. Department of Energy offers tips for saving energy and therefore money, but there’s one tip that jumps out to us above the rest — keep an eye on your thermostat.

For additional ENERGY STAR information on independently certified thermostats and do-it-yourself savings ideas, see: <https://www.energystar.gov/productfinder/product/certified-connected-thermostats/results>.

Home heating and cooling system costs

Heating and cooling a home or apartment uses more energy and costs more money than any other system at a location combined, making up about 55% of the utility bill.

Average Energy Use in U.S. Homes



Source: U.S. Energy Information Association (2015)