Installing Programmable Thermostats

Shades of Green
Tool Bench

Programmable Thermostats – Automatic Energy Savings!

Staying comfortable year-round is easier once your home envelope is sealed and insulated, but most homes will still cost around $2,200 each year to heat and cool. Save up to 30% of those energy dollars while maximizing comfort – automatically! – with a programmable thermostat.

How It Works

A thermostat controls the home heating and air conditioning systems, keeping inside air at the temperature set by the homeowner. Conventional thermostats must be set by hand to either 'heat' or 'cool' and run constantly until the setting is changed or turned off by the homeowner.

Programmable thermostats allow the homeowner to set temperature controls by time of day and day of the week. Programmable thermostats allow the homeowner to set up a schedule that automatically adjusts heating or cooling during the weekday when everyone is at work or school, and adjusts temperatures again at night when the household is asleep to save energy – but comes on again just before everyone arrives home or wakes up. Weekend settings adjust cooling and heating demands for different weekend schedules, and vacation settings on these thermostats 'hold' temperatures at minimal settings when you are away for long periods.

FAST FACT: When used properly in homes with central air and heating systems, an Energy Star labeled programmable thermostat can reduce household heating and cooling bills by 20 to 30 percent.

Three Types of Programmable Thermostats

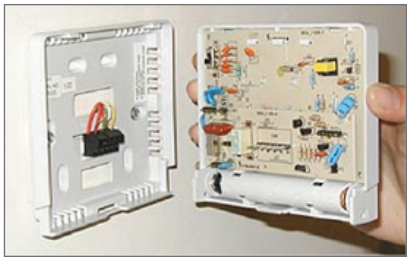
No matter which model you choose, pick a unit with the Energy Star label. According to EPA:

- **7-day models** are best if your daily schedule tends to change, say, if children are at home earlier on some days. They give you the most flexibility, and let you set different programs for different days — usually with four possible temperature periods per day.
- **5+2-day models** use the same schedule every weekday, and another for weekends. These are easiest to program, but less flexible than the other two models.
- **5-1-1 models** are best if you tend to keep one schedule Monday through Friday and another schedule on Saturdays and Sundays.

How to Install a Programmable Thermostat

Many different models and brands of programmable thermostats are available. These general guidelines will get you started, but always choose an Energy Star-labeled programmable thermostat and follow the specific installation instructions for your model. Before you begin, **turn off all electrical power to the house** at the fusebox (usually located in the basement)

1. **Remove the old thermostat.** Many older thermostats contain a glass tube filled with mercury – be careful not to crack or break the tube. This mercury tube must be disposed of through your local hazardous waste facility.



Change the batteries in your programmable thermostat at least once each year.

2. **Choose a location** for the new programmable thermostat on an interior wall, away from heating or cooling vents and out of the way of direct sunlight. You can use the previous thermostat location and the old wires if the location is acceptable. There could be two to 10 wires, color-coded, to re-attach. Attach a piece of tape to the ends of all old wiring, labeling cooling and heating system wires. Tape wires to the wall to prevent wires from falling inside the plate cavity.
3. **If you are moving the programmable thermostat to a new location**, work with a certified HVAC installer to re-wire the new thermostat (your YouthBuild construction lead may hold this certification).
4. **Install the new wall plate**, using a level and drywall anchors as necessary.
5. **Follow the manufacturer's directions** for connecting wiring from your HVAC system to the thermostat lead points. Install fresh batteries in the thermostat if batteries are used. (Usually, two AA batteries power the programmable thermostat.)
6. **Mount the programmable thermostat to the wall plate.**
7. **Restore electricity to the home**, and program your thermostat using the manufacture's directions.

Suggested Thermostat Settings

The Environmental Protection Agency suggests using the following guidelines for programmable thermostat settings to balance energy use and comfort. According to the Department of Energy, each 2 degrees shift in air conditioning in summer, or heating in winter, helps save the homeowner 10% on their annual energy bills – make these savings automatic with your programmable thermostat settings!

Programmable Thermostat Set Point Times & Temperatures (suggested)

Setting	Time	Setpoint Temperature (Heat)	Setpoint Temperature (Heat)
Wake	6:00 am	≤ 70° F	≥ 78° F
Day	8:00 am	Setback at least 8° F (55° is safe for houseplants and pets.)	Setup at least 7° F (85° is safe for houseplants. Leave extra water for pets.)
Evening	6:00 pm	≤ 70° F	≥ 78° F
Sleep	10:00 pm	Setback at least 8° F	Setup at least 4° F

Courtesy: www.energystar.gov

Link and Learn

Description of Energy Star programmable thermostats:
http://www.energystar.gov/index.cfm?c=thermostats.pr_thermostats

Heating and Cooling Tips from the Department of Energy:
http://www1.eere.energy.gov/consumer/tips/heating_cooling.html