On Site With Gypsonite

The new wallboard needs no tape and has some superior features. But will it gain acceptance on the job site?

by Clayton DeKorne

Gypsum fiberboard, a new wallboard material introduced in Europe in the early 1980s, is just beginning to be produced in the United States and marketed as an alternative to drywall. It is stronger and denser than conventional drywall, and reportedly resists fire, moisture, and sound better than drywall. Perhaps most important to tradesmen, the new wallboard can be installed and finished without tape.

Gypsum fiberboard is like a drywall particleboard. It is formed from a mixture of gypsum, recycled paper fiber, and Perlite (an expanded mineral aggregate). The materials are bonded together without glue by heat and pressure. Two U.S. companies manufacture the new wallboard: Highland American manufactures *Gypsonite* and Louisiana-Pacific manufacturers *FiberBond*. Gypsonite is a solid material; FiberBond is layered so that the Perlite mixture is only in the core between two layers of fiber-reinforced gypsum. Both boards are available in 1/2-inch and 5/8-inch thicknesses.

Literature from both companies emphasizes the strength of the wallboard. Both manufacturers claim the material is very dimensionally stable, so joints don't need to be taped. Instead, joints are filled with a specialty caulk and mudded over with two coats of a specialty joint compound.

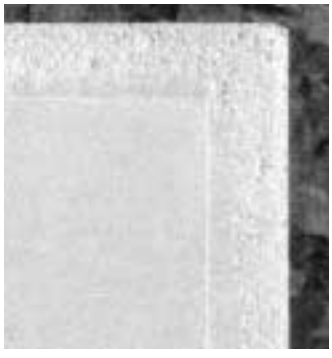
Because the material is denser than drywall, the new wallboards reportedly have better resistance to sound transmission. And both manufacturers claim the 1/2-inch wallboard will survive a *one-hour* fire test, although agency testing for the one-hour rating is incomplete. To date, the 1/2-inch Louisiana-Pacific board has a 45-minute rating by Warnock-Hersey and the 5/8-inch board has a one-hour rating. Gypsonite doesn't have a fire rating yet, but Highland American is currently seeking UL approval.

In addition, the wallboard can reportedly withstand getting rained on occasionally and will not support the growth of mildew as much as drywall does.

These claims piqued our interest. We were excited at the prospect of a tape-free wallboard, but were skeptical, as builders need to be with every "revolutionary" new material that comes down the pike. For one thing, some builders had reported that the early versions of gypsum fiberboard without the lightweight Perlite aggregate were extremely heavy and difficult to cut, and that drywall contractors were charging a premium for installation. The new versions with Perlite promised to alleviate these problems. But, we wondered, would the new, lighter board still have superior strength and density?

To satisfy our curiosity about a tapeless wallboard, we purchased and installed about 500 square feet of 1/2-inch Gypsonite on both ceiling and wall. FiberBond is not yet available in our area, but we were able to inspect some samples and compare the material to Gypsonite. We also interviewed one builder who installed about 4,500 square feet of Gypsonite and one drywall contractor who had installed FiberBond in five houses. Here's our report.

Drywall finisher Smokey Lyons trowels on the finish coat of mud over Gypsonite. Because of plasticizers in the mud, it has a dough-like consistency, which takes some getting used to. The edges of Gypsonite boards are beveled on all four sides (right). This simplifies joint finishing, but also makes the corners fragile.

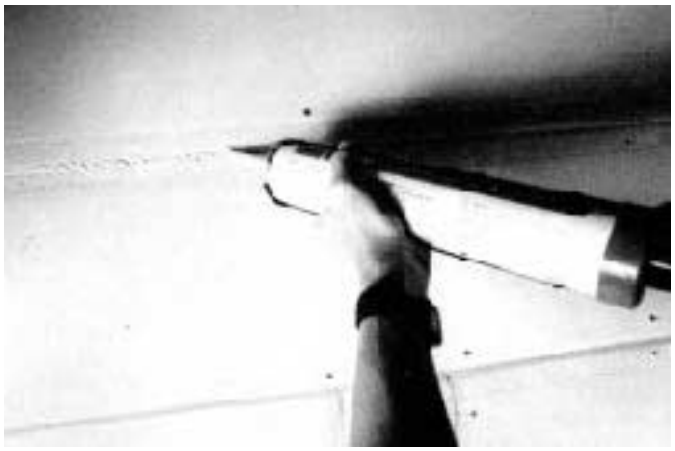


Cutting and Hanging

We purchased 16 sheets of Gypsonite from a building supply center. Half-inch 4x8 panels cost $5.99 each, or about 19¢ per square foot, compared to about 12¢ per square foot for 1/2-inch drywall. Finishing materials are also more costly for the Gypsonite.

