

Ask Jon Eakes

How far back should a set back thermostat be set?

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Jack wrote: I recently installed an electronic thermostat. I have it set for 21 degrees before bed and then down to 15 overnight. Someone told me I shouldn't have more than a 5 degree difference because the furnace would have to work harder in order to warm up the house in the morning, therefore making it less efficient. Any truth in that?----- Reply Short answer: NoLong answer:-- Any amount of temperature set-back (either done manually or through a programmable thermostat) will result in energy savings because the less the temperature difference between the indoors and the outdoors, the less the heat loss. -- The longer the set-back time, and the greater the set-back temperature, the greater the resulting savings. -- Furnaces do not work harder, but output heat at a constant temperature until the thermostat senses the target temperature. The greater the difference between the actual temperature and the desired temperature, the longer the furnace will run, but it will be less than if it maintained the higher temperature all night long. -- However, water radiator heated houses are slower to catch up the set-back and have to be started earlier in the morning -- giving you less total savings. Houses with great thermal mass inside have the same problem. Standard houses with thin drywall between the inside air and the insulation will catch up a set back the quickest and allow for the greatest savings with furnace set-backs. -- The amount that you set-back your furnace is best determined by your comfort level. -- Energy savings resulting from set-back is a curve: the savings from a 10 F set-back is not double that of a 5 F set-back, but it is greater. Some notes on programmable thermostats that we picked up from Honeywell:-- General rule of thumb: for an 8hr setback, 1 F set-back = 1% energy savings -- HONEYWELL recommends a minimum set-back of 6hrs for maximum savings -- It is very important to get the wiring right when you install a programmable thermostat, or else you might cool the house when you want to heat it. Thermostat wires tend to be colour coded, but it is a good idea to label the wires before you remove your old thermostat. If you do not see standard wiring, you may want to check the wiring at the furnace - this is usually found at the fan compartment of the furnace. If you are still in doubt, contact a contractor or electrician to install the thermostat. -- If you have a heat pump, improper wiring could ruin your reversing valve. It is best to get a professional to install your thermostat. -- Most gas & oil companies offer a heating/home insurance program which will cover the replacement or repair of faulty thermostats. Check with your company to see if you are covered. When shopping for a programmable thermostat:-- Check the temperature differential of the unit: this represents the sensitivity of the thermostat to temperature differences and will govern when the furnace comes on and when it shuts off. The lower the differential the better. (HONEYWELL thermostats feature a differential of less than 1 F.) -- Look for a thermostat with a warranty. -- Thermostats are available in 24hr models, 7 day models, 5+2 day models, and 5+1+1 day models. -- Look for extra features like outdoor temperature sensitivity, back-up battery power, backlit displays, one button interface, and vacation hold capability. -- The "Cadillac" of programmable thermostat system is the zoning system, which divides the home into different environmental zones. Each zone can have different temperature and set-back settings. This does not require separate furnaces, but for forced air zones are controlled by electronic dampers in the ductwork and for hot water systems zones are controlled by individual solenoid valves. Baseboard electric systems are already zoned as each room has its own thermostat, which can each be individually programmable.

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