

Energy Efficient Renovations

1970's Trailer EnerGuide rating 38 >>>73

System Overview:

Northlands Trailer Park homeowners began an energy efficiency renovation on their trailer in July 2008. Before starting the renovations, the homeowners had the Arctic Energy Alliance undertake an ecoENERGY home evaluation. The pre-renovated trailer had an EnerGuide rating of 38. Following the evaluation, the homeowners:

- repaired leaks in the trailer belly bag
- rewrapped and adding insulation to the walls and crawlspace
- added insulation to the attic
- replaced old, aluminum, sliding windows with efficient, double glazed models, and
- eliminated leakages by filling any visible crack, so that the warm air could not escape.



After the renovations were completed, the follow up ecoENERGY evaluation rated the trailer an EnerGuide rating of 73, and the owners' estimated annual savings were over \$6,000; an excellent result for a 1970's trailer. They are now filling up the air leaks that were found in the second evaluation, using wood to heat and piling snow around the crawlspace in winter to make their home even more energy efficient.

Total renovations costs were estimated at \$35-40,000 plus DIY labour. \$7,000 of federal and territorial grants helped with expenses.

Detailed Performance Data:

The following savings are based on ecoEnergy standard house conditions and Yellowknife 2009 Fuel prices.

House Component	Renovation Details	Energy Savings GJ/Year	Cost Savings \$/Year
Air Tightness	77% Improvement 17.4 Air Changes per Hour (ACH) decreased to 4.08 ACH	54.9	\$ 1,750
Walls	R8 increased to R20	51.4	\$ 1,650
Ceiling	R8 increased to R60	50.7	\$ 1,625
Crawlspace Walls	R0 increased to R20	13.6	\$ 450
Windows	Aluminum Sliders replaced with Double glazed, Low E, Vinyl, Hinged	23.5	\$ 750

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Overview Performance Data:

The following savings are based on ecoEnergy standard house conditions and Yellowknife 2009 Fuel prices.

Litres of Fuel Saved	1,900	L/Year
kWh of Electricity Saved	800	kWh/Year
Savings	6,200	\$/Year
Greenhouse Gas Reduction	2.4	Tonne/Year

Figure 3 - Overview Performance Data

Comparison Performance Graph:

The following graph shows how the energy consumption of the 'Upgraded' trailer and the original 'Existing' trailer compare to an energy efficient 'R2000' Home.

The R2000 home has the best overall performance (lowest kWh/year). The upgraded trailer, while not as efficient in performance as the R2000 home, consumes significantly less energy than the existing trailer. As you can see the renovations resulted in reducing energy use by over 50%. In other words, the upgraded trailer uses more than half less energy per year.

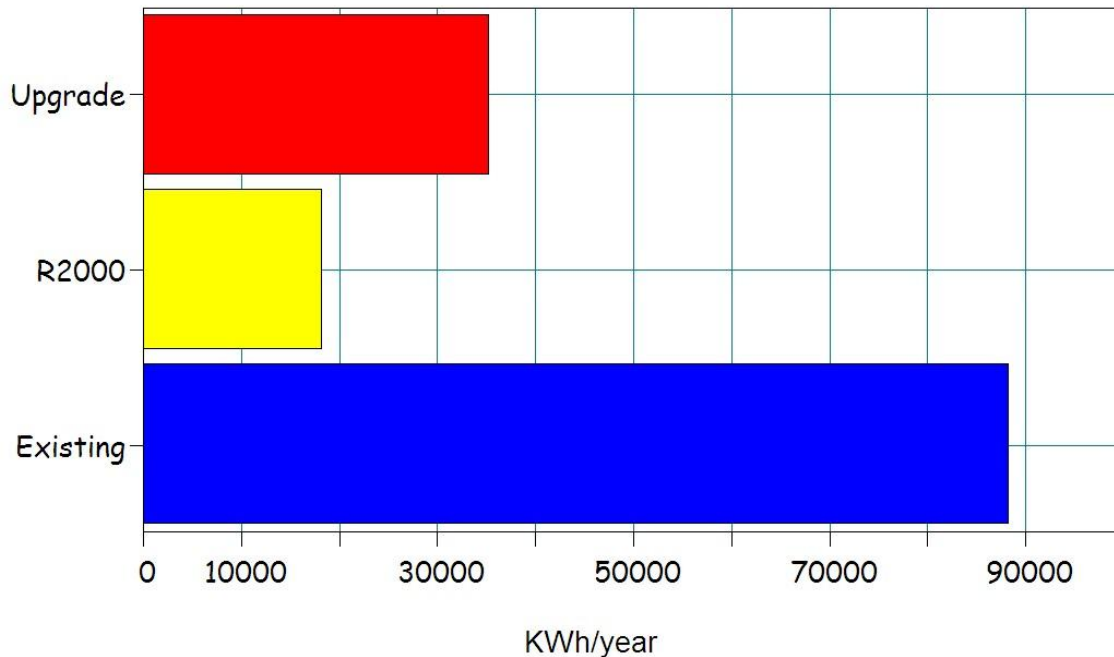


Figure 4 – R2000 Energy Consumption Comparison