

How Energy Efficient Is Your Home? Worksheet

You can easily estimate the relative energy efficiency of your home just by knowing the square footage of your home and how much fuel you consumed last year. Although this is not a precise account of your home's energy efficiency, the worksheet calculations do provide a rough gauge of whether there are important opportunities to improve its efficiency.

Step 1 – Determine how much fuel you use.

Determine how much fuel you used last year from all sources, such as oil, wood, electricity, etc. You can look at your old bills or call your fuel dealer for this information.

Note: The average Vermont household uses 600 kWh of electricity per month. If you use over 600 kWh, there may be electrical energy saving opportunities in your home. Your average monthly kWh: _____.

Step 2 – Convert "fuels used" to BTU equivalents.

(BTUs or British Thermal Units are a standard unit of measurement for heat content in fuels and will give you a common denominator for measuring your fuel usage.)

Multiple the quantity of each fuel you use (Step 1 above) times its BTU equivalent (in chart below) to get total BTUs for each fuel used. If you use more than one kind of fuel, add the BTU amounts together to determine the total amount of BTUs used in your home. Use the chart below to convert your fuel use to BTUs.

Converting Fuel Use to BTUs

Fuel Type	Number of BTUs (A)	Amount of Fuel Used (B) <i>(from Step 1)</i>	Total BTUs by Fuel Used (A) x (B)
Oil	138,200 BTUs/gallon		
Kerosene	136,600 BTUs/gallon		
Propane	91,600 BTUs/gallon		
Natural Gas	100,000 BTUs/therm		
Electricity	3,412 BTUs/kWh		
Wood	22,000,000 BTUs/cord		
Coal	24,000,000 BTUs/ton		
Wood Pellets	16,000,000 BTUs/ton		
Total BTUs Used:			_____



Step 3 – Determine the square footage of livable space.

Multiply the width of your house times the depth of your house times the number of floors of livable, heated space. (Basements do not usually count unless they are a heated part of your living space. Include rooms that are not being heated but are in the livable area.)

Step 4 – Calculate number of BTUs per square foot.

Divide the total BTU used (Step 2) by the total amount of square feet of heated, livable space (Step 3).

Total BTUs (Step 2) _____ ÷ total sq. ft. (Step 3) _____ = _____ BTUs/sq. ft.

Step 5. Compare your BTU/square foot to an energy efficient home.

If your home uses less than 40,000 BTUs of energy per square foot per year, you have a relatively energy efficient space, although there still may be efficiency improvements worth making. If you use over 40,000 BTUs per square foot, you probably have opportunities to improve your heating efficiency, such as improving the efficiency of the building shell (insulation and plugging air leaks) and/or improving the efficiency of the heating system. If so, as a next step, consider getting an energy audit from a certified Home Performance with ENERGY STAR contractor. For additional ways to reduce your energy use, visit www.encyvermont.com or call 888-921-5990.

Example for Calculating the Relative Energy Efficiency of Your House

Assumptions:

Size of house: 1,600 square feet

Amount of fuel used: Two cords of wood and 422 gallons of oil

Calculations:

Step 1. Two cords of wood x 22,000,000 BTUs = 44,000,000 BTUs

Step 2. 422 gallons of oil x 138,200 BTUs = 58,320,400 BTUs

Step 3. 44,000,000 BTUs (wood) + 58,320,400 BTUs (oil) = 102,320,400 BTUs total

Step 4. 102,320,400 BTUs ÷ 1,600 square feet of livable (heated) space = 63,950 BTUs/sq. ft.

This house is relatively inefficient and has relatively good opportunities for improving efficiency.

These worksheets are adapted from materials developed by Sustainable Energy Resource Group, Thetford, Vermont. You can find an on-line automatic calculator to run the numbers for your home at their website: web.valley.net/serg/energy-assessment. The calculator is under “Step 1.”