BUILDING IN ALASKA

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YOUR OIL FURNACE:
Keep It Running Efficiently

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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 bi-metallic thermometer with a temperature range of 150°F - 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 which 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%. Using this information, the homeowner can decide when a burner needs to be tuned. Generally, a change of 80°F to 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

*This paper is based on research reported by the Alaska Department of Transportation and Public Facilities Research Section. The research was published in a report entitled *Furnace Efficiency Testing*, by Joe Durrenburger. 1983.

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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
— CO_2 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.

Below is a recording chart to help in keeping track of furnace stack temperature changes. Compare your measurements with the stack temperature entered on the sticker at the time of the most recent tune-up. When the change is more than 80°F, call for a tune-up.

Note. To make a temperature measurement, you will need a thermometer with a range of 150°F to 750°F. A bimetallic thermometer is constructed of two metals and is recommended for its durability. It typically costs $65 (2006/07 price). Presently the best supplier is Brooklyn Thermometer Company, Inc., 90 Verdi Street, Farmingdale, NY 11735, phone (800) 241-6316, fax (631) 694-6329. The 2006 thermometer catalog number is 5236. Call the company for the latest information.

Tune-up Stack Temp.	Date	Stack Temp.	Change	Date	Stack Temp.	Change

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