

STRESS-SKIN PANELS

They star in the timber-frame revival and are even used to build entire shells. What's behind their rising fortunes?



The old-fashioned way: Benson Woodworking Company in Alstead Center, N.H., builds heavy timber frames with plenty of hand chiseling, complex joints, and a precision fit. Benson has stress-skin panels made to specific thicknesses for custom homes.

Staff Report

Builders are calling for more pre-manufactured components. Home buyers and regulators are demanding greater energy efficiency in new homes. Both trends bode well for the growing list of manufacturers of the foam-core wall and roof sections called stress-skin panels.

The panels are used to wrap around structural timber frames, to sheathe cathedral ceilings, and even to build the

entire shell. All the panels for residential construction use similar components. They have polystyrene or polyurethane foam cores and are faced on either side with a skin—generally plywood, composition boards, or drywall. But standardization ends there. Beyond the basic material options, the products take off in a variety of directions that effect cost, performance, and durability.

Rival warfare

“It’s a war out there between the sty-

rene and urethane panel manufacturers,” says foam panel user and virtuoso timber-framer Tedd Benson. Not quite a war, we feel, but the rivalry is hot. The conflicts focus mostly on fire-safety, aged R-value, and long-term durability.

The vast majority of the panels use polystyrene—commonly called beadboard—for the simple reason that it is much cheaper than urethane foam. William Porter of W.H. Porter Company, Holland, Mich., makes both types of panels, and sells the beadboard panels 10 to 1 over urethane. Those who want the urethane, says Porter, are looking for higher R-values, “but don’t want to go to a foot-thick panel.”

Inch for inch, a urethane panel may cost twice as much as a beadboard product. But compared by R-value, the differences are small, says Amos Winter of the urethane-panel manufacturing firm Winter Panel Corp. in Brattleboro, Vermont. An average 5½-inch beadboard panel costs from \$1.75 to \$2.00 a square foot, says Winter, compared with \$2.20 for a 3½-inch urethane panel with comparable R-value. Urethane offers R-6 to R-7 per inch (according to most sources) compared with beadboard’s R-3.8 per inch. How well either product holds its R-value over time is another bone of contention [see “Urethane R-value Controversy,” August 1986].

Fire!

Urethane loyalists are skeptical of the performance of beadboard in a fire. Said one builder, “I just wouldn’t feel safe in a house that would melt in a fire.”

The problem, says Amos Winter, “is