LETTERS

Porch Roof Diaphragm

To the Editor:

The approach Harris Hyman used to stiffen a two-story cathedral ceiling wall with a porch roof diaphragm seems like a great solution (*Practical Engineering*, 2/95). In the past I've stiffened such walls from the inside by adding a layer of plywood on the inside before the drywall goes up. But this only helps prevent racking and doesn't help at all with wind loading like the porch roof does.

One question: Since the wind pushes the wall in, it seems like the attachment between the porch roof ledger board and the wall framing is what makes this system work. In the author's design, what is the proper bolt size and spacing?

Bill Coulbourne
Alexandria, Va.

Harris Hyman responds:

The safest approach is to attach the ledger with a lag bolt into every wall stud. The load on the porch roof beam is 43 pounds per inch. If the studs are 16 inches on-center, the distributed load at each stud is

43 lb./in. x 16 in. = 688 lb.

For a dense framing lumber such as Douglas fir (specific gravity = .50), a 1/4-inch lag bolt has a withdrawal strength of 225 pounds per inch of penetration. So a 1/4-inch lag with 3 inches of penetration will hold 675 pounds — close enough! For lighter woods such as spruce or hem-fir, you'll have to use larger bolts. Consult the 1991 National Design Specification for Wood Construction, *Table 9.2A, for more information.*

Safer Multiwire Circuits

To the Editor:

In the March '95 issue, Rex Cauldwell gave a good response concerning multiwire branch circuits and their governing breakers (*Letters*, "Safe Wiring Practice"). Since I began to use my Sperry digital volt-amp-continuity tester a few years ago, I have commonly observed that the single pole breakers on multiwire circuits continue to conduct low voltages (5 to 50 volts) even in the off position. I have a strong suspicion that this is from induced current from the common neutral and sister hot wire on the circuit. I have discussed this observation with many electricians, who always seem incredulous that this condition exists. Properly and safely wired multiwire branch circuits using Mr. Cauldwell's improved and better procedure eliminates this potential shock hazard.

J.D. Grewell
J.D. Grewell & Assoc., Inc.
Silver Spring, Md.

Tight Houses & Moisture Buildup

To the Editor:

I have been reading your magazine for several years now and have found much useful information as the Housing Rehabilitation Specialist for the City of Fargo, N.D.

I have been working for the past five years rehabbing single-family properties. We have been replacing all windows with new double-glazed units and removing the old masonite or texture 1-11 siding and installing vinyl siding over 1/4-inch foam backer. With these improvements, we are finding an increase in moisture problems in the homes. This includes both homes heated with electric baseboard and those heated with high-efficiency natural gas furnaces. I am wondering if a fresh-air ventilation system may be a solution to our problem.

Robert J. Miller
Housing Rehabilitation Specialist
Fargo, N.D.

Marc Rosenbaum responds:

Both window replacement and re-siding are likely to increase the airtightness of rehabbed houses. Air infiltration is the principal mechanism for removing moisture in the heating season in cold climate homes, and when air exchange rates drop, increased interior moisture levels result.

If you incorporate blower door testing into your rehab work, you should be able to make a reasonable assessment on a case-by-case basis as to whether adding mechanical fresh air ventilation is likely to be needed.

The best resource I know on residential ventilation is a new book called Understanding Ventilation, *by John Bower of the Healthy House Institute (7471 N. Shiloh Rd., Unionville, IN 47468; 812/332-5073). It has the information you need to come up to speed in this field.*

Circulation Patterns

To the Editor:

Gordon Tully's article "Circulation: A Moving Experience" (*Building With Style*, 1/95) misses the point. Circulation within a room determines how the space will easily be used. If the homeowner wants a quiet and private room, circulation at one end or a dead-end space are possible solutions. Conversely, if the room will be used for gatherings, people will feel more welcome and circulate more easily if the traffic pattern goes naturally across the room. Gordon Tully could have advised us to ask the client how the space will be used.

Secondly, I wish Gordon Tully would read old house plans more carefully. The floor plan of a southern house, which he said he liked for its use of a hall, had quite similar circulation patterns within the rooms to the modern floor he tried to fix.

Jane E. Griswold, Architect
Andover, Mass.

Gordon Tully responds:

I completely agree with Ms. Griswold's first point, but not entirely with her second. As in my example, most contempo-

rary "copies" have rooms less than 14 feet wide, which forces the furniture against the walls. In the originals, and in any house with wide rooms, there is space for public circulation between the furniture and the walls.

