

ASHRAE Technical FAQ

ID 91

Question Should residential furnaces utilize a thermostat setback strategy to save energy?

Chapter [S33](#), Furnaces, in the [2016 ASHRAE Handbook - Systems and Equipment](#) notes that a night setback thermostat can reduce the annual energy consumption of a gas furnace. Dual setback (setting the temperature back during the night and during unoccupied periods in the day) can save even more energy. The magnitude of energy savings realized depends on the degree and length of setback and the geographical location. The chapter references ASHRAE published technical papers (Koenig, K. ASHRAE Transactions 84(2): 335-351, Nelson & MacArthur ASHRAE Journal Sept. 1978:49-59) in support of the setback thermostat. Other ASHRAE Technical Papers on the topic include:

- Answer
- "Field Test of Energy Saving with Thermostat Setback". T. Beckey & L. Nelson. ASHRAE Journal Vol. 23(1), pp. 67-70.
 - "Beyond Setback: Energy Efficiency through Adaptive Control". M. Levine & L. Moll. ASHRAE Journal Vol. 23(7) pp. 37-39.
 - "Seasonal Operating performance of gas heating systems with certain energy savings features". Gable & Koenig. ASHRAE Transactions, Vol. 83(1).
 - "Energy Savings Through Thermostat Setback". L. Nelson & MacArthur. ASHRAE Transactions Vol. 84(2). pp. 319-334.
 - "Reducing Fuel Consumption with Night Setback". L. Nelson. ASHRAE Journal 15(8) pp. 41-49.

Electric furnace/heat pump owners should determine the potential impact on their utility bills of the warm-up cycle at the end of the setback period before beginning a setback control strategy.

[ASHRAE Standard 90.2 -2007](#), Energy Efficient Design of Low-Rise Residential Buildings, requires that temperature controls be readily accessible and capable of providing a means to employ a setback strategy. The standard also assumes setback when comparing a proposed design to the prescriptive requirements of the standard.

Copies of the handbook, standards and latest addenda, and other publications may be purchased and downloaded online at our website, www.ashrae.org or by calling 1-404-636-8400 worldwide.

[2016 ASHRAE Handbook - Systems and Equipment, Chapter S33](#)

ASHRAE Pubs [ASHRAE Standard 90.2 -2007](#), Energy Efficient Design of Low-Rise Residential Buildings, plus [ASHRAE BOD approved addenda](#).

Topic References Furnace, energy, setback, thermostat, efficiency, savings, controls

	Cognizant ASHRAE Committees	Refer to Organization
1	TC 7.6	US DOE
2	TC 6.3	
3	SSPC 90.2	
4		
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