Gypsonite is noticeably heavier than drywall. Half-inch material weighs 2.25 pounds per square foot (72 pounds per 4x8 sheet), as compared to 1/2-inch drywall, which weighs 1.8 pounds per square foot (about 58 pounds per sheet). Half-inch FiberBond also weighs about 72 pounds per sheet.

The Gypsonite boards are beveled on all four edges. While this can eliminate a lot of butt joints, it makes the corners fragile. When unloading the material, we broke several corners as we stood them up to be carried. Eventually, we found we could avoid this by picking the sheets up in the air and then flipping them without supporting the weight of the board on the edge. Louisiana-



A 3 1/2-inch Makita cordless saw with carbide blade (above, left) worked well for cutting narrow pieces, but strained the saw and ran down the battery. Hanging the board was routine (above), but required a bit more force behind the screwgun and a full-depth adjustment to set the heads. The sheets are installed with a gap to ensure a good edge bond for the adhesive that glues the sheets together (left).

Pacific only tapers the long edges of FiberBond and the bevel is only about 3/4-inch wide, so the edges aren't as fragile.

Compared to drywall, Gypsonite is very hard to cut. Using a utility knife, we had to score each cut six to eight times with a new blade. The blades dulled quickly and the cut was hard to snap off. For snapping large pieces, it worked well to put a knee into the back side of the scored sheet. You don't have to score the back of the cut since there's no paper facing.

The break is very rough, and a Sureform didn't work particularly well to smooth it out. We found that it works well to pare down the rough ends with a utility knife, and then rasp the cut with a drywall grater, which uses a wide mesh screen (available from a drywall supplier or from Bon Tool Co., 4430 Gibsonia Rd., Gibsonia, PA 15044; 412/443-7080). Even so, it's hard to grate down any sizable amount.

Since we were working in an old building, we had to take off long wedges from several sheets to adjust for out-of-square corners. We used a reciprocating saw or a pair of nippers to chip off the edges. For these wedges, and for long, narrow pieces alongside door jambs, we eventually resorted to deeply scoring the board with a Makita 3 1/2-inch cordless saw. This worked well for a time but dulled the steel blades quickly. A carbide blade seemed to hold up better, but we came to this late in the job. The board is so dense, however, the saw strains and drains the batteries fairly quickly. Make sure you have several extras on hand.

One engineer who worked with Gypsonite in the early stages of development claims that a physician's cast saw works well. These small circular saws have steel blades but run at a low rpm so the blade won't heat up and lose its temper. Currently, however, these saws are very expensive; the price will have to come down before they're practical.

For outlets and light fixtures, we had to use a reciprocating saw. It was very slow and difficult to push a jab saw through the board. We also tried a Roto-Zip but the bit dulled instantly. According to Highland American, the maker of Roto-Zip is working on a new bit to cut through the denser wallboard.

Based on samples, FiberBond is a little easier to cut. The board only needs to be scored three times before it snaps. The face is softer and doesn't dull knife blades as easily, but the snapped edge is still rough. The manufacturer recommends cutting about a 1/4 inch short and leaving the joints rough to provide a gap for the caulk.

Because Gypsonite and FiberBond are so dense, they can be installed with a pneumatic stapler. With the Gypsonite, we had to turn the air pressure up to 115 psi to get the 1 1/2-inch staples to set beneath the surface of the board. The stapler proved very fast, but didn't have much power to draw the board against the joists.

We only hung a few sheets with the stapler, preferring to test how more conventional drywall tools performed. Hanging Gypsonite with screws required a bit more force behind the screwgun. The board doesn't dimple, and the screwgun had to be adjusted to full depth so the screw head would penetrate the surface of the board.

Mudding

The Step 1 caulk is used to bond the sheets together. It is a glue, not a patching compound, so the sheets must be gapped to provide a good edge bond. The Gypsonite compound contains a coarse sand and has an amazing gap-filling capacity. We were even able to fill the corners that had snapped off. The Louisiana-Pacific base compound is much smoother and looks like conventional mud.

We had been warned that the caulk shrinks, so we laid a thick bead down and spread it out with a wet, 1-inch putty knife. We were able to caulk about half the job immediately after hanging the sheets, and then waited several days until the taper arrived. This wait proved to be crucial. On the day of taping we caulked the rest of the job, but the Gypsonite caulk shrank tremendously beneath the mud. It continued to shrink where the bead was thick and at filled corners, even after a second coat of mud. In these places we had to use a third coat to finish up. The half that had cured for several days did not shrink and only required two coats of finish compound.

The manufacturer claims that plasticizers in the finish compound help it resist cracking. The taper, Smokey Lyons, of Burlington, Vt., remarked that the consistency of the compound is runnier than regular mud, but also behaves "like pizza dough," rolling over at the edges when troweled on heavily (see lead photo).

Lyons found that the best way to work the mud was to cut the edges hard, rather than feather the edges of a thick coat. This fills only the depression caused by the beveled edges and makes a much narrower joint than you need on regular drywall.