Baba ROM DOS Strikes Again

To the Editor:

I can personally relate to Craig Savage's article "Getting Started With Computers" (1/95), being a novice user. His answer, however, to the first question was not what I'd call "user-friendly." The questioner admitted zero knowledge about computers in his/her request for advice on a starter system. Mr. Savage's answer contained these words/acronyms:

- **Powerful Hardware.** Mr./Mrs. Builder thinks: Special, heavy-duty computer parts?
- **Software.** Oh, yeah! That bag my sister puts her portable computer in.
- **Graphical User Interfaces.** Connects people to pictures??? Who knows!
- **Hard Drive.** Right. Like that drive to the job in Highlands.
- **RAM.** Jeez, there's a thousand things that could mean. Huh? Random access memory? Now that's a BIG help. (Throws up hands.) What? You say it's a way to get information like selecting music off an LP rather than rewinding a cassette? Oh, yeah, I get it. I knew I could learn this stuff.

In defense of Mr. Savage, who is steeped in computerese, sometimes it's hard to remember that novices have little command of jargon — it happens in every situation when a specialist talks to a layperson. I have explained to a lawyer the difference between a joist and a stud, but I can hardly tell a tort from a retort. Being "user-friendly" is a continuous challenge.

Thanks for the time.

Wayne Richard
Seneca, S.C.

Craig Savage responds:

Good points, Wayne. Steve Jobs — Apple's cofounder and inventor of the first "user friendly" computer, the Macintosh — once said that "computers should be as easy to use as any appliance."

This morning while reading your letter I burned my toast.

Aluminum-to-Copper Wire Connectors

To the Editor:

In your March '95 issue ("Encounters With Aluminum Wiring," *On the House*), a reader asks where he can find aluminum-to-copper wire connectors. These are available from AMP Inc. (800/522-6752). They're called Copalum connectors. According to the manufacturer's literature, they provide the only "repair method" considered acceptable by the U.S. Consumer Product Safety Commission.

Tom Bair
HomeScan Inspection Service
Kalamazoo, Mich.

When Jack Frost Heaves

To the Editor:

I am responding to what I consider a serious omission from the article "Sonotube Tips" (3/95): There is no mention of frost pressure in the soil. When Robert Hatch advocates his pier-supported foundation with wood grade beams, I assume that in his locale the soil is predominantly well-drained and not a water-retentive mix with a lot of clay or silt, as in my region.

In my area, the soil is frequently sufficiently water-retentive to cause very significant frost heaving, resulting in cracked beams, broken windows, sticking doors, cracked wall finishes, etc., if design does not properly deal with the issue. Mr. Hatch's grade beam could be expected to be lifted by an inch or more due to seasonal frost heaving in some places.

The same soil conditions result in what I call "frost ratcheting" of foundations in our region. They progress in small increments each time a freezing cycle occurs in the soil, and will ultimately progress to failure. This condition really cannot be prevented by structural strength; engineering texts recognize the practically irresistible magnitude of frost pressure.

Instead, I try to prevent or halt the frost action by drainage improvements and/or insulation, incorporating techniques similar to the one mentioned in the article in the same issue, "Code Body Endorses Shallow Frost-Protected Foundations" (*Eight-Penny News*, 3/95). Similar techniques could be incorporated to adapt Mr. Hatch's design to my satisfaction.

Robert J. Randall, P.E.
Randall Engineering
Mohegan Lake, N.Y.

Robert Hatch Responds:

As noted in my article, "It's important that the finished grade pitch well away from this type of foundation" and that the girder is entrenched in a bed of processed gravel. These steps are critical to avoid soil saturation from surface water and diminish the threat of frost heave.

Every foundation of any description should rest on well-drained soil. That's a given. Saturated clay soils are not generally the norm in my area. Such soils require special design, as do snow loads, wind shear, and seismic activity. No foundation of any type should be built on saturated soil without addressing drainage and enhanced frost protection. I agree wholeheartedly with Mr. Randall that this is an issue to take seriously.

Tax Talk Misprint

Owing to an editorial oversight, March's *Tax Talk* column (*Eight-Penny News*) erroneously reported that professional dues are no longer deductible. In fact, membership dues in professional or business societies are still tax deductible. Deductions for club dues, however, are no longer allowed. Check with your accountant to see if your dues qualify.

Keep 'em coming …. We welcome letters, but they must be signed and include the writer's address. The *Journal of Light Construction* reserves the right to edit for grammar, length, and clarity. Mail letters to JLC, RR 2, Box 146, Richmond, VT 05477.