

Letters

Drywall Installation Codes

To the Editor:

I just finished reading the article "Reducing Drywall Callbacks" (1/01); I also happen to be studying the 2000 *International Residential Code* for my exams in building inspection. I would heed Mr. Ferguson's advice to let the code enforcement official know that you are planning to use adhesive to attach your wallboard. They might well tell you to read table R702.3.5, which gives some very detailed instructions on the use of adhesive to attach drywall to studs. I see a few discrepancies between Myron's method and the recommended practices, which could well lead to the callbacks the author wishes to avoid if the code official goes "by the book." I know I wouldn't pass a gypsum ceiling panel held up with adhesive and only a center line of screws.

Thomas L. Pryzblinski
via e-mail

Myron Ferguson responds: Yes, check with the code enforcer. If they won't let you use the method I suggested (which, by the way, is in the USG Handbook as well as that of the Gypsum Association), then use adhesive as well as screws. You very seldom win by arguing with a code enforcer.

However, I have tried to remove dry-wall attached with adhesive; it is almost impossible to remove compared with dry-wall attached only with screws, which is very easy to remove. Screws do very little when the structure moves; adhesive is much stronger. In fact, some modular home companies use adhesive with no fasteners because it helps prevent loosening of the drywall during shipment.

CAD for Macs

To the Editor:

The article "Low-Cost, No-Cost CAD" (1/01) made no references to

programs for Macintosh computers. Do you have any recommendations? Thank you.

John Serbin
Jeff Hicks Construction
Mill Valley, Calif.

Joe Stoddard responds: The only "home design" type program I've found readily available is by Abracadata Software (www.abracadata.com) — best known by model railroaders for their train layout software. The program Design Your Own Home Suite has 2D, 3D, landscape, and interior design tools, plus an "estimating" module, all for around \$120, or you can buy the pieces separately. This is consumer/DIY software, so don't expect a whole lot. The company is releasing a more full-featured version later this year called Premier Home Architect. We'll try to review it in an upcoming Computer Solutions column. The problem is that it will require an operating system upgrade to OS X to run.

On the professional level, you have at least two good choices: VectorWorks Architect (formerly MiniCAD) by Nemetschek-USA (www.nemetschek.net/architect), or ArchiCAD by Graphisoft (www.graphisoft.com).

The other option is to use a Windows emulator such as VirtualPC, which actually installs a working copy of Windows98 on your Mac. You can then run any Windows CAD program, albeit slowly. Your Mac will take quite a performance hit running a Windows emulator.

A good online source for Mac CAD issues is Architosh (www.architosh.com). There are lots of links to shareware and Mac add-ins there, as well as editorial on the state of Mac CAD.

Back-Priming: A Sound Approach

To the Editor:

Bill Feist's advice about back-priming

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siding (*On the House*, 1/01) was correct, but I have a slightly different take on the issue.

The recommendation to back-prime the lower half of the back, bottom edge, and ends to retard water absorption is certainly good. However, most builders find this approach too time-consuming. Pretreating the entire board with water repellent is also great advice, but again, most builders won't do this either. However, builders will and do purchase preprimed wood siding.

Preprimed wood siding, as Bill points out, retards absorption of water, which can be soaked up by the raw back of wood siding. The stated penalty for back-priming is that if water gets into the siding through cracks, splits, etc., it has more trouble getting out of the wood. But, the perm rate of primer is greater than 7, so I think that vapor is still able to leave the back side of preprimed wood in a reasonable amount of time.

Our research and field studies have shown that deposition of water soluble extractives on housewraps can cause them to leak. We also found that water can be drawn through many housewraps by capillary suction. Therefore, it is very important to keep the back of wood siding dry. Vented rain screens are best; full water-repellent treatment is next best. But in my opinion, full priming is still a good idea.

Paul R. Fiset, Director
Building Materials & Wood Technology
University of Massachusetts, Amherst

Replacing Yourself

To the Editor:

I've been training my own replacements for years and never really thought about it. Rick Stacy's approach to formalizing the arrangement with employees makes terrific sense (*Strictly Business*, 2/01). What a great way to target the best minds and hearts out there and bring them into your company. If I'd had seen a help wanted ad written like Rick's 20 years ago, I'd have responded right away.

Mike Guertin
East Greenwich, R.I.

Clear Span Preferences

To the Editor:

Following up on a question put to me by an architect/client for whom I frequently design clear span living spaces over garages, I reviewed the article "Framing Living Space Over a Garage" (12/00), specifically the case the author presents for 2¹/₄x16-inch clear span I-joists. My architect friend asked if we'd made a mistake in a similar design where we used 11⁷/₈-inch TJI/Pro 550 I-joists.

