

HISTORY OF THE STRUCTURAL INSULATED PANEL (SIP's)

Forest Products Laboratory

Although foam-core panels gained attention in the 1970s, the idea of using stress skinned panels for construction began in the 1930s. Research and testing of the technology was done primarily by Forest Products Laboratory (FPL) in Madison, Wisconsin as part of an U.S. Forest Service attempt to conserve forest resources. In 1937, a small stressed-skin house was constructed and garnered enough attention to bring in First Lady Eleanor Roosevelt to dedicate the house. In a testament to the durability of such panel structures, it has endured the severe Wisconsin climate and was used by University of Wisconsin–Madison as a day care center up until 1998 when it was removed to make way for a new Pharmacy School building. With the success of the stress skinned panels, it was suggested stronger skins could support all of the structural loads and eliminate the conventional building frame altogether. After the creation of their prototype, Forest Products Laboratory entered their custom designed SIP into the marketplace where it sold for next thirty years.

Frank Lloyd Wright

Engineers from Forest Products Laboratory weren't the only ones churning out structural panels. In fact, the 1930s saw sandwich-panel technology emerge from another source. Indeed, some of the earliest examples of SIPs can be found in the Usonian houses designed by none other than the famed architect Frank Lloyd Wright.

Frank Lloyd Wright was exceptionally innovative, and his SIPs were a result of his efforts to incorporate beauty and simplicity into cost-effective homes. Wright's attempt at a panel contained no insulation; they consisted of three layers of plywood and two layers of tar paper. Due to the lack of insulation, this prototype failed to achieve widespread popularity and they were never produced on a large scale.

Alden B. Dow

Alden B. Dow - an architecture student of Frank Lloyd Wright - experimented further with the concept of structural panels. Dismayed over the lack of proper insulation in Wright's Usonian homes, concerned about energy efficiency, and fearful over depleting natural resources, Dow sought to create a structural panel with an insulated core. In 1950, Dow did just that and as a result he is generally credited with creating the first structural insulated panel.



Alden B. Dow is considered by many to be the first practitioner of SIPs

Dow's earliest SIPs were employed in homes located in Midland Michigan. The panels were composed of 1 5/8 in. styrofoam cores for the necessary insulation and 5/16 plywood facings to add structural support for the load bearing walls. These same SIPs were installed over roof framing on 42 inch centers. Many of these original SIPs can still be found in homes today.

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The Year 1999

Home Front Homes Structural Insulated Panel “SYSTEM” first introduced:



Homefront Panelized Building System

The Home Front Building System is based on structurally insulated panels (SIPS) used for producing energy efficient homes that are easily erected, environmentally friendly, EXTREMELY ENERGY EFFICIENT and are approved as a “Green Building System”.

Our standard model home kits can be erected in four days using a crew of four semi-skilled laborers equipped with little more than electric screw guns and a level.

We manufacture the “Home of the Future, Today”. The homes’ performance is superior to traditional construction methods. Our homes require 30% to 70% less electrical power to operate the home. These homes perform extremely well in hot climates, however SIPS performs even better in colder climates hence their popularity in Canada and Northern Europe.

The HFH building kit has South Florida Building Code approval (One of the most stringent in the US). SIPS panels are approved by the International Building Code.

The HFH building kit reduces the number of pieces in a standard masonry wood truss construction system of a 1400 square foot home from over 4200 parts in the shell alone to a simple 300 parts for the entire shell including the roof, floor and all thermal insulation. Our system is simple, strong, green and cost effective. Structural Insulated Panels [SIPs] allow residential, commercial, and agricultural buildings to be constructed in a timely, efficient, and cost effective manner. A structural Insulated panel (SIP), is expanded high density Polystyrene sandwiched between Oriented Strand Board (OSB) or Cement Board. The combination of the rigid foam insulated core, bonded to an outer sheathing, forms a monolithic structural I-beam. The strength of the panel comes from displacing the load across the building structure

Our panel construction system meets all applicable fire and building codes. Home Front can provide Engineering Certification for all projects. Product Approvals are available upon request.