Lyons said the compound stayed workable on the board longer than conventional mud, which might make it more attractive to users who are not professional tapers. He speculated this might be because the moisture isn't absorbed into the board. Lyons also reported that the compound does not stick to itself well, making it difficult to blend at intersections.

We took over the mudding for Lyons after the first coat, so we had some sanding to do before painting. The Step 2 compound sands easily. The areas where we had cut the edges hard required very little sanding because the edges of the mud weren't built up.

Comparing Notes

Since our hands-on testing was limited, we consulted with other users for their opinions.

A different material. Builder Jaime Peebles of Weston, Mass., recently used about 140 sheets of Gypsonite to finish a 1,200-square-foot addition. The project included some complicated fitting around exposed beams on cathedral ceilings.

Peebles agrees that cutting Gypsonite is hard. "More than once my crew has cursed this stuff," Peebles said. "We had to let go of the expectation that Gypsonite is like drywall. This is a different material, and like anything new, it requires a different approach."

Peebles found that carpenters tools, not conventional drywall tools, work best. To cut openings and small pieces he uses a reciprocating or jigsaw with bimetal blades. He leaves cut ends rough and fills the joint with Step 1. On these joints he also uses a 4-inch grinder to bevel back the edge. If he has to smooth out a cut end, he finds a coarse wood-rasp works well.

According to Peebles, these cutting techniques raise a lot of dust. His crew has to wear dust masks while hanging the board. In addition, Peebles sets up a fan to blow out the dust.

To hang the board, Peebles uses a pneumatic nailer with 6d ring-shank nails, rather than a stapler. He claims the split head holds well, and the time he saves with the nailer offsets the time he spends cutting and fitting. But, he warns, you can't miss studs or the nail will shoot right through the wall, and may hit someone.

In applying Step 1, Peebles uses a small curved trowel to finish the bead. This leaves enough compound to fill the joint after it shrinks. Peebles warns that the Step 1 compound is very hard: "If you go outside the bevel with it, you have to scrape it off. It doesn't sand down."

The drying time of Step 1 is the biggest problem, according to Peebles. Nevertheless, Gypsonite is a product he claims he will use in the future. "I can sell it to my clients because they are concerned about the environment and using recycled products." Moreover, he claims, the finished wall is much harder, and is more like plaster than drywall.

Competing with plaster. Drywall contractor Richard Jaros, of Attleboro, Mass., sees gypsum fiberboard as an opportunity for him to compete with plasterers in the Northeast. Jaros has completed five houses using FiberBond.

"A FiberBond wall is flawless," he says. "You just can't match the factory finish of the board with a trowel." Jaros claims the wall surface is very hard, and isn't susceptible to settlement cracks like plaster is. These advantages, he thinks, will give him a leg up in the plaster market.

"Veneer plaster just isn't what it used to be," says Jaros. Plasterers just throw the stuff on, trying to compete with drywall, so the final outcome is something less than the typical home buyer in the Northeast expects," he says. "For a really nice plaster finish like you would have gotten 50 years ago, you're going to have to pay big money."

Jaros will hang and finish FiberBond for about 53¢ a square foot, just a few cents more than he charges for regular drywall.

To get more efficient with FiberBond, Jaros says he is currently "tooling up for production." He has been using a power saw for cutting, but this kicks up too much dust. He recently bought a 6 1/2-inch cordless saw that he thinks will be just right. For outlets he uses a jab saw; for windows he uses a pilot-panel bit in a laminate trimmer. A Sawzall cuts very fast, he says, and seems to be the best tool for cutting doorways.

Jaros has tried a pneumatic stapler and agrees that this speeds production considerably, although he isn't ready to buy these for his crews. Screwguns work well enough, he says. He also uses glue, but so far he hasn't found one that works well. Adhesives that are strong enough tend to skin over too soon to form a good bond.

Over caulked joints, Jaros uses a three-coat finish: one coat of the FiberBond ready-mix finish compound, and two coats of a low-shrinkage setting compound, such as USG Durabond or GoldBond Sta Smooth. In corners he uses tape to guide his knife and speed production.

Jaros hasn't noticed any shrinkage with the FiberBond caulking compound. But he got a lot of shrinkage with the ready-mix finishing compound. Louisiana-Pacific offers a powdered compound with a 4-hour setting time that Jaros says is a big improvement over the ready-mix. A 90-minute setting powder has just been introduced, as well. Jaros has only used this for some patching, and reports that the consistency is very smooth. He expects to use this exclusively in the future.

Both Louisiana-Pacific and Highland American have been marketing gypsum fiberboard only since March. Yet already manufacturers have made improvements by reducing the weight of the board and improving the finish compounds. As installers tool up for cutting the board and learn new methods for installing it, gypsum fiberboard should find its niche somewhere between old-style plaster on one end and standard drywall and joint compound on the other. ■

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