

Farm Name: _____

Space Heating

Building: _____ Area: _____ Date: _____

Space heating fuel:

Natural gas LP gas Electric Oil Other (describe)

If burner type, is unit **vented to outside**? (yes, no)

Supplemental heat source use: (estimate of electric conversion to Btu: 1h.p. = 1kW = 3400 Btu)

Motors located to reclaim motor heat? (yes, no)

Milk cooling compressor located to reclaim milk heat? (yes, no)

Water heaters located to reclaim lost heat? (yes, no)

Efficiency of burner type heaters: (Older heaters and furnaces have low efficiency)

Air Infiltration: Evaluate general tightness of the heated area. Check doors, windows, and any other openings where cold air can enter and heat can escape. Comment in space provided.

Insulation: Check the following for insulation.

Ceiling R-value ____ Type: blanket rigid loose fill spray-on

Walls R-value ____ Type: blanket rigid loose fill spray-on

Doors insulated not insulated storm door

Windows single pane double pane single pane with storms

Is there condensation on ceiling in winter

Is there condensation and/or frost on windows in winter

Ventilation: Is the space provided with a ventilation fan to exhaust moisture?

If fan is used, provide cfm of fan or diameter of fan blades _____ cfm/watt _____

Number of fans _____ Hours used per day _____ Days per year _____

Fan controls switch thermostat timer

Thermostats and Controls (heating):

Are there areas that are heated to a higher temperature much of the time that could be heated to a lower temperature? (describe)

Temperature setting in use _____

Temperature setting not in use _____

Building Sketch: Provide general sketch of layout of heat sources and areas required to be heated.

(note locations of heat sources, any ventilation, and any air inlets)

Heat loss formula: Estimate heat by comparing present practices with improvements using an estimated average outside temperature during a cold month. To get the total estimate for the year add the estimates for each month of the heating season.

$$\text{Heat loss (Btu/hr)} = \frac{\text{Area} \times (\text{Inside Temp} - \text{Avg. Outside Temp})}{\text{R-value}}$$

If temperature is set at different levels then multiply the result above by the hours per day at that temperature times 30 days and add results at each temperature. To estimate amount of fuel divide by the following heating values and efficiency. To estimate cost multiply by heating cost per fuel unit. Run comparison for improvements. (old heaters can have very low efficiency, 20 years or more)

Natural gas	(eff. 0.6 to 0.9)	100,000 Btu/100 cu. ft.	Cost per CCF _____
LP gas	(eff. 0.6 to 0.9)	91,000 Btu/gal.	Cost per gallon _____
Oil	(eff. 0.6 to 0.8)	132,000 Btu/gal	Cost per gallon _____
Electricity	(eff. 1.0)	3,413 Btu/kWh	Cost per kWh _____

Approximate R-values: (minimize window area to conserve heat)
single glass window (R=1), double glass with air space (R=2), wall or ceiling 4 in. insulation (R=16), 6 in. insulation (R=20), 9 in. insulation (R=31)