

Savings Analysis Worksheet

Space Heating

Opportunity

Older boilers and furnaces waste energy. Over the past 30 years, the efficiency of heating units has improved by 25 percent or more. In addition, as heating equipment ages, performance can deteriorate. If you have a boiler or furnace that is 15 years old or older, it may pay to replace it with a new high efficiency unit.

Building owners and managers can reduce heating bills and ensure safe operations by having a qualified technician conduct an annual tune-up of their heating system. Even a well-maintained boiler should achieve a one percent improvement in efficiency after the tune-up.

Action: Install a high efficiency boiler or furnace and maintain your system.

High Efficiency Furnaces and Boilers

Conventional boilers are space heaters that use burners fueled by natural gas to supply heat in the form of hot water or steam through a system of pipes. Energy efficient boilers utilize features, such as pulse combustion, sealed combustion, condensing, modulating burners, economizers and vent dampers, for more efficient combustion or to minimize heat loss.

Conventional furnaces are forced air space heaters that distribute warm air where needed, through ductwork, after

circulating the air across a heat exchanger. Energy efficient furnaces utilize features such as a secondary heat exchanger, electronic ignition and sealed combustion.

Maintenance

Keep your heating system in top condition by changing filters and having it serviced at least once a year. Annual service will help your heating system function at its peak and can help detect problems before they leave you in the cold. In addition to being wasteful, incomplete combustion and corroded or cracked heat exchangers can be dangers to the health of you and your employees.

More Information

You can use the worksheet on the reverse side to gain an understanding of the potential savings if you replace your boiler or furnace. Consult with your HVAC dealer for a more precise estimate on prices and savings. For names of HVAC professionals in your area, fact sheets on other energy saving opportunities and more information on the Focus on Energy Program, call 800.762.7077. Information in this fact sheet was derived from the ENERGY STAR® Small Business Guide published by the Environmental Protection Agency, as well as other sources. For more information on the ENERGY STAR Small Business Program, visit energystar.gov or call Focus on Energy.



Estimate Your Savings

You can estimate the savings you would realize if you installed a high efficiency boiler or furnace by completing the worksheet below.

- A. Enter the output size of the existing boiler or furnace in Btu/hour.
- B. From Table 1, select the city nearest your location and enter the listed number of hours.
- C. Enter your average energy cost per therm (from your gas bill). If you don't know what it is, enter \$1.00.
- D. From Table 2, select the approximate age of the existing unit, and enter the listed efficiency.
- E. Calculate your current annual operating cost based on the formula in the chart below.
- F. Enter the size of the proposed boiler or furnace.
- G. Enter the hours you entered in B.
- H. Enter the cost per therm you entered in C.
- I. Enter the efficiency of the proposed unit.
- J. Calculate your current annual operating cost based on the formula in the chart below.
- K. Calculate your proposed annual energy cost by subtracting J from E.

A. Current unit size Btu/hr		B. Heating hours for your area		C. Cost per therm		D. Current unit efficiency		Btu per therm		E. Current annual cost
	x		x		÷		÷	100,000	=	

Table 1
Equivalent Full Load Heating Hours

City	Hours
Eau Claire	1,761
Green Bay	1,638
La Crosse	1,425
Madison	1,485
Milwaukee	1,347
Superior	1,913

Table 2
Approximate Efficiency Based on Age

Approximate age	Boiler	Furnace
5-10	78%	82%
10-15	70%	75%
15-30	65%	70%
>30	60%	60%

F. New unit size Btu/hr		G. Heating hours for your area		H. Cost per therm		I. New unit efficiency		Btu per therm		J. New annual cost
	x		x		÷		÷	100,000	=	

K. Annual savings = E - J = \$ _____