



COLD CLIMATE HOUSING RESEARCH CENTER

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## **ENERGY FOCUS**

### **Energy Savings and the REMOTE wall**

**By Danielle Jamieson and Nathan Wiltse, Cold Climate Housing Research Center**

There can be significant savings in heating costs depending on the wall system used in a house, up to \$1076 a year! The Cold Climate Housing Research Center did an analysis on two different types of walls to evaluate their impact on the amount of fuel required to heat a home. The example simulated homes were top of the line and all rated at five-star or five-star-plus by the AKWarm energy rating program.

The example homes were all 2,000 sq ft 2-story houses with attached 650 sq ft 2-car garages. Each had an improved efficiency boiler that used number two fuel oil and also heated hot water using a tankless coil in the boiler. All other building components were the same.

The homes were constructed the same except each utilized a different wall construction technique. To analyze the building's insulation cost versus the saving achieved, two homes were built with a REMOTE Wall (Residential Exterior Membrane Outside insulation Technique). Each had a different insulating value. These two homes were compared to a home built using standard Alaskan wall construction methods.

The REMOTE Wall is built differently from standard wall construction in that the vapor barrier and approximately two thirds of the whole wall's insulating value are moved to the exterior of the structural members while one third of the insulation remains in the interior of the wall cavity. In standard Alaskan wall construction the vapor barrier is placed on the interior of the house and the insulation is all located in the wall cavity.

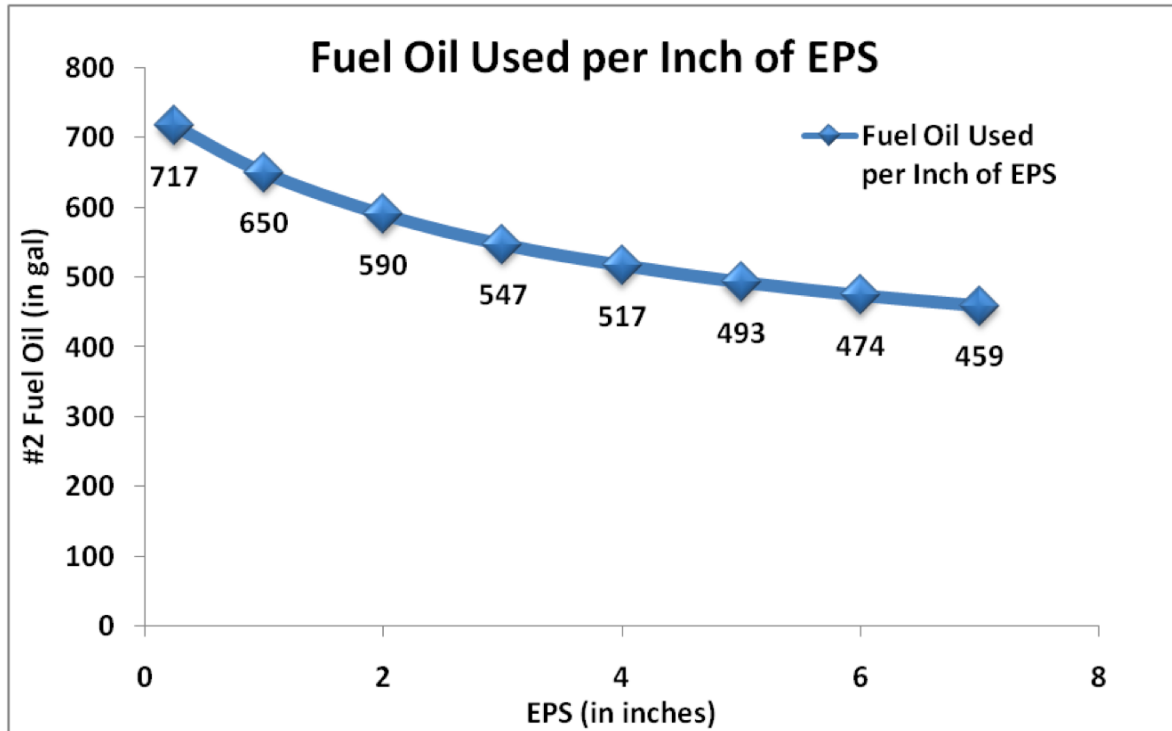
At current fuel costs, a REMOTE Wall with an a total insulating value of R-23 constructed using four inches of EPS foam and R-13 fiberglass batts in the wall cavity saves a home owner approximately \$904.00 per year in fuel costs compared to a standard wall constructed with a 2x6 studs and containing R-19 fiber glass batts—for a total insulating value of R-14.5. A REMOTE wall system rated at R-26 constructed using six inches of EPS foam saves a homeowner approximately \$1,076.00 per year over a standard wall.

The cost of the EPS insulation needed to build the four inch EPS REMOTE wall in the above designed house would be approximately \$5,250.00, whereas the cost for EPS insulation in a six inch REMOTE wall house would be \$7,875.00.

Using a simple payback calculation, the four inch REMOTE wall system would pay for itself by reducing your heating costs in approximately 5.8 years. The six inch REMOTE wall would pay for itself in approximately 7.3 years. Over a thirty year period the total savings if fuel costs remain where they are

today would be \$21,876 for the four inch REMOTE wall house and \$24,425 for the six inch REMOTE wall house. As the price of fuel rises these savings would also increase.

The graph below shows the fuel oil use in gallons (excluding the water heater) estimated using AkWarm for different thicknesses of EPS in the REMOTE wall system.



Danielle Jamieson is the Outreach Coordinator at the Cold Climate Housing Research Center (CCHRC) and holds a masters degree in Historic Preservation Architecture. Nathan Wiltse is a Building Systems Economist for CCHRC and holds a masters degree in Mineral Economics. Visit CCHRC online at [www.cchrc.org](http://www.cchrc.org) or call 457-3454 for more on cold climate construction and energy efficiency. Public tours are available Thursdays at 2 PM.