Which Way With the OSB?

Q. *I recently inspected a home that had 3/8-inch OSB corner bracing. The surface stamp indicated that the strength axis of the panel ran in the long direction (see photo, below). I assume this means the panel should be applied with the long dimension across the studs, yet the builder had installed the long dimension parallel to studs. I called APA to check and was told the stamp only applies for roof sheathing and not to corner bracing. Why is the strength axis important for roof sheathing but not for corner bracing?*

A. *Scott McVicker, a structural engineer in Palo Alto, Calif., responds:* There are two properties of OSB panels at play here: its strength in shear and its bending strength. When using OSB for corner bracing, shear strength — the ability of the panel to resist lateral racking movement — is the issue, and the panel's shear strength is not affected by its orientation. But place that same sheet up on the roof across rafters 24 inches on-center and stand in the middle of the span between two rafters: Now the bending strength of the panel is at play. That's what the arrows refer to.

If you look carefully at the sheet of OSB in question, you'll see that most of the fibers are oriented parallel with the length of the sheet, making that the strongest axis in bending.

Bubbling Skim Coat

Q. *How can the bubbling be eliminated when skim-coating joint compound over a painted surface?*

A. *Van Perrine, of U.S. Gypsum Co., responds:* Compared with an unpainted drywall surface, a painted surface has essentially been "sealed." The compound contains air that has to escape as it dries. With unpainted drywall, the air can escape both through the drywall surface and out into the air. When the drywall is sealed with paint, all the air has to escape outward, and it tends to create the small air bubbles you mention. There's nothing you can do but add successive thin skim coats of compound and lightly sand between coats until smooth.

Adding a Garbage Disposal

Q. *My clients want to add a disposal during a remodel of their 1950s kitchen. The 2-inch waste line runs at a shallow pitch for about 30 feet (with three right-angle bends) before diving into the main 4-inch cast iron line. Over nearly 50 years, they've had only a few clogging problems with this waste line and had to ream it from the cleanout. Will the disposal cause this line to clog more often?*

A. *Master plumber Rex Cauldwell responds:* Yes, the line will definitely clog up more often. In my experience, having a shallow pitch for 30 feet is asking for trouble — especially on a kitchen drain line, which is more prone to clogging anyway because of all the grease and food solids it has to carry. For one thing, the pipe is rarely set dead straight, but instead tends to wander slightly up and down, which speeds up the clogging process.

Before installing the disposal, I would either increase the slope of the pipe or increase its size to 3 inches. Either strategy has its difficulties. Increasing the slope of the pipe often requires cutting joists, which may not be possible. Increasing the pipe size will require cutting in a new tee on the main cast iron line — which is not an easy job. I use steel-cutting circular saw blades to cut cast iron, and finish up the cuts with a metal cutting blade on my recip saw. I then use Fernco fittings to splice in the new tee.

Finishing Water-Stained Wood

Q. *I have an unfinished mahogany door that has gotten water stains. How can I get rid of these stains before finishing?*

A. *Robert Sanders, an interior remodeling specialist in Pasadena, Calif., responds:* Unfortunately, there's no way to bleach out that stain. You'll either have to sand down to new wood if possible, or try to match or mask the tone of the stained area with another stain or dye over the entire door.

A Fix for Bouncy Floors

Q. *As part of a remodel, I have to replace the carpet on a floor framed with 2x10s on 12-inch centers. The joist span is 20 feet,*

and the floor bounces so badly that things on the table shake when someone walks through the room. Is there a good way to fix this problem before recarpeting?

A. *Dan Dolan, P.E., Associate Professor of Wood Engineering at Virginia Tech, responds:* A possible solution, which I have used successfully in several cases, is to add a layer of 3/4-inch or thicker OSB over the entire floor, glued and screwed 6 inches on-center in both directions. Make sure the screws are long enough to fully penetrate the new OSB and the underlying subfloor. When possible, using longer screws to penetrate the joists will help some, but the important thing is to make sure the new subfloor is well "clamped" to the existing. Stagger the joints with respect to the joints below. The main problem with this approach is that you gain an inch or more of floor height, which may not be acceptable.

This technique works for one of two reasons, depending on the individual floor. One is that the extra OSB increases the stiffness of the floor, making it vibrate at a higher frequency that is not perceived as annoying by most people (For more on floor vibration, see *Practical Engineering*, 11/98). In some cases, however, the increased mass of the OSB actually lowers the frequency of vibration, but it doesn't tend to matter because the increase in mass also increases the inertia of the floor. In other words, the heavier floor is harder to start vibrating, so the problem goes away.

Stucco Cracking Mystery

Q. *We have had good luck using the old-fashioned technique for exterior stucco: 1/2-inch plywood, felt paper, wire mesh, then 1 inch of plaster in three coats. Last year our luck ran out. We built a house on a hill where the wind just didn't stop. A year later, one face — the gable end of a two-story two-car garage — has many hairline cracks. The stucco sub wants to put a heavy fiberglass tape over the cracks and re-stucco that face. Is this a good solution?*

A. *Steve Thomas, a stucco industry veteran, responds:* I have to admit (even after a phone call to the builder), this one has me stumped. There are several possible causes for the cracking. The prolonged high winds could have caused the finish to craze, but why on just one wall plane? The framing lumber could have been abnormally dry, then "stretched" as it picked up moisture — but ordinarily the 1/2-inch plywood should have prevented cracking. Conversely, the lumber could have been excessively wet, then shrank as it was protected from the rain. But again, the plywood sheathing should have restrained movement enough to prevent cracking. It's also possible that the 1/2-inch plywood could have been butted too tightly, causing it to buckle at edges and cracking the finish.

Another possibility is that the wind lifted the roof and wall, or caused the wall to rack (not uncommon in garage walls because of the large openings and consequent lack of lateral bracing.) I asked the builder whether impact loads or heavy loads in the attic floor could have played a part, but no such impact occurred, and there's no floor in the attic yet, so no loads.

The stucco itself could have been mixed way too rich (too much Portland cement), which might cause shrinkage cracks. But again, what are the odds of this occurring on just one face?

My best advice to the builder is to try to stiffen the gable end by installing hurricane straps at the top and bottom of each stud and installing metal X-bracing on the interior of the wall. Then I would accept the stucco contractor's offer to span the cracks with mesh tape and refinish the affected wall plane, in hopes that the resulting color will match the adjacent walls acceptably. It would probably also be a good idea to secure the homeowner's signature that this attempt on the contractor's part is the last free effort to solve the problem.

GOT A QUESTION? Send it to On the House, *JLC*, 932 West Main St., Richmond, VT 05477; or e-mail to *jlc@bginet.com*.