

UPDATE

COMMERCIAL

Insulated Sandwich Panels Conducive To Rapid Expansion of The Home Depot

The demands of building for longevity in colder climates haven't put the freeze on rapid growth for a leading home improvement retailer, thanks to an innovative sandwich panel building system featuring **STYROFOAM*** brand insulation and high-strength, corrosion-resistant fiber rods.

Since its first stores opened in 1979, The Home Depot has grown to include more than 500 warehouse-style home centers in 38 states and three Canadian provinces. To keep up the pace and meet the company's goal of operating more than 800 stores by 1999, architects for The Home Depot often rely on tilt-up construction as an effective means of quickly building new stores. In this technique, wall panels are constructed on the jobsite, eliminating delivery delays and offering freedom of choice in panel size and shape.

"Most of the Home Depot stores in the South are built using tilt-up construction," said Terry Mapes, midwest project manager who managed construction of the new 112,000-square-foot store in Walker, Mich. "To build in colder climates, The Home Depot needed an alternative construction method to meet the necessary insulation requirements."

Panel System Offers Speed, Energy Efficiency

The company found that alternative in the **THERMOMASS** Building System**.



*Pre-drilled **STYROFOAM** brand insulation is placed over fresh concrete, then fiber composite connectors are inserted into the insulation by hand to ensure the fluid concrete flows into the notch in the bottom side of the connector.*

Manufactured by Composite Technologies Corporation (CTC) of Ames, Iowa, the system combines **STYROFOAM** brand insulation from The Dow Chemical Company and high-strength, corrosion-resistant, fiber composite rods in the construction of low-cost, energy-efficient sandwich panels.

Unlike other insulated concrete wall systems, the **THERMOMASS** system combines the concrete wall and insulation in a single operation, retaining 99.7 percent of the insulation's R-value. In other systems,

the insulation and a new finish have to be added to the inside wythe, or the system is constructed with metal ties or concrete bridging that can severely compromise the insulation by as much as 70 percent.

"By using the **THERMOMASS** Building System in the Michigan store, we were able to get the insulating value we needed while maintaining the speed of traditional tilt-wall construction," said Sam Estes, Project Manager for the CASCO Corporation, the St. Louis-based architect for the project. "Pouring the panels onsite eliminated product delivery delays and also guaranteed a high level of quality control."

Using CTC's pre-engineered system, CASCO Corporation designed the warehouse-style building with 12-inch wall panels. Joined by fiber composite

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The Best Proven Value

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connectors, the panels are comprised of 1½ inches of **STYROFOAM** brand insulation, the Blue*, CFC-free† rigid foam, sandwiched between a 3-inch concrete outer wythe and 7¼-inch inner wythe.

STYROFOAM Key to Panel's Effectiveness

"One key to the **THERMOMASS** Building System is **STYROFOAM** brand insulation," said Dan Doran, CTC's director of sales and marketing, who credits the insulation for its excellent moisture resistance, high compressive strength and long-term R-value. "Unlike other insulation materials, including expanded polystyrene (beadboard) and polyisocyanurate or polyurethane materials, the closed-cell structure of **STYROFOAM** reduces concrete bonding, which can cause cracking in the panels. That's why we use **STYROFOAM** in every job we do."

The outstanding moisture resistance of **STYROFOAM** brand insulation has other benefits as well. The moisture content of concrete seldom falls below 15 percent. Because of this, and also due to concrete's porosity and the dew point, the insulation core in concrete sandwich walls is subjected to a significant amount of moisture. Because of its cellular structure, which resists moisture penetration, **STYROFOAM** brand insulation retains its R-value longer than other insulation products and resists long-term decomposition resulting from the freeze-thaw cycle.

Manufactured exclusively by The Dow Chemical Company, **STYROFOAM** brand insulation has an R-value of 5.0 per inch and comes to the jobsite predrilled for use with the **THERMOMASS** system fiber composite connectors. The insulation's superior compressive strength increases the structural performance of the finished wall, giving it additional compressive and flexural strength.



*Left: The **THERMOMASS** Building System provides The Home Depot with the efficiency of tilt-up construction with the insulation value needed for colder climates like Walker, Mich.*

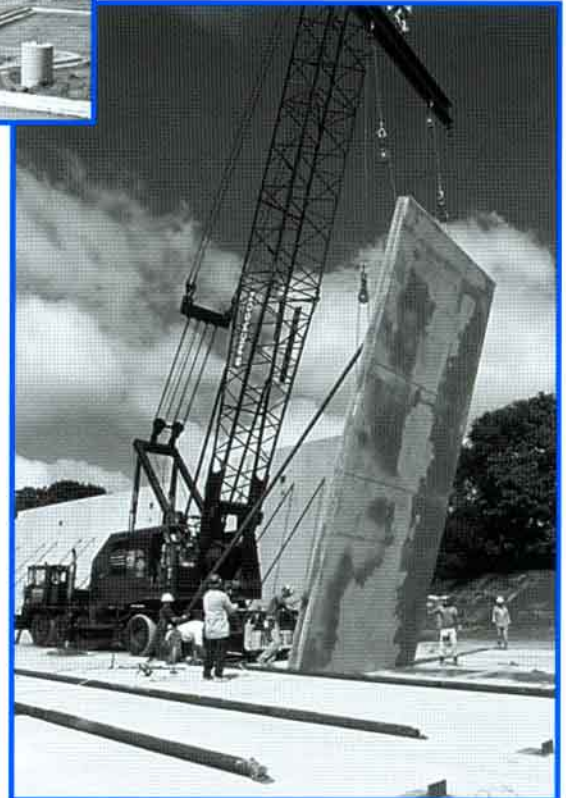
Below: Once the panels were poured onsite, they were raised quickly and efficiently to form the outer walls of the new 112,000-square-foot Home Depot warehouse.

Panel Option Proves Successful

In addition to achieving his top priority of meeting tight construction schedules, Mapes said the system more than satisfies his insulation needs and is competitive from a cost standpoint with other construction methods used in colder climates.

"When weather permits concrete construction, **THERMOMASS** will be a viable option for The Home Depot," said Mapes, adding that it is currently being used to build another store in the North and will be considered for other Home Depot builds in the future. "The Michigan building met our target timetable of six weeks, whereas block and pre-cast construction take an average of nine to 12 weeks."

Since the new Home Depot opened in late-February, Mapes has moved on to managing construction of other home centers throughout the country. In planning new builds, he will have a new tool under his belt in the **THERMOMASS** Building System.



For more information on the many applications of **STYROFOAM** brand insulation, write to The Dow Chemical Company, P.O. Box 1206, Midland, MI 48674; or call 1-800-441-4369; request Form No. 179-4298.

†**STYROFOAM** brand products are manufactured with HCFC blowing agents which have ozone depletion potentials more than 90 percent less than standard CFC blowing agents.



NOTICE: **STYROFOAM** brand insulation is combustible and should be protected from flame and other high heat sources. It should be installed with code-acceptable thermal barriers or used in approved alternative constructions. For more information, contact Dow (1-800-441-4369).

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