For the record, my method for selecting wood I-joists is to use the "Improved Performance" L/480 span tables in the TrusJoist MacMillan catalog. This assures me of exceeding my usual rule, which is to use the L/360 criterion applied to total deflection for live loads plus dead loads. For 40 psf + 10 psf loads, the live load deflection criterion resulting will be L/450. My clients have been happy with this criterion.

I note that Mr. Madera's actual Case 1 study results in a 14% greater total load deflection than his stated L/600 criterion. Also, his stated allowable deflection of .54 inch exceeds his stated L/600 criterion — apparently a computational error. The final live load deflection is less than L/600, which I assume may have been his actual intent. Using my approach results in a suitably (in my opinion) stiff floor in an assembly over 4 inches shallower.

While we differ on how to get there, and to some extent on the criterion, Mr. Madera and I agree that an appropriate selection will result in a floor considerably stiffer than "code minimum." This case comparison highlights the potential confusion many people experience. The confusion is worsened by text that says his deflection criterion is L/600 total deflection, which is not supported by the case presented. Frankly, I think that L/600 total load deflection would be unnecessarily conservative.

A report by Benjamin Wisniewski and Dr. Harvey Manbeck (*Frame Building News*, 11/00) describes research suggesting that long-term

deflection under load, known to us engineers as "creep," may be about 57% greater in OSB/lumber composite I-beams than in floors framed with sawn lumber and 15% higher than current design specifications for creep in wood joists. This study serves to confirm something I have occasionally experienced in the field, that "engineered lumber products" fall a little short of predicted performance. It provides a sound justification for conservatism in sizing.

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

Joe Madera responds: It was the purpose of my article to present basic and workable designs for a number of increasingly common framing scenarios that could be used as a guide when framing a "typical" 24x24 foot space over a two-car garage. These designs will, I feel, provide sound and aesthetically pleasing results.

As Mr. Randall points out, there was an error in the deflection figures shown. The total load figure should have read .555 inch with a L/504 ratio and a live load of .44 inch at L/634 (assuming a 2x6 bearing wall minus 1 inch for rim board at each end). While Mr. Randall's design certainly works for him and his clients, I still find my design of a 16-inch-deep BCI-60 I-joist to be preferable. Let me explain.

Many times a client's original plan will call for a spare bedroom or storage area to fit over the two-car garage. All well and good until during construction, the client discovers that this 576-square-foot area is bigger than the master bedroom suite and decides that the king-size water bed and leather couch would be perfect in this new space. The problem is that the joists were originally sized for a little-used area.

While they still pass all design codes, these joists either fall short in excess deflection (admittedly a judgement call) or, if there are no interior partitions to provide dampening, vibration.

I quote from Boise-Cascade Technical Bulletin #7: "Floor vibration is generated from dynamic loading, such as a person walking across a floor ... floor systems with longer duration and lower frequency vibration generate complaints from its occupants. It is important to note that the presence of floor vibration does not mean that the joists are close to failure." While my choice of a 16-inch joist depth might seem like design overkill, additional information on the problem of vibration helps to clarify my position.

Tech bulletin #7 goes on to say: "Problem vibration is most likely to occur in floors that include structural members with a relatively high strength to weight ratio ... Experience has shown that typical vibration problems may occur when the span to depth ratio exceeds ... 15.5 for 11⁷/₈" joists." Mr. Randall's 3¹/₂x11⁷/₈-inch joist has a span to depth ratio in the neighborhood of 23.7, which, if not addressed by the addition of solid blocking or strapping, could prove unsatisfactory.

I agree with Mr. Randall that there is "potential confusion" and I apologize for my part in contributing to that confusion. To some extent there is an art to designing floors and, while we may differ in our conclusions, our aim should always be to provide an end result that pleases both functionally and structurally.

Kill Those Beetles

To the Editor:

Regarding the story on pine sawyer beetles (Notebook, 1/01), I have heard of a process that involves tenting the

building and heat treating it with dry air to kill insects and their larva (Notebook, 12/01). Perhaps the builder should contact the National Pest control Association or a university entomologist for further information. It seems like this would be cheaper than rebuilding the houses.

John Cahill
Cahill Inspection Services
Plano, Texas

Mind the Knees, Please

To the Editor:

Having worked in construction for 55 years, I have a safety complaint concerning the article on stair railings (2/01). It has to do with kneeling on the floor without kneepads or knee protection. Over 50 years ago, the Minneapolis Gas Company would fire any person kneeling without padding, because they had learned the cost of such a habit to their employees' knees. I have preached that gospel ever since. So I am bothered by an article that shows a young person starting down the road to becoming an insurance case in a few years.

Hank Parker
via e-mail

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