

Method of Constructing Insulated Foam Homes



An Innovative Building System That Is Energy Efficient, Structurally Sound, and Easily Constructed

The concerns of the home building industry center around increasing productivity in the construction process, improving the quality of American homes, expanding opportunities for affordable home ownership, enhancing the U.S.'s competitive position relative to global markets, and ensuring the cost-effective and energy-efficient operation and maintenance of homes.

With the help of a grant from DOE's Inventions & Innovation Program, Amhome USA, Inc., developed a method of constructing buildings that are both energy efficient and structurally sound. The new home consists of an exterior patented wall system made of expanded polystyrene (EPS) foam insulation panels with an internal steel-reinforced concrete post and beam design. This wall has an R-40 insulation panel with an internal steel-reinforced concrete post and beam design. The roof is insulated by EPS slabs sandwiched between the rafters and has an R-50 insulation value. The primary innovation of this system is the way the walls are constructed, which requires less labor compared with traditional wood-frame houses.

Benefits

Environmental

The Amhome method saves timber by using 35% less wood than frame homes and saves insulation by using recycled insulation in the roof.

Productivity/Quality

Homes using the innovative EPS foam can be built faster than traditional wood-frame homes. The homes' superstructure is reinforced with concrete and steel for more stability, and the entire house is united into one solid piece.



Concrete Being Pumped into the Wall Cavity of an Insulated Foam Home

Overview

- ◆ Commercialized by Amhome USA, Inc., in 1996
- ◆ 315 homes constructed through 2003

Energy Savings (Trillion Btu)

Cumulative through 2003	2003
0.027	0.005

Emissions Reductions (Thousand Tons, 2003)

Particulates	SO _x	NO _x	Carbon
0.0	0.0	0.001	0.092

Applications

- ◆ New, single-family residences.
- ◆ New multifamily dwellings.
- ◆ Small commercial buildings.

Capabilities

- ◆ Provides an R-40 wall using EPS foam insulation panels to form the exterior walls.
- ◆ Provides an R-50 roof/ceiling using EPS foam between the rafters.