

LIFE CYCLE ANALYSIS

Life Cycle Benefits.

When choosing R-Shield® expanded polystyrene insulation you are getting a material with built-in features that provide environmental benefits for the life of the product.

Building materials and their impact on the environment must be considered over the life of the building structure. This is considered the "life cycle" of the building.

Assessment Study.

The Expanded Polystyrene Industry Alliance (EPSIA) commissioned industry leading Franklin Associates to conduct a life cycle assessment of expanded polystyrene wall insulation. The study quantified the energy use and emissions associated with expanded polystyrene foam production and compares this with the savings in energy and greenhouse gas that result from the added R-value of the foam. The life cycle stages evaluated include: all steps of expanded polystyrene in the production of expanded polystyrene foam insulation from raw material extraction, through manufacturing, shipment to the project site and finally electricity and natural gas consumption for heating and cooling of the building over its 50-year life use.

Payback.

Energy and greenhouse gas savings are determined by comparing the heating and cooling energy requirements for a typical house to the same house with added expanded polystyrene insulation. The typical house is 2x4 wood frame construction with R-13 fiberglass insulation. Then, the same house with added expanded polystyrene insulation is evaluated. The table below shows the average U.S. reduction in energy use and global warming potential.

	Energy Investment Millions Btu's	GWP Investment lbs. CO ₂ Equiv.
Expanded polystyrene Production	8.90	7.95
Expanded polystyrene Transportation	0.13	24
Total Energy Invested	9.03	8.19

	Energy Savings Millions Btu's	GWP Reduction lbs. CO ₂ Equiv.
Annual Savings	6.58	982
Savings over 50 yrs.	329	49,095

Investment Payback Period	1.37 years	0.83 years
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Summary.

Results of the study proved the significant energy savings achieved over the long-term by the use of expanded polystyrene insulation and showed substantial reductions in greenhouse gas emissions.



FOAM FACTS:

R-Shield improves the energy efficiency.

- R-Shield insulation reduces energy consumption
- Lower energy consumption reduces carbon dioxide emissions
- Is inert and stable
- Does not produce contaminating leachates
- Has never contained CFC, HCFC or HFC, all of which are harmful to the earth's ozone layers

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