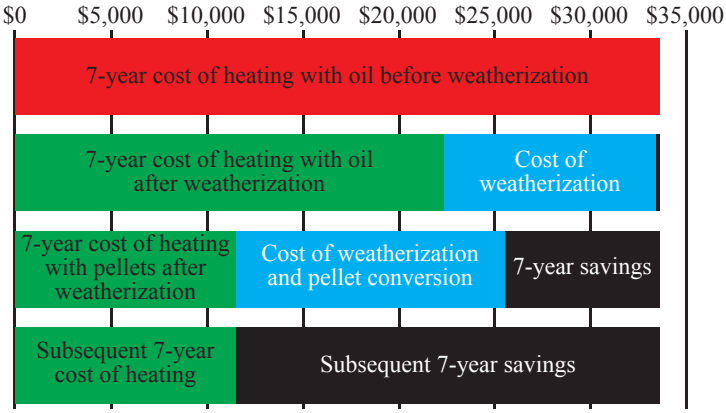
Marshfield Case Study
The Phillips Home: Saving Lots of Money

You are welcome to visit: 454-7702

Kass and Rich Phillips' 1858 farmhouse was expensive to heat and had its share of drafts. Over the last 40 years, 12" of fiberglass insulation was added to the attic and all the outside walls had been removed, 4 inches of fiberglass added and sheetrock installed. Still the house required about 1,200 gallons of oil each winter. This would be $4,800 at today's prices ($4/gal)

An energy audit was completed in 2010. The main findings were that much of the warm air was escaping to the attic and the granite foundation was leaking badly. Improvements included sealing penetrations in the attic floor, especially around the chimney, dense packing cellulose down the side slopes and into the eaves to cut off warm air flowing up the exterior walls, adding 12" of cellulose to the attic floor and spray foaming the basement sill and wall down below ground level. The total cost was about $11,000.



The savings and payback figures associated with the oil use reduction are shown in the left column below. After a heating season, we found the heat requirement was substantially reduced so we installed a pellet stove which now heats the house with the doors closed on two upstairs rooms—the boiler is not used except for the back room.

Payback Oil		Final Payback w/ Pellets	
Original Cost Oil	$4,800	Original Cost Oil	$4,800
Savings with Oil	$1,600	Savings with Pellets	$3,150
Cost after Improvements	$3,200	Cost after Improvements**	$1,650
Improvement Cost	$11,000	Improvement Cost (w/stove)	$14,000
Payback	6.8 yrs	Payback	4.4 yrs
Heating Efficiency before*	65,000	Heating Efficiency before*	65,000
Heating Efficiency after*	43,600	Heating Efficiency after*	34,900
Air Leakage Reduction	40%		

* Units are BTU/ft^2/yr, a measure of the home's relative heating efficiency

** Includes 150 gallons of oil for the back room