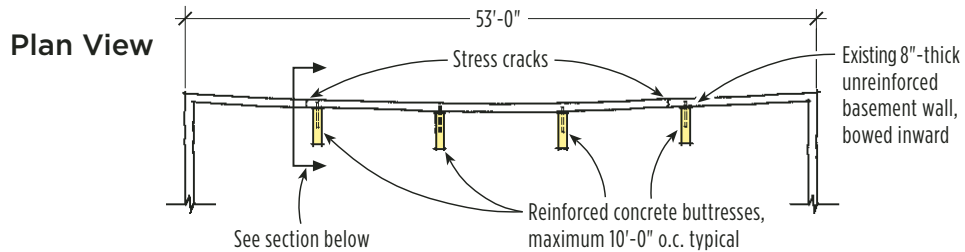


Q&A

Q. Fixing a Bowed Basement Wall

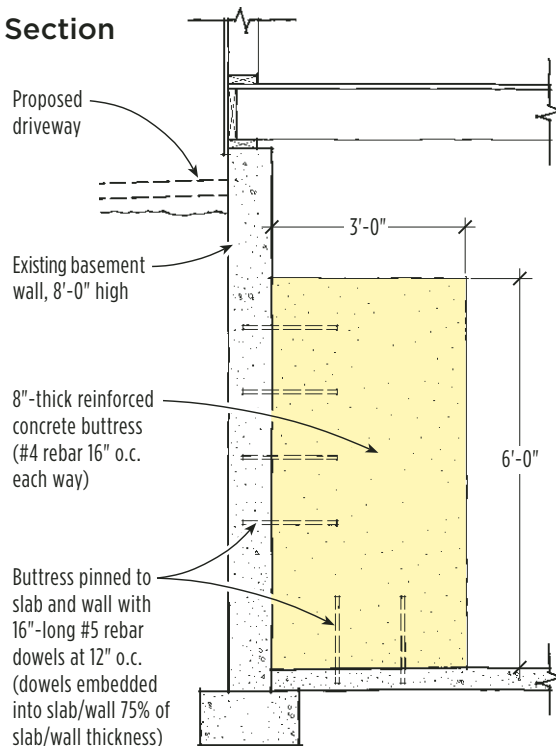
A foundation wall in my customer's two-story home has a 2-inch bow in the middle of its 53-foot length and two stress cracks located 10 feet from either end, all probably caused by backfilling while the concrete was still green. As far as I know, no rebar was used in its construction, but at least the 8-inch-thick, 8-foot-high wall was built on sandy soil with good drainage. A driveway is planned that will butt up to the wall; is there any way to pin this wall to the driveway, or should the foundation wall be removed and replaced?

A. Tim Garrison of ConstructionCalc.com, a professional engineer, author, and software producer for the building industry, responds: While the 2003 IRC (Section R404.1.2) allows unreinforced concrete basement walls in some circumstances, I've seen far too many cracked and fractured unreinforced walls to think for a minute that it's okay to leave rebar out. It's possible to pin the wall to the proposed driveway slab, but it would do little



Reinforced concrete buttresses connected to the existing foundation wall and slab floor with epoxied rebar dowels should prevent further movement in this bowed basement wall.

Section



GOT A QUESTION?

Send it to Q&A, JLC, 186 Allen Brook Lane, Williston, VT 05495; or e-mail to jlc-editorial@hanleywood.com.



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good. Presumably the top of the wall is already connected to the first floor's framing and thus restrained from further bowing.

But you also need to worry about the midsection of the wall. Soil is constantly pressing against it and tending to cause the inward bulge; adding driveway wheel loads will make it worse. Vertical rebar is normally used to resist this, but in its absence something else is needed.

While it might be best to tear out the wall and start over, another much less expensive and intrusive option would be to build four reinforced concrete buttresses in the basement (see illustration, previous page). Connected to the wall and slab with epoxied rebar dowels, these buttresses would likely stop further structural distress. Plus, the homeowner could use them for shelving or closets.

