get good performance.

If laminating is difficult, foaming in place is even more so, says Winter, a veteran urethane foamer. The process is technically complex, chemically volatile, and as much art as science.

The manufacturers do seem to agree that it’s best to avoid home-grown panels—particularly if the panels will bear structural loads. The bond of foam to facing is what transfers the loads to the skin and gives the panels their strength.

As for the best skin material, there is little agreement. Timber-framer Benson experimented with plywood on the exterior. He says he had problems with the plies delaminating. A few years ago, he switched from waferboard to Oriented Strand Board (OSB) because it’s stronger and holds nails better than the waferboard. All facing materials have to be strapped, he says, to receive heavy sidings because there are no studs.

Another timber-framing company—Northern Energy Homes—tried waferboard panels before switching back to plywood. The waferboard had a “negative appeal to clients” and the savings in cost over plywood was marginal.

On the interior face, Northern Energy Homes uses either ¾-inch T&G pine or ⅜-inch drywall. The ⅜-inch drywall is backed by ⅜-inch waferboard—there to keep the panels a uniform thickness and to provide a nailing base for inside trim. With just a drywall skin, hanging finish materials such as kitchen cabinets can present a problem. Tedd Benson has 2x4’s custom fitted into the kitchen panels where wall and base cabinets will attach. For lightweight items, he says, molly bolts into the foam work just fine.

**Grooves and slots**

Like most building products, “a panel is only as good as its installation,” says Benson. The key is having a good system to attach one panel to another. Most panels use some spline system to get continuity between panels.

How finicky one must be at the joint is a matter of judgment. A full wood