



# BUILDING IN ALASKA

EEM-04953

## YOUR OIL FURNACE: Keep It Running Efficiently

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Extension Energy and Housing Specialist*

In the past, the owner of an oil heating system had no direct way of monitoring the performance of the burner. Consequently, the owner didn't know when maintenance or a tune-up was required. A recent state report\* recommends that oil heating systems be owner-monitored by purchasing a bimetallic thermometer with a temperature range of 150° – 750°F (see note). The thermometer is used to measure the temperature of the exhaust in the stack. Almost any change in the performance of a heating unit will result in a change in stack temperature. The efficiency decreases no matter if the stack temperature rises or falls from the tune-up value, although a higher temperature is much more common than a lower one.

A homeowner simply inserts a thermometer into the stack and checks the temperature at regular intervals. Checking every two months is recommended. A small hole is usually present in the stack of most burners that have been tuned and is a handy place for inserting the thermometer. The hole is made by a furnace repair person during an initial burner tune-up to enable measurements to be taken and exhaust gas samples to be extracted.

Compare the measured stack temperature to the temperature of the stack recorded at the time of a tune-up. This enables the homeowner to see if the system's efficiency is dropping. A rule of thumb is that a change of 40°F represents a drop

in efficiency of 1 percent. Using this information, the homeowner can decide when a burner needs to be tuned. Generally, a change of 80° – 100°F from the last tune-up is an indication of need for another tune-up.

In the past, a record of the stack temperature was usually not given to the homeowner. This made it impossible to evaluate the rate of degradation of burner performance. The furnace maintenance person and the homeowner were left without any knowledge of past performance and without evidence to help them decide whether or not a burner needed to be tuned.

Now, the Cooperative Extension Service has a sticker available (attached) that can be placed directly on your oil furnace as a permanent record of tune-up information. On the sticker, the furnace maintenance person should record the following:

- date of the tune-up
- stack temperature
- stack draft
- CO<sub>2</sub> number
- smoke number
- combustion efficiency
- nozzle size

This information should be a part of a normal tune-up. Recording the tune-up then becomes a reference and historical record of the burner's

performance. Additional burner maintenance stickers can be obtained by calling the Cooperative Extension Service at 474-7201. Please ask for publication number EEM-04953A.

**Note:** To make a temperature measurement, you will need a thermometer with a range of 150° – 750°F. A bimetallic thermometer is constructed of two metals and is recommended for its durability. It typically costs about \$45 and can be purchased at Palmer Instruments, Inc.

Palmer Instruments, Inc.  
234 Old Weaverville Road  
Asheville, NC 28804-1228  
(828) 658-3131  
(828) 658-0728 FAX  
(800) 849-9765  
www.palmerwahl.com  
info@palmerwahl.com

Call the company or visit its site on the Internet for the latest information.

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*For more information, contact your local Cooperative Extension Service office or Richard Seifert, Extension Energy and Housing Specialist, at 907-474-7201 or ffrds@uaf.edu. Revised by Richard Seifert in July 2009.*

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# Furnace Maintenance Record

Courtesy of  
Cooperative Extension Service  
University of Alaska Fairbanks

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

	DATE / /	DATE / /	DATE / /	DATE / /
STACK TEMP. °F (Steady)				
DRAFT (Inches H <sub>2</sub> O)				
CO <sub>2</sub> NUMBER				
SMOKE NUMBER				
COMBUSTION EFFICIENCY				
NOZZLE SIZE				
SERVICED BY				

**TO MAINTENANCE PERSONNEL:** Please enter the appropriate numbers and date of each tune-up. Note any comments on the system in this space:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_