Q. Prepping for Wallpaper

The last time I was asked to remove wallpaper and repaint the wall, much of the paper facing on the sheetrock underneath came off, too, resulting in a lot of extra wall prep. What caused this, and what's the best way to prepare drywall for a wallcovering?

A. *Tish Iorio, a member of the National Guild of Professional Paperhangers and owner of Creative Endeavors in Annapolis, Md., responds:* Drywall has a paper face, so wallcovering pastes adhere to it just as well as they do to wallpaper. Unless drywall has been properly primed, wallpaper paste doesn't have the ability to release from it when it is rewetted, resulting in the damage you describe.

Designed to be nonrewettable, wallcovering primers contain acrylic polymers that provide a barrier between the paste and the paper face while at the same time promoting adhesion of the wallcovering to the wall. They are more expensive than regular paint primers, which are designed mainly to provide a uniform wall color (usually white) that won't influence the color of the top coats. All of the major paint companies offer wallcovering primers, but I use Wallpaper Prep-Coat (Swing Paints, 323/816-3041, www.swingpaints.com). I like it because it's slightly green and turns gray when it comes into contact with drywall compound that hasn't been painted, making it easy to see where I need to apply a second coat. It also has diatomaceous earth in it, which leaves a "tooth" on the wall that aids adhesion.

A wallcovering primer should always be used before applying any type of wallcovering. It can go over bare drywall, primer, or existing painted surfaces.

By the way, sizing (a diluted paste) is not a good

substitute for a wallcovering primer.

Consolidating products such as Gardz (Zinsser Co., 732/469-8100, www.zinsser.com) have been developed to help repair damaged drywall. Because they bind both paper and paint layers together into an impermeable surface, I use one of them whenever a damaged wall surface has been skimmed with compound or when a paint finish seems unstable. But because they are very hard, they don't give paste anything to grip, so I always use a wallcovering primer over them before I hang.

Q. Nailing into MDF

My company installs prefinished millwork in a commercial environment, so we rely heavily on MDF-veneered products. Is there a fastener we can use in our pneumatic nailers that will prevent — or at least minimize — the "mushroom" that occurs when the fastener is driven into the MDF?

A. *Charles Stout, director of Laboratory and Certification Services at the Composite Panel Association, responds:* When a fastener enters wood, the fibers in the fastener's path are displaced into air spaces that surround each fiber. But MDF is a compressed cellulose mixture; when a fastener enters it, the material

in the fastener's path has nowhere to go but up and around the fastener and out — the so-called "mushroom." The degree of mushrooming that you get with MDF varies depending on the particular type of MDF being used, and the size, type, and design of your fasteners.

MDF actually comes in a range of densities, which has

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an impact on how likely it is that individual boards will mushroom when fasteners are driven into them. For example, standard-grade industrial board doesn't have a uniform density, but typically is manufactured with a softer core and harder outside surfaces, and is more prone to mushrooming. On the other hand, because of the way the fibers in molding-grade MDF have been processed, the resulting substrate has uniform density from surface to core. Puckers and mushrooms are less likely to occur in molding-grade MDF because the less-dense material at the site of the nail head allows for more material expansion.

Slim, "needle-style" 18-gauge brad nails work best in pneumatic nailers. Staples are also an option; use fine-gauge, narrow, coated crown staples with chisel points. To minimize puckering, your nailer should be set to

drive the fastener as flush to the surface as possible. And for the most consistent results, hold the nailer vertical to the surface being nailed.

You can, of course, use screws with MDF. Be sure to predrill pilot holes that are 85 percent to 90 percent the root-diameter of the screw and at least equal in depth to the length of the screw, countersink as necessary, and don't overtighten the screws. Instead of using standard wood screws, use special MDF screws, type A or AB sheet-metal screws, Twin Fast screws, or fully threaded screws designed for use in particleboard.

Finally, some finish carpenters recommend using a sharp chisel to trim off any mushrooms that occur when nailing MDF. This reduces scarring of the surface and the amount of sanding or scraping required to prepare MDF for a paint